Berkman
The Berkman Center for Internet & Society
at Harvard University

Annual Report
Academic Year 2015-2016

EXECUTIVE SUMMARY

An interdisciplinary, University-wide center with a global scope, the Berkman Center has continued its unparalleled track record of leveraging exceptional academic rigor to produce real world impact during the 2015-2016 academic year. In last year's Annual Report, we recognized how the Berkman Center has catalyzed dozens of projects and initiatives concerning the Internet in law and policy, education and public discourse, and access to information. This year, we have continued to push the edges of scholarly research, build tools and platforms that break new ground, facilitate new ways of learning both within the classroom and beyond, and foster active networks across diverse communities. Updates and significant milestones related to each of these thematic areas are described in the following sections of the Executive Summary.

We build.
We continued our method of learning by building, continuing to design, code, and construct. Our in-house team of developers help us translate research into action, converting raw ideas into practical tools and platforms. Specifically, this year the Berkman Center has shined in building tools that preserve and monitor access to information.

One major project, Internet Monitor, aims to evaluate, describe, and summarize the means, mechanisms, and extent of Internet content controls and Internet activity around the world. In Fall 2015 at the World Economic Forum in Geneva, we launched the Internet Monitor Dashboard, a freely accessible tool that aims to improve information for policymakers, researchers, advocates, and user communities working to shape the future of the Internet by helping them understand trends in Internet health and activity through data analysis and visualization. In the nine months since it launched, more than 13,000 people have accessed the dashboard.

In November 2015 we announced exciting developments for our pioneering Chilling Effects project, including new international partnerships and a name change to "Lumen." Launched 15 years ago, the Lumen database is the definitive source for worldwide requests to remove content from the Internet; it currently hosts approximately four million notices submitted from companies such as Google, Twitter, and Wikipedia, referencing more than 1.9 billion URLs. On average, more than one million people from more than 190 countries visit the database every month.

In January 2016 we released Amber, a free open source tool that preserves content and prevents broken links, to the public after months of beta testing. Within six months the software had been downloaded over 1,500 times. When installed on a blog or website, Amber can take a snapshot of the content of every linked page, ensuring that even if those pages are interfered with or blocked, the original content will be available. Amber extends the mission of Perma, a project of the Library Innovation Lab at the Harvard Law School Library that helps scholars, courts, and others create web citation links that will never break. More than 300 universities, libraries, and organizations have contributed more than 100,000 cited resources to the Perma service, which was honored with a Webby award in 2015.

We study.
We have continued to leverage research, expertise, and convening power to deeply and practically study hot-button issues and understand them in their structural context. Our entrepreneurial spirit this year has inspired us to pioneer new areas of study and seek to understand the complex topics of encryption, financial and Internet governance, and municipal Internet access.

As part of the Berklett Cybersecurity project, we have informed the encryption debate. Launched in 2015, this project convenes a diverse group of experts from academia, civil society, and the US intelligence community to explore and evaluate the roles and responsibilities of the US government in promoting cybersecurity. To date, the project has convened six meetings and published an influential report, "Don't Panic: Making Progress on the 'Going Dark' Debate," which distilled the group's conversations on the claims and questions around the FBI sounding alarms that the surveillance landscape is "going dark" due to the introduction of strong encryption and other warrant-proof technologies into mainstream consumer products. The report, which received widespread media attention and has been downloaded more than 100,000 times, has generated multiple interactions with law enforcement officials, key White House staff, elected officials on the Hill, and leaders of intelligence agencies abroad. The report continues to play a role as the broader discussion continues.

The recently launched Digital Finance Initiative explores the legal and social impact of interoperable digital platforms for finance and property rights, including greater access for ordinary individuals to financial services and economic governance. It aims to help create transparency in the regulatory systems that govern finance and property, provide clarity, and offer guidance where there are gaps in our legal and social systems. Through knowledge-sharing workshops and discussions, the project fosters connections and collaborations that contribute to the Digital Knowledge Base, a curated database currently in development, to track scholarship, legislation, and regulatory activity in the shared ledger and digital finance communities.

In March 2016, the Berkman Center was asked by the National Telecommunications & Information Administration of the United States Department of Commerce (NTIA) to serve on

an independent expert panel to conduct a thorough review and assessment of Internet Corporation for Assigned Names and Numbers (ICANN)'s CCWG Accountability Recommendations in order to determine the extent to which they comply with good governance principles. The review is part of ICANN's transition of key Internet domain name functions stewardship to the global stakeholder community. We are pleased to have completed this report, which will be released in July 2016, together with NTIA's broader report about the transition.

Our Municipal Fiber Initiative is also working to help municipalities—initially in Massachusetts, where very few municipalities have tried to provide Internet access—understand and seize opportunities in sensible, incremental ways. The project aims to document the experiences of municipalities, convene municipal leaders for information sharing, and catalyze sensible regional efforts in the public interest. Since its launch in 2015, the project has released three case studies, the most recent of which, "WiredWest: Cooperative of Municipalities Forms to Build a Fiber Optic Network," was covered by regional media including the *Boston Globe* and WBUR. Among other things, the study looks at why many towns still lack high-speed Internet access, despite a government-funded fiber optic network aimed at bringing broadband to places the private sector has avoided.

We educate.
We have continued our dedication to education, facilitating new ways of learning both inside and outside the classroom. Not only have our faculty and affiliates taught and mentored across the University and beyond the gates of Harvard, we have continued to build platforms to facilitate new ways of learning.

The Digital Problem-Solving Initiative (DPSI) is an innovative, collaborative project, supported by the Dean of Harvard Law School and the President of Harvard University, that brings together students from Harvard College, faculty, fellows, and staff to work on projects that address challenges and opportunities across Harvard University. DPSI offers participants a novel opportunity to engage with research, design, and policy relating to the digital world. This spring, more than 120 people participated in a series of six interactive workshops that DPSI hosted on topics such as online harassment and privacy, data visualization, and how to attract more people to computer science.

The Center is also home to Harvard Law School's Cyberlaw Clinic, which provides pro-bono legal services to appropriate clients on issues relating to the Internet, technology, and intellectual property. During the past year, nearly 60 students enhanced their preparation for high-tech practice and earned course credit by working on real-world litigation, client counseling, advocacy, and transactional licensing projects and cases. The Clinic strives to help clients achieve success in their activities online, mindful of (and in response to) existing law, and works with clients to shape the law's development through policy and advocacy efforts. Recently, the Clinic contributed to comments related to the Digital Millennium Copyright Act (DMCA) safe harbor provisions, copyright's anti-circumvention law, and drone registration requirements, as well as amicus briefs in cases dealing with topics such as the extraterritorial scope of the Fourth Amendment, First Amendment protections for those who post so-called "ballot selfies," and copyright in standards and legal codes.

CopyrightX is a hybrid, networked course that explores the current law of copyright through a combination of recorded lectures, assigned readings, weekly seminars, live interactive webcasts, and online discussions. Launched in 2013, the course is made up of online sections, affiliated

courses, and the Harvard Law School Copyright course. Harvard students serve as teaching fellows for the online sections, and lead their students in weekly realtime seminars and discussion in online forums throughout the 12-week course. In 2015, there were 18 affiliated courses located around the world in places such as Cairo and Beijing, and 374 students enrolled in the online course.

We connect.
As the locus of a vibrant network, we are committed to advancing the best values of the Internet and exploring distributed, cooperative solutions. This year in particular we have fostered international networks to address global questions.

Launched in 2012, the Global Network of Internet and Society Research Centers (NoC) is a collaborative initiative among academic institutions with a focus on interdisciplinary research on the development, social impact, policy implications, and legal issues concerning the Internet. It was incubated by the Berkman Center and now represents more than 70 centers from 26 countries on six continents. One of the newest network participants is the Digital Asia Hub, an independent nonprofit Internet and society research think tank incubated by the Berkman Center and based in Hong Kong. We were pleased to see Berkman-led NoC research on online intermediary liability have visible real-world impact last year when our findings were considered in the context of a landmark Supreme Court case in India, presented to the South Korean National Parliament, and referenced in an EU strategy report. Similarly, the Berkman-hosted Digitally Connected network, in collaboration with UNICEF, has expanded its reach and deepened connections among researchers, activists, and policymakers who work together to leverage the potential of digital technologies for the benefit of children and young people in the Global South and beyond.

In Fall 2015, the Berkman Center was thrilled to have received a generous gift of $15 million from Harvard Law School alum Mike Klein (LLM '67), the co-founder and chairman of the Sunlight Foundation. As of July 1, 2016, the Center will transition to become the Berkman Klein Center for Internet & Society. At a time when the opportunities and challenges of an increasingly networked world abound and digital transformations are profoundly shaping the future of society, this gift will not only provide vital core support but will also allow the Center to start new explorations, launch innovative programs, and incubate novel collaborations both nationally and internationally.

The gift ensures the rare liberty for the Center to plan and build according to imagination and conscience. In particular, this gift will help us to build new and enhanced interfaces between the worlds of computer science, engineering, law, governance, and policy through powerful research initiatives, educational programs, and outreach efforts, bringing together the best know-how from both academia and practice, and engaging the next generation of technology and policy leaders and makers. A formal public announcement to this effect will be released to the Harvard Community in July 2016.

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I. Report of Activities

A. Teaching, Practice, and Advocacy

Since the Berkman Center's inception, its top priority has been educating across the wide range of our areas of inquiry.

1. Contributions to Harvard's Teaching Programs

The Center's faculty, staff, and fellows taught a number of courses during the 2015-2016 academic year, including:

Fall 2015

- "Advanced International Trade," a seminar taught by Assistant Professor of Law and Berkman Center Faculty Director Mark Wu at Harvard Law School;

- "Advanced Topics in Evidence: The Truth," a seminar taught by Harvard Law School William F. Feld Professor of Law and Berkman Center Faculty Director Charles Nesson;

- "City Use of Technology," a course taught by Clinical Professor and Berkman Center Faculty Director Susan Crawford at Harvard Law School;

- "Computer Science 324 - Human Computer Communication through Natural, Graphical, and Artificial Languages," a course taught by James O. Welch, Jr. and Virginia B. Welch Professor of Computer Science and Berkman Center Faculty Director Stuart Shieber at the Harvard School of Engineering and Applied Sciences;

- "Controlling Cyberspace: Shaping Online Content," a 1L reading group taught by George Bemis Professor of International Law and Berkman Center Faculty Director Jonathan Zittrain at Harvard Law School;

- "Counseling and Legal Strategy in the Digital Age," a seminar taught by Clinical Professor and Berkman Center Faculty Director Christopher Bavitz and Cyberlaw Clinic Assistant Director Dalia Topelson Ritvo at Harvard Law School;

- "Cyberlaw Clinic Seminar," a seminar taught by Christopher Bavitz and Dalia Topelson Ritvo at Harvard Law School;

- "Ethnography of Science and Technology," a course taught by Frederick S. Danziger Associate Professor and Berkman Center Faculty Associate Sophia Roosth at Harvard College;

- "International Regimes for Cyber Space," a course taught by Harvard University Distinguished Service Professor and Berkman Center Faculty Associate Joseph Nye at the Harvard Kennedy School;

- "Italian Literature: Supervised Reading and Research," a course taught by Berkman Faculty Director Jeffrey Schnapp at Harvard College;

- "Olympic Ideal, Boston Bid, and the Future of Sports Education," a seminar taught by Charles Nesson at Harvard Law School;

- "Technology, Justice, and the Delivery of Legal Services," a 1L reading group taught by Christopher Bavitz and Clinical Professor Esme Caramello at Harvard Law School;

- "Future of Online Privacy," a 1L reading group taught by Professor of Practice and Berkman Center Executive Director Urs Gasser at Harvard Law School; and

- "The Empire Strikes Back: Science Fiction, Religion, and Society," a course taught by Sophia Roosth and Faculty of Arts & Sciences Professor Ahmed Ragab at Harvard College.

Winter 2016

- "Problem Solving Workshop," a 1L law student seminar taught by Susan Crawford at Harvard Law School; and

- "JuryX: Deliberation for Social Change," a seminar taught by Charles Nesson at Harvard Law School.

Spring 2016

- "Big Data in Marketing," a course taught by Professor Harold M. Brierley Professor of Business Administration and Berkman Center Faculty Director John Deighton at Harvard Business School;

- "Communications and Internet Law and Policy," a course taught by Jack N. and Lillian R. Berkman Professor of Entrepreneurial Studies and Berkman Center Faculty Director Yochai Benkler at Harvard Law School;

- "Comparative Online Privacy," a seminar taught by Urs Gasser at Harvard Law School;

- "Computer Science 51 - Introduction to Computer Science II," a course taught by Stuart Shieber and Harvard Faculty of Arts & Sciences Professors Regan Williams, Kevin Li Huang, and Elana Pearl Simon;

- "Copyright," a course taught by WilmerHale Professor of Intellectual Property Law and Berkman Center Faculty Director Terry Fisher at Harvard Law School (offered concurrently as an online course; in addition to the Executive Summary, please see "CopyrightX" in the section on research and scholarship below for further detail);

- "Cyberlaw Clinic Seminar," a seminar taught by Christopher Bavitz and Dalia Topelson Ritvo at Harvard Law School;

- "Fair Trial," a course taught by Charles Nesson at Harvard Law School;

- "Field Course: Nonprofit Clinic: Tackling Inequality," a seminar taught by Andreas Andresen Professor of Business Administration in the Strategy Unit and Berkman Center Faculty Director Felix Oberholzer-Gee at Harvard Business School;

- "Italian Literature: Supervised Reading and Research," a course taught by Jeffrey Schnapp at Harvard College;

- "International Trade Law," a course taught by Mark Wu at Harvard Law School;

- "Law and the International Economy," a course taught by Mark Wu at Harvard Law School;

- "Leadership and Ethics in American Foreign Policy," a course taught by Joseph Nye at the Harvard Kennedy School;

- "Making Sense: Language, Logic, and Interpretation," a course taught Stuart Shieber and Harvard Faculty of Arts & Sciences Professors Gennaro Chierchia and Virginie Greene at Harvard College;

- "Music and Digital Media," a seminar taught by Christopher Bavitz at Harvard Law School;

- "Rhetoric and Public Discourse," a seminar taught by Jonathan Zittrain at Harvard Law School;

- "Teaching Copyright," a course taught by Terry Fisher at Harvard Law School;

- "Technology and Inequality," a course taught by Yochai Benkler at Harvard Law School; and

- "Torts 1," a course taught by Jonathan Zittrain at Harvard Law School.

Berkman Center faculty, staff, and fellows also taught special learning opportunities during the 2015-2016 year, including:

- "Appropriate Memories: A Photography Remix Studio," a four-day workshop taught by metaLAB artist-in-residence Sarah Newman and metaLAB Associate Director Matthew Battles at the Carpenter Center for Visual Arts in January 2016; and

- "Free the Law Wintersession Sprint," a two-week workshop taught by the Harvard Law School Library Innovation Lab staff at Harvard University in January 2016.

2. The Cyberlaw Clinic

The Berkman Center's Cyberlaw Clinic engages Harvard Law School students in real-world litigation, licensing, client counseling, advocacy, and legislative projects and cases covering a broad spectrum of legal issues. The Cyberlaw Clinic was the first of its kind and continues its tradition of innovation in this area.

In recent years, the Clinic has grown dramatically in popularity due to the breadth and complexity of its projects, the variety of clients it serves, the sophistication of its pedagogy, and the richness of the connections it develops for its students among theory, doctrine, and practice.

The Cyberlaw Clinic enrolled 30 students in Fall 2015, 4 continuing students in Winter 2016, and 31 new and continuing students in Spring 2016 for a total of 65 student slots during the 2015-2016 academic year. Those students enrolled for a total of 167 credits over the course of the year, and the Clinic's supervising attorneys managed more than 10,000 hours of student work.

During the summer, the Clinic welcomes students from a diverse range of law schools in order to continue its ongoing work for existing clients and help with intake for the coming year. In Summer 2016, the Clinic brought on one law student summer intern.

Substantive Practice and Client Base
During the 2015-2016 academic year, the Clinic continued to focus its work on a number of key subject areas, including: litigation, intellectual property, privacy, online safety, free speech and media law, digital civil liberties, government innovation, communications infrastructure, regulatory compliance, and technology and access to justice. The Clinic's work in these areas runs the gamut from preparing legal research memoranda for clients to drafting transactional and public-facing policy documents to representing them in court proceedings as litigants or amici curiae. The Clinic served a growing number of clients and a wider range of clients than ever before, including individuals, small start-ups, nonprofit organizations, academics, and government entities. Simultaneously, the Clinic intensified its strategy to integrate student representation and legal support with research projects at the Berkman Center. For example:

- The Clinic submitted an administrative comment on behalf of Christopher Bavitz and Berkman Center Project Coordinator Adam Holland in connection with the Copyright Office's evaluation of Section 512 of the United States Copyright Act.

- The Clinic supported the work of the Berkman Center's Youth & Media project to educate teachers about fair use.

Clinic students also provided representation to a wide variety of clients not affiliated with the Berkman Center throughout 2015-2016, including mission-driven startups, governmental organizations, advocacy groups, and arts and cultural institutions.

Teaching and Pedagogy
The Clinic staff continued to refine the program's mode of engaging with students inside and outside the classroom, revamping the Cyberlaw Clinic Seminar to accommodate an expanded student roster. The class offered students opportunities for teaching about practice and professional responsibility issues that arise when counseling clients on matters relating to

technology, intellectual property, privacy, and speech. It also permitted students to participate in skill-building exercises and—perhaps most importantly—regular case rounds sessions in which they shared information about their projects and learned from one another. The Clinic's supervisors taught other courses and engaged in other teaching initiatives this year as well, as noted under the heading "Contributions to Harvard Teaching Programs" above.

Representative Cases and Matters
A few notable examples of cases and projects handled by Clinic students during the past academic year include the following.

(a) Litigation. The Clinic, both directly and working in tandem with law firms located around the United States, has represented individuals and organizations in connection with pre-litigation disputes and active litigation across subject areas ranging from intellectual property to media law. Of particular note in 2015-2016:

- The Clinic handled several matters involving freedom of information laws, including an administrative appeal of a federal agency's denial of a researcher's request for documents made under the Freedom of Information Act in which the Clinic and its client prevailed.

- The Clinic represented a website operator in an ongoing domain name dispute with a government entity.

(b) Intellectual Property. Copyright and other intellectual property issues remained near the top of the Clinic's docket. Of particular note:

- Spearheaded by Berkman Center Corydon B. Dunham First Amendment Fellow and Clinical Instruction Fellow Andy Sellars, the Clinic succeeded in obtaining an exemption for a coalition of medical device researchers from the technological protection measures present in implantable medical devices, including pacemakers, defibrillators, and glucose monitors. Many device manufacturers use encryption methods as a copyright protection measure that researchers must break in order to evaluate the security and effectiveness of such devices, or even the data these devices contain about their own medical conditions, which is why the coalition sought an exemption to the DMCA during the Library of Congress's triennial rulemaking process to grant these exemptions.

- The Clinic filed amicus briefs in the United States District Court for the District of Columbia on behalf of a coalition of law scholars in a pair of cases examining the copyright status of model codes and standards—such as fire and electrical codes—that were originally developed by private organizations but later incorporated into the law. The brief argues that such codes are not proper subjects of copyright protection since the Supreme Court has long recognized that the law belongs in the public domain. Furthermore, such codes are subject to copyright's merger doctrine once they are incorporated into the law, for "there is only one way to express what the law of a jurisdiction is, and that is the text of the law itself."

The Clinic advised clients on copyright and trademark matters, including extensive counseling of a documentary film team about copyright questions, licensing, and fair use and intellectual property matters and advising of clients about the viability and registrability of proposed trademarks.

(c) Privacy and Data Security. As public concern continues to mount over the privacy and security of the information people entrust to the digital devices and services they use every day, privacy has grown into the Clinic's single busiest practice area. A significant majority of the projects the Clinic takes on now involve a privacy component, but some of the highlights of our work this year include:

- Clinic students contributed to the Electronic Privacy Information Center's (EPIC) November 12, 2015 comments, submitted to the Federal Aviation Administration (FAA) in connection with an inquiry regarding registration of Unmanned Aircraft Systems. In the comments, EPIC expressed support for registration but raised concerns about public availability of personal information of registrants. The FAA's Interim Final Rule on this subject, issued on December 16, 2015, cited EPIC's comments extensively.

- Dalia Topelson Ritvo and Clinical Instructor Vivek Krishnamurthy teamed up with Sarah Altschuller in the Corporate Social Responsibility practice of the law firm Foley Hoag LLP to prepare a guide titled "Managing Users' Rights Responsibly—A Guide for Early-Stage Companies." A number of Cyberlaw Clinic students contributed to the project, which seeks to provide an overview of challenges that companies face when dealing with third-party requests to access or suppress information relating to customers.

(d) Online Safety. The Cyberlaw Clinic continued to promote online safety, especially youth online safety, through a wide range of collaborations concerning privacy and related issues. Of particular note, Dalia Topelson Ritvo, with the help of Clinic students Crystal Nwaneri and Makala Kaupalolo, published an updated guide to help K-12 schools navigate the federal laws that apply when introducing networked technologies both in and out of the classroom. The goal of the guide is to help schools, administrators, and teachers make more empowered decisions on how to use networked technologies in a way that complies with federal laws protecting student privacy.

(e) Free Speech and Media Law. The Cyberlaw Clinic has been very active in addressing the broad spectrum of legal issues faced by those who express themselves online or host the expression of others on services that they operate. The Clinic has provided advice and counsel in matters involving First Amendment issues, defamation claims, and anonymous speech online. Of particular note this year:

- In April 2016, the Clinic filed an amicus brief in the United States Court of Appeals for the First Circuit on behalf of the New England First Amendment Coalition (NEFAC) and the Keene Sentinel in Rideout v. Gardner, No. 15-2021. The case concerns a New Hampshire law that aims to ban "ballot selfies"—i.e., photos of completed ballots that are posted on social media. The brief argues that the law is unconstitutional under the First Amendment, as it prohibits a variety of speech important to monitoring the government, educating voters, and engaging in political debate. The brief also raises specific examples of times when photographs of ballots helped the public clear up misunderstandings about government conduct, demonstrated how to ensure that one's vote would be counted, and conveyed messages about civic participation and advocacy for a candidate that could not be expressed with words alone.

- The Clinic supported Public Citizen and the Electronic Frontier Foundation in filing an amicus brief in the case, Small Justice LLC v. Xcentric Ventures LLC, pending before

the United States Court of Appeals for the First Circuit. The case raises important questions about the interplay between copyright law and laws protecting free expression, including the immunity granted to platforms that host content uploaded by users pursuant to Section 230(c) of the Communications Decency Act.

(f) Digital Civil Liberties. From local police forces seizing and searching an individual criminal suspect's electronic devices to the NSA's mass surveillance programs that were disclosed by Edward Snowden in his 2013 revelations, the question of how our civil liberties should be protected in this "golden age of surveillance" against government incursions big and small continues to be headline news. During the past year, the Cyberlaw Clinic has continued to work with leading domestic and international civil liberties organizations to study the legality of a range of surveillance and investigative techniques used by governments here in the US and around the world. Our work has ranged from evaluating how various actors can shed more light on the scope and scale of government information requests, to advising our clients on possible avenues for reform through legislation and litigation. Of particular note:

- In Fall 2015, the Clinic prepared a major research memorandum for Amnesty International evaluating the options available to the US government to regulate encryption technologies in response to the so-called "going dark" problem. This work, which is featured in the Spring 2016 issue of the *Harvard Law Bulletin*, anticipated many of the arguments that were made in the court proceedings that attempted to compel Apple to decrypt the San Bernardino shooter's iPhone.

- In November 2015, the Cyberlaw Clinic filed an amicus brief in the Supreme Judicial Court of Massachusetts on behalf of the American Civil Liberties Union of Massachusetts in Commonwealth v. Estabrook, SJC–11917. The case concerns when it is permissible for the police to seize a cell phone without first obtaining a warrant, particularly in light of the "remote wipe" features that are built into most modern smartphones. The Clinic's brief for the ACLU argues that warrantless seizures of cell phones are only justified when there is evidence to suggest that a remote wipe is imminent, and that the police must obtain a warrant promptly thereafter to continue holding the phone until its contents are searched.

- In May 2016, the Cyberlaw Clinic and attorney Mahesha Subbaraman of Subbaraman PLLC submitted an amicus brief to the United States Court of Appeals for the Ninth Circuit on behalf of civil liberties advocacy organization, Restore the Fourth, in the case Rodriguez v. Swartz. The case has potentially far-reaching implications regarding the scope and continuing viability of United States v. Verdugo-Urquidez, 494 U.S. 259 (1990)—in which the United States Supreme Court addressed the applicability of the Fourth Amendment to a search of a Mexican citizen's home in Mexico—and more broadly about the extraterritorial reach of the Fourth Amendment's protections.

- The Clinic has continued to collaborate with the Global Network Initiative (GNI), a multistakeholder group of companies, civil society organizations (including human rights and press freedom groups), investors, and academics that have adopted a collaborative approach to protecting and advancing freedom of expression in the information and communications technology sector. Dalia Topelson Ritvo continued to serve as a full member of the GNI's Board of Directors, while Vivek Krishnamurthy was appointed to the GNI's Policy Committee representing the academic constituency.

(g) Government Innovation. During the 2015-2016 academic year, Clinic students worked on a number of government technology projects in partnership with the mayor's offices of the City of Boston and the City of Cincinnati, including creating a one-stop online shop for senior/low-income programs, work on city ordinances that affect access to poles for fiber optic lines, creating "data governance" relationships between the mayor's office and city agencies, and work on privacy issues arising from government releases of open data.

(h) Communications Infrastructure. Berkman's Team Fiber, comprised of students from Harvard Law School and beyond, met frequently throughout the 2015-2016 year and published white papers about the state of municipal fiber projects in Western Massachusetts and the potential for use of E-Rate funds to support fiber installations. We expect that Team Fiber will become even more active during the 2016-2017 academic year with the launch of the Responsive Communities Lab, which will allow students to receive credit for Team Fiber work.

(i) Technology and Access to Justice. The Cyberlaw Clinic continued to do work to promote the use of technology to facilitate the delivery of legal services and, thus, access to justice. Among other things, in Fall 2015 the Clinic collaborated with another HLS clinical program to develop a prototype of a tool that helped applicants for certain state benefits evaluate eligibility and calculate their likely benefits. The prototype was built using the A2J Author platform.

Clinic Events and Outreach

Clinic staff organized and participated in a variety of events and outreach to the HLS community and beyond during the past year, including the following:

- Vivek Krishnamurthy organized an international symposium in June 2015 bringing together representatives of government, business, academia, and civil society to discuss how and when data stored "in the cloud" with multinational companies should be disclosed to governments for law enforcement purposes.

- On September 24, 2015, the Clinic worked with the Berkman Center and the Harvard Journal of Law & Technology to present a talk titled "Functionality and Expression in Computer Programs: What the Court got Wrong in Oracle v. Google." The event featured Berkeley Law professor Pam Samuelson.

- Susan Crawford took part in a conversation with Maine Senator Angus S. King, Jr. and R. David Edelman, Special Assistant to the President for Economic and Technology Policy, during Digital New England: A Summit for Regional Broadband Leaders in September 2015.

- Susan Crawford spoke at the Queens University of Charlotte in October 2015 on the subject of her book, *The Responsive City*, examining the impact of new information technologies on civic life and the social and economic impact of fiber networks.

- On October 6, 2015, Christopher Bavitz moderated a discussion presented by the Berkman Center, featuring pioneering figures in the field of podcasting and Internet audio. The event, titled "State of the Podcast," addressed how podcasting emerged and

what trends could be determining its future.

- On October 20, 2015, the Clinic co-presented the HLS Law, Science, and Tech Program of Study Mixer, bringing together students from around HLS with an interest in law and technology.

- In October and November 2015, the Clinic co-presented—in conjunction with Greenberg Traurig and the Harvard Law Entrepreneurship Project—a two-part series titled "From the Ground Up," which examined fundamental issues for startups involving corporate law, intellectual property, and immigration issues.

- On December 4, 2015, the Clinic helped present an event titled, "Privacy & Europe: Debating the 'Right to be Forgotten,' Trans-Atlantic Data Flows, and the World's Toughest New Privacy Laws" with Google's Global Privacy Counsel, Peter Fleischer.

- Vivek Krishnamurthy spoke at a symposium on "Big Data and Policing" organized by the Harvard Law and Policy Review in February 2016 alongside Elizabeth Joh from UC Davis and Thomas Abt from the Harvard Kennedy School.

- On March 24, 2016, Chris Bavitz moderated a panel discussion regarding the role of states in protecting consumer privacy as part of a Data Privacy Forum hosted by the Massachusetts Attorney General's Office, in partnership with the MIT Computer Science and Artificial Intelligence Lab (CSAIL) and Internet Policy Research Initiative, the Berkman Center, and other stakeholders.

- Vivek Krishnamurthy traveled to San Francisco in March for RightsCon 2016 and spoke on panels on how companies in the ICT sector should remedy the human rights harms they sometimes create and on the challenges facing early-stage tech companies in respecting the human rights of their users.

- Susan Crawford spoke during HLS's Alumni Reunion weekend in March 2016 on how the post-fiber optics world will change us.

- On March 24, 2016, Christopher Bavitz joined David Herlihy, Jessica Silbey, and Alvin Carter for an event titled "The Music Industry in the Digital Age: Music Making, Music Distribution and Music Copyright in the 21st Century," which was presented by the New England Chapter of the Copyright Society of the United States.

- On April 9, 2016, Christopher Bavitz moderated an HLS Alumni Weekend event regarding technology and the law.

- Susan Crawford gave a talk as part of the Berkman Center Luncheon Series entitled "Why the Right Digital Decision Will Make America Strong" in April 2016. She spoke about the current state of Internet infrastructure in the United States, the critical challenge faced by the United States in being competitive economically, and creating a 21st-century workforce if the disparities in access are not rectified.

- On May 31, 2016, Dalia Topelson Ritvo and Cyberlaw Clinic Project Coordinator Kira Hessekiel led a Berkman Luncheon Series discussion on corporate structure and internal governance models for open-source software projects, based on research conducted for a guide aimed at the open-source community.

Members of the Clinic's teaching team continued to engage with the broader public through writing and interactions with media. Notable examples include:

- Susan Crawford writes a regular column for Medium.com's Backchannel, a blog dedicated to the tech world. Some of the highlights from the past year include "Big Cable Owns Internet Access. Here's How to Change That," "Crossing the Digital Divide on Chicago's Toughest Streets," and "I Have Seen the Future - and It Has a Swedish Accent."

- Vivek Krishnamurthy was interviewed by NPR's All Things Considered in July 2015 on the implications for the tech sector of the relaxation of US economic sanctions against Iran.

- Susan Crawford joined NPR's John Hockenberry on The Takeaway in October 2015 to discuss the release of Freedom House's annual Internet Freedom Report and international fight to determine the nature of the Internet.

- Susan Crawford, Project Fellow David Talbot, and Waide Warner co-authored a Berkman Center case study, "WiredWest: a Cooperative of Municipalities Forms to Build a Fiber Optic Network," detailing the efforts of 31 rural Western Massachusetts towns to band together in order to provide high-speed Internet infrastructure to all homes in their communities.

- Vivek Krishnamurthy was interviewed by OZY on why a law degree can help those interested in a career in tech.

- Clinic student and Berkman research assistant Crystal Nwaneri (JD'17) was awarded a Cravath fellowship to study a Singaporean court ruling allowing retransmission of over-the-air television by a third party, traveling to Singapore in January 2016.

- Vivek Krishnamurthy published a Berkman Center research paper in February 2016 titled "Cloudy with a Conflict of Laws: How Cloud Computing Has Disrupted the Mutual Legal Assistance Treaty System and Why it Matters." The paper explains how the rise of cloud computing increasingly creates situations where evidence of a crime committed in one country is stored digitally on servers located in another country, thus necessitating the need for costly and time-consuming international cooperation to obtain such evidence. It then suggests some outlines of a possible solution that allays the risks that this problem poses to the future of a free and open global Internet.

- Vivek Krishnamurthy was interviewed by CNBC.com in March 2016 on whether computer code counts as free speech in connection with Apple's efforts to fight the US government's attempt to obtain a court order forcing it to decrypt the San Bernardino

shooter's iPhone.

- Christopher Bavitz spoke to Hasit Shah, a Berkman Center affiliate and journalist, about Prince and his interactions with the world of music copyright for a piece for NPR's The Record, which covers music news.

- Vivek Krishnamurthy commented on the role of general counsels in sharing-economy companies in a profile of Airbnb lawyer Belinda Johnson for OZY.

- Vivek Krishnamurthy spoke to Vice's "Motherboard" about the TPP's intellectual property provisions and their potentially negative impact on hacker and security researchers. According to him, these agreements may endanger the security of many devices likely to make up the "Internet of things" in the near future.

- Andy Sellars spoke to Time's Victor Luckerson about presidential candidate Donald Trump's claims that he would shut down parts of the Internet to staunch the activities of terrorist groups online, pointing out that the Internet's decentralized nature is such that no one country can control what is online.

- Dalia Topelson Ritvo spoke to the Washington Post about the use of emojis as a basis for criminal prosecution of threatening violence, following several instances of young people facing charges for using emoji images of guns, bombs, and knives.

- Andy Sellars spoke to The Verge about an iPhone case designed to allow for surreptitious recording of conversations and its compatibility with state and federal tape-recording laws.

- Christopher Bavitz spoke to the Harvard Crimson about HLS's desire to increase the number of students with STEM backgrounds, as well as the Cyberlaw Clinic's growth in popularity among current students.

- Slate Magazine commended Susan Crawford in a story highlighting the women who fought for and won net neutrality, particularly for her leadership in the public debate.

B. Research and Scholarship

The Berkman Center enjoys a global reputation for cutting-edge work centered on the relationships between the Internet, law, and society. Our mode—entrepreneurial nonprofit—embraces our pursuit of scholarly research in the manner and spirit of an academic think tank, anchored by the diverse collaborative and individual work of our faculty and fellows. This year, the Center launched a number of new initiatives and continued work on an extensive array of projects.

1. New Projects

Assembly. Led by Jonathan Zittrain, Senior Researcher David O'Brien, Berkman Fellow Jack Cushman, Research Affiliate Shailin Thomas, Research Associate Tiffany Lin, and Research Associate Samantha Bates, and advised by Jordi Weinstock, the Berkman Assembly project is a forthcoming pilot program (to be launched in January 2017) experimenting with different modes of education, collaboration, and development to work towards solving some of the difficult problems at the intersection of code and policy in digital security. Approximately ten cohort participants of developers and tech industry professionals from the private sector and open source community will participate. The program will be split into two main components: a three-week intensive course that will provide a deep dive into Internet law and policy, followed by a twelve-week development period where the cohort will iterate through the design and development process. Over the fifteen weeks, the cohort will tackle a pressing problem that they define from their experience in code combined with their knowledge in law and policy. Over the past year—with generous support from the Ford Foundation and William and Flora Hewlett Foundation and in collaboration with the World Economic Forum—the project has been in its planning phase, engaging in a series of workshops, informal lunches, and conversations to gather feedback and inspiration from leading companies, government officials, academia, and civil society. In May 2016, the project officially launched and announced its call for applications for its first iteration of the pilot program, which will begin in January 2017.
[https://cyber.law.harvard.edu/research/assembly]

Digital Literacy Resource Platform. Part of the Youth and Media group of projects, the Digital Literacy Resource Platform (DLRP) is a website that hosts an expanding collection of freely accessible educational resources and tools for teachers, youths, parents, and school administrators. The DLRP working prototype was designed and incubated in 2015-2016 as part of a Digital Media and Learning Trust Challenge grant. The educational resources hosted at the DLRP include curriculum modules, guides, videos, infographics, podcasts, and research papers related to the themes of online safety, privacy, creative expression, and information quality. The resources help diverse users to make better choices online, foster positive uses of networked technologies, and support the development of successful strategies to minimize and manage online risks. Users can deploy the tools across different contexts such as school, home, libraries, after school activities, and peer groups. The DLRP working prototype has been visited by thousands of users from around the globe.
[http://dlrp.berkman.harvard.edu]

Executive Education. The Berkman Center is exploring the development of a pilot Executive Education program focused on understanding cybersecurity-related business risks and impacts, which aims to help board members and senior executives build basic literacy of cybersecurity

issues as well as navigate the legal and policy challenges board members face when executing their duties in the midst of a cybersecurity crisis. Digital technology and the Internet are becoming a critical component of every major business and industry. From internal communications to data storage, workflows, and systems, nearly every part of companies has become networked. And for many companies, their products—even traditionally disconnected products like cars and industrial machinery—have become Internet enabled. For that reason, corporate board members and executives increasingly need and want to increase their digital literacy and gain new perspectives on some of today's most significant Internet-related challenges at the intersection of business, technology, and law. The program will seek to foster a practical understanding of cybersecurity through critical business and leadership frameworks, and how these frameworks can be applied effectively in challenging market environments.

The Future of Digital Privacy. *The Future of Digital Privacy: A Navigation Aid for Decision-Makers* by Urs Gasser will be published in 2016 by the MIT Press as part of its Information Policy series. The book is based on Gasser's Comparative Online Privacy seminar taught at HLS and examines the digital privacy issues emerging from current relationships between users and companies. Grounded in interdisciplinary and comparative research, the book provides decision-makers an accessible, yet nuanced, navigation aid for today's digital privacy crises, describes the tools available, and explores methods of securing the future of privacy. The project sprang from the vital contributions of several streams of Berkman-based scholarship. Led by Gasser, a team of research assistants, interns, and staff members from the Berkman Center built upon the work of individual scholars to approach the question about the future of privacy in the digital age from a cross-disciplinary perspective. It also relied on the successful work of the Berkman Center's Privacy Tools Project made possible by the National Science Foundation. Finally, the book incorporated feedback from dozens of students who attended Gasser's seminar at HLS. Publication is scheduled for 2016.

Hewlett Open Data. Led by Jonathan Zittrain, and supported by Research Director Rob Faris, Senior Project Manager Rebekah Heacock Jones, David O'Brien, and Tiffany Lin, the Open Data project aims to facilitate collaboration in the production and sharing of data to inform Internet policy. This includes identifying opportunities to work with companies in the pursuit of more freely and responsibly sharing data with those working in the public interest. Over the past year and a half, the project has surveyed the landscape of publicly and privately held data on Internet infrastructure, online content controls, and online activity, and investigated the challenges and opportunities for sharing data with research partners through discussions and workshops. The project team has conducted two surveys of available Internet data. The first, completed in June 2015, was an extensive review of over 120 private sector sources of Internet data. The second, completed in January 2016, mapped current publicly available data related to Internet adoption and penetration, speed, pricing, and infrastructure. With the goal of facilitating a broader network around this topic, in February 2016, the project held a day-long workshop, "Data-driven Policymaking: Cross-sector Approaches to Reducing the Connectivity Gap" that brought together experts from the private sector, civil society, and academia to discuss the present state of the data landscape relating to connectivity, actors in the ecosystem, how best to guide data collection, and how to leverage collaborations across sectors. Over the next year, the project aims to build on momentum gained with data holders and the academic and policy communities to refine a collective strategy towards improving the available public evidence base for Internet-related research and policymaking.

OSS Governance Project. The OSS Governance Project, led by Christopher Bavitz, Dalia Topelson Ritvo, Andy Sellars, and Kira Hessekiel, aims to address two challenges that open source software organizations face: what formal corporate structure will best suit the organization's needs; and what models for internal governance exist to help organize the community? The project is generously supported by the MacArthur Foundation. Over the course of the 2015-2016 academic year, the team engaged in research to aid open source projects in thinking through both of these challenges combining legal and academic research, consultations with practitioners, and case studies with the goal of producing a guide for the open source community. The OSS Governance Project held a workshop in April 2016 designed to solicit feedback and ideas from a dozen stakeholders in order to align the project's guide with community needs. Additionally, Dalia Topelson Ritvo and Kira Hessekiel gave a presentation on May 31, 2016, of the project's work to date as part of the Berkman Center Luncheon Series, which attracted more than 30 attendees in person and via live-stream. The team expects to publish its guide in the summer of 2016 and hopes to partner with open source stakeholders to ensure the guide reaches its intended audience.

Privacy Research Briefs and Case Studies. Over the last year, with support from the Ford Foundation, the Berkman Center expanded its multidisciplinary work on privacy to better understand how law, technology, policy, and practice can address privacy concerns in the digital age. Three main areas comprise this work: privacy and cybersecurity, student privacy and education technology, and privacy and open government data. Building on existing Berkman efforts, including the Student Privacy Initiative, the Privacy Tools for Sharing Research Data project, and the Berklett Cybersecurity Project, as well as others, this project generated three research briefs that aim to describe landscape shifts, key issues, needs, and opportunities for research, advocacy, and policymaking. These were informed by a series of formal and informal consultations, workshops, and conferences that included broader perspectives from the Center's advocacy and public policy partners, as well as through consultation with the Center's community of experts. In addition, with support from the John D. and Catherine T. MacArthur Foundation, the Center has been developing case studies to identify and evaluate alternative governance mechanisms in data held by the private and public sectors, which will be developed further over the upcoming year.

Responsive Communities Initiative
The Responsive Communities Initiative is an umbrella for those Berkman Center projects aimed at increasing adoption of competitive fiber optic networks providing inexpensive high speed Internet access across entire communities, assisting cities to adopt responsible data governance practices, and building a pipeline of people who will serve in local government.

> **Broadband Project.** The Broadband Project's "Team Fiber," led by Susan Crawford, David Talbot and Rob Faris, expanded its scope of projects and student research body. The group grew out of the Broadband Project deployed in 2009 to help inform the FCC's efforts in developing the National Broadband Plan. This year the Broadband Project's Team Fiber published an independent review of Wired West, a regional approach in rural western Massachusetts to deliver high-speed Internet connections, via a state-of-the-art fiber optic network, to homes and businesses. The report informs other communities of the rural cooperative model's struggles and successes, and its publication made a splash in numerous media outlets. Team Fiber conducted a survey and data analysis, led by Project Coordinator Kira Hessekiel, to determine how the Internet service pricing of municipal ISPs providing fiber-to-the-home differed from their regional private

competitors. The Team expects to publish data and findings in Fall 2016. Team Fiber also convened the first greater-Boston meeting of city data officials to focus on regional fiber optic networks. This motivated the statewide mapping effort that Team Fiber, under the direction of HLS student Danielle Kehl, is undertaking in the next academic year. At the start of 2016, Professor Crawford, along with Senior Advisor and Lecturer on Law Waide Warner, Project Coordinator Maria Smith, and Berkman Fellows Ben Green and Zach Tumin, launched the Responsive Communities Initiative, a multi-disciplinary effort to address some of the most important issues of economic development, social justice, and civil liberties of our time—those prompted by Internet access. In January 2016, Professor Crawford and Ben Green convened a meeting of data privacy experts and a dozen municipal data officers from across the US to discuss their experiences and challenges in protecting individual privacy when releasing open data. Working with a team of students from Harvard, MIT, and Yale, Ben led research on best practices in municipal open data; they are in the process of finalizing a playbook titled "Open data privacy: A risk-based approach to sharing and protecting sensitive information."

Open Government Data. During the 2015-2016 academic year, Susan Crawford convened a number of city data officers from around the country, together with data scientists from MIT and Harvard, to discuss privacy issues in connection with government open data policies. During the 2016-2017 academic year, Berkman Fellow Ben Green will build upon the white paper released following that meeting.

SHARIASource. SHARIAsource is a new initiative of Harvard Law School's Islamic Legal Studies Program (ILSP), built with support from the Berkman Center's Geek Team. Together with ILSP, the Center is developing an online portal of resources and analysis on Islamic law, aiming to be a go-to site for researchers, journalists, and policymakers seeking to grasp the basics and the complexities of Islamic law. The SHARIAsource portal will accomplish this goal by collecting primary sources (court cases, legislation, and fatwas) about Islamic law and offering related scholarly analysis and policy papers. In September 2015, the Center and ILSP held a working group consisting of Islamic legal scholars and experts in library science and technology to introduce a beta version of this portal. Participants discussed site architecture, content, and future visions for the project. Within the last year, the Geek Team has provided substantial scope-setting, debugging, code writing, and technical project management for the portal. SHARIAsource expects to launch a beta version of the portal within the next academic year.

Wikipedia Server Data Analysis. The Wikipedia Server Data Analysis project is a collaborative effort between the Berkman Center and the Wikimedia Foundation with two goals: identify the historical and current inaccessibility of Wikipedia subdomains and articles from Wikipedia's anonymous request volume data, and develop an open source tool that incorporates the same methodologies so that other web hosts can identify inaccessibility of their own properties. The project, led by Director of Technology Sebastian Diaz and Rob Faris with Web Developer Justin Clark, is bringing cutting edge data analysis to the Berkman Center's efforts to identify content inaccessibility on the Internet. The results of this analysis have contributed heavily to a report on Wikipedia's accessibility throughout the world. The team is finalizing, documenting, and packaging the tool for general release.

2. Ongoing Projects

Boston Olympics 2024. After the withdrawal of Boston's bid to host the 2024 Olympic Games, Charles Nesson hosted a discussion, in conjunction with the NAACP of Boston, about the controversial plan and how to move ahead as a community after an emotional rift was created. By engaging with Bostonians at the local level, this project provided residents with a sense of how to have shared ownership over the organizing and planning of large ideas that would affect their community. In doing so, it provided the community with a deeper understanding of what it means to deliberate as a group, to find strength in diversity, and to construct thoughtful, balanced domains of agreement. Pairing the in-person meeting with the online Berkman Question Tool, community members were able to brainstorm how to make that future possible and comment on whether Boston should make a bid for MINEPS VI, the UNESCO sponsored International Conference of Ministers and Senior Officials Responsible for Physical Education and Sport. The results of the conversations were discussions with UNESCO and a recommendation to include a thread on youth in sport at the next MINEPS conference by using a combination of online and in-person deliberation techniques. Nesson wrote an op-ed for the Boston Globe to share his thoughts with the region. The project put Nesson's own educational methods to test with a variety of individuals and communities on a large scale.

CopyrightX. CopyrightX is a networked course offered under the auspices of the Berkman Center, Harvard Law School, and HarvardX. Terry Fisher led the course's fourth offering during Spring 2016, with support from Technical Support Specialist Ed Popko, as well as from Justin Clark and Sebastian Diaz. As in years past, CopyrightX participants included the students in online sections, affiliated courses, and the HLS Copyright course taught by Fisher, but CopyrightX expanded this year to include students enrolled in the class as part of the Harvard Extension School's offerings. HLS students served as teaching fellows for the online sections and led their students in weekly realtime seminars and discussion in online forums throughout the 12-week course. After growing to a cohort of 18 affiliated courses in 2015, the 2016 CopyrightX affiliate class stayed at approximately the same size, with 17 foreign affiliates and two Extension School sections. Affiliates included universities and organizations in Australia, Brazil, China, Egypt, Germany, India, Italy, Japan, Kenya, Nigeria, the Netherlands, Palestine, South Africa, Uganda, and the United Kingdom. Out of a total enrollment of 377 students, 247 students took the final exam. Of those 277, 74% passed, and 72.5% received a certificate of completion.
[http://copyx.org]

Cybersecurity. Launched in early 2015, the Berklett Cybersecurity project regularly convenes a diverse group of security and policy experts—one which by all accounts is unlikely to exist anywhere else—to discuss a wide range of enduring problems of surveillance and cybersecurity, such as encryption, public-private information sharing, software liability, and the vulnerability equities process. The goal is to foster straightforward, non-talking-point exchange among experts who do not usually have a chance to engage with each other, and then to contribute in meaningful and concrete ways to the discourse on these issues. The project is generously supported by the William and Flora Hewlett Foundation, and led by Jonathan Zittrain, former US National Counterterrorism Center Director Matt Olsen, and Berkman Fellow Bruce Schneier, and supported by David O'Brien, Tiffany Lin, Samantha Bates, and Berkman Fellow Ben Sobel. Over the past year, the project convened six meetings in Cambridge, MA, with core members of the group and selected guests. In February 2016, the project published an influential report, which received widespread attention from both sides of the debate, called "Don't Panic: Making

Progress on the 'Going Dark' Debate," which distilled the group's conversations on the claims and questions around the FBI sounding alarms that the surveillance landscape is "going dark" due to the introduction of strong end-to-end encryption and other warrant-proof technologies into mainstream consumer products. The report was covered by the *New York Times* and many other media outlets and generated multiple interactions with members of law enforcement and intelligence, elected officials and staff in Congress, the White House, and leaders in the private sector.
[https://cyber.law.harvard.edu/research/cybersecurity]

Digital Problem-Solving Initiative. The Harvard Digital Problem-Solving Initiative (DPSI), led by Urs Gasser with support from Project Fellow Paulina Haduong and Director of Youth and Media Sandra Cortesi, brings together a diverse group of learners (students, faculty, fellows, and staff) to work on projects to address problems and opportunities across the university. DPSI, supported by HLS Dean Martha Minow and Harvard University President Drew Faust, offers participants a novel opportunity to enhance and cultivate competency in various digital literacies as teams engage with research, design, and policy relating to the digital world. In addition to a rich, networked learning environment and an emerging community of practice, the program offers participants a unique opportunity to invent, build, and shape the increasingly digital environment in which they live, learn, work, and create. In 2015-2016, DPSI explored a series of co-designed workshops, partnering with undergraduate and graduate student organizations, courses, and projects across the university.
[https://www.cyber.law.harvard.edu/research/dpsi]

Digitally Connected. Digitally Connected is a collaborative initiative between UNICEF and the Berkman Center, building upon a multi-year partnership for analyzing digital and social media growth and trends among children and youth globally. Led by Urs Gasser and Sandra Cortesi, and supported by Senior Research and Special Initiatives Manager Amar Ashar, Fellow Charlie Ruth Castro, Research Assistant Briggs DeLoach, Fellow Andres Lombana, and Fellow Niousha Roshani, in cooperation with Gerrit Beger, Kate Pawelczyk, and UNICEF's Voices of Youth team, the initiative addresses issues such as inequitable access, risks to safety and privacy, hate speech and social exclusion, youth rights and empowerment, skills and digital literacy, spaces for participation and civic engagement and innovation, and the role of the Internet in strengthening relationships and sense of belonging.

Since the publication of the ebook "Digitally Connected: Global Perspectives on Youth and Digital Media," the team engaged in community building, research, and events. In an effort to strengthen the Digitally Connected community, the project launched Digitally Connected + to promote dialogue and idea exchanges by keeping network participants informed of each other's stories, projects, and aspirations and hosted a series of "Breakfasts of Ideas" at the Berkman Center. These Breakfasts of Ideas convened people from Latin America, as well as individuals who have a sincere interest in Latin American issues from the broader Harvard community, to discuss ideas and projects revolving around issues of children and youth, technology, Internet and social media, education technology, and new applications for social changes.

The team has been working on three projects: Digital Champions, RErights, and a study on youth's interaction with online news. The Digital Champions project is an effort to tell the stories of creators, makers, and innovators who are transforming their environment and their communities for the better. This year, the Digital Champions project focused on finding young people with disabilities who have done innovative, interesting, and inclusive digital work, as well

as youth groups and youth-led organizations that have done such work in partnership with adults and/or children with disabilities. In collaboration with Amanda Third, the Digitally Connected team helped develop RErights, an online platform that aims to consult children and young people around the world on issues that concern them, share their ideas and opinions about digital technology and their rights in the digital age, and include them as active participants in research about their future. Finally, the "Youth News Perceptions and Behaviors Online" study seeks to fill the existing gap in our understanding of youth's perception of news by examining children and young people's interactions with information online.

Since the last Digitally Connected conference in Argentina, Digitally Connected has bolstered its regional focus on Latin America and the Caribbean through a new Digitally Connected regional sub-initiative, "Conectados al Sur." As a part of this initiative, the Institute of Communication and Image at the University of Chile, UNICEF, and the Berkman Center co-hosted the second regional symposium "Conectados al Sur: Chile" on children, youth, and digital media in Santiago (Chile) on May 12-13, 2016. The aim was to map and explore the state of relevant research and practice at the national, regional, and international levels, share and discuss insights and ideas across countries, and encourage collaboration among participants.
[http://www.digitallyconnected.org/]

Emily Dickinson Archive. The Emily Dickinson Archive provides high-resolution images of manuscripts of Dickinson's poetry, along with transcriptions and annotations from selected historical and scholarly editions. This first release focuses on gathering images of those poems included in *The Poems of Emily Dickinson: Variorum Edition*, edited by R. W. Franklin (Cambridge: Belknap Press of the Harvard University Press, 1998). These manuscripts vary from "scraps" written on envelope flaps and pieces of wrapping paper; to drafts; to finished poems sent to friends or copied into the manuscript books called "fascicles." The Berkman Center, in partnership with the Harvard Library and Harvard University Press, authored the first release of the platform. Over the past year, we have continued to offer the time and expertise of our developers to build out various administrative features of the first release. These features include the ability to download, edit, and upload images and TEI data associated with images, and to edit the metadata associated with the historical images. The latest version of the platform was released in June 2016.
[http://www.edickinson.org/]

Global Access in Action. Global Access in Action (GAiA) conducts action-oriented research into access to lifesaving medicines and alternative incentives for the development of medical treatments for underserved populations. Improving access and promoting socially beneficial innovation are key strategies for combatting the communicable disease burden that disproportionately harms the world's most vulnerable populations. In pursuit of this mission, GAiA, led by Terry Fisher, Mark Wu, and Executive Director of the Abdul Latif Jameel Poverty Action Lab Quentin Palfrey, held a workshop with leaders from diverse stakeholder groups, including government, international procurement and donor agencies, civil society, academia, and the pharmaceutical industry. The event "Insights into Action: Practical Strategies to Expand Access to Medicine and Promote Innovation" focused primarily on assessing best practices that can be scaled up or replicated in sustainable ways that will improve life outcomes for the poor and encourage innovation. At the workshop, GAiA also circulated a draft paper, "Expanding Access to Medicines and Promoting Innovation: A Practical Approach," authored by Palfrey and Wu, which it plans to finalize and distribute during the next academic year.
[http://globalaccessinaction.org]

Global Network Initiative. The Berkman Center has continued its membership in the Global Network Initiative (GNI), a multi-stakeholder initiative composed of companies, academics, and members of civil society that is focused on advancing human rights issues in the technology sector. Dalia Topelson Ritvo has continued to serve on both the learning and policy committee and the governance and accountability committees for the GNI board. In addition, the Center, through the Cyberlaw Clinic, has continued to provide academic support to certain research and policy initiatives being explored by GNI.
[http://www.globalnetworkinitiative.org]

Global Network of Internet & Society Centers. The Network of Centers ("NoC") is a collaborative initiative among academic institutions with a focus on interdisciplinary research on the development, social impact, policy implications, and legal issues concerning the Internet. During the reporting period, the NoC welcomed 12 new Participating Centers, bringing total NoC participation to over 70 institutions. The NoC continued to focus on events as a means to build robust capacity while encouraging cross-national and cross-disciplinary conversation and engagement. The annual public meeting, the coordination of which was led by the Nexa Center for Internet & Society at Politecnico di Torino, was held in Hong Kong in November 2015, where participants gathered to identify and highlight key innovations in the Internet and society domain, exploring emerging global issues as well as region-specific topics in Asia. In Spring 2016, the NoC hosted a Hangout series that provided an opportunity for NoC members to participate in monthly learning calls led by NoC researchers for the purpose of sharing, discussing, and collaborating on issues of common interest. These learning calls centered on the topics of multistakeholder research, Internet Bill of Rights efforts around the globe, and an introduction to the recently-launched Digital Asia Hub. In addition to events, the NoC collaborated with the Berkman Center on a publication titled "Designing Successful Governance Groups: Lessons for Leaders from Real-World Examples," which outlined a set of useful, actionable steps for policymakers and other stakeholders charged with creating, convening, and leading governance groups.

In November 2015, the NoC announced the launch of the Digital Asia Hub, an independent nonprofit Internet and society research think tank based in Hong Kong. Incubated by the Berkman Center and a broader set of stakeholders, the Digital Asia Hub provides a nonpartisan, open, and collaborative platform for research, knowledge sharing, and capacity building related to Internet and society issues with a focus on digital Asia. The Hub also aims to strengthen effective multistakeholder discourse, with both local and regional activities, and contributes to—and itself serves as a node of—the larger NoC. As part of its launch, the Digital Asia Hub announced the publication of the "The Good Life in Asia's Digital 21st Century," an essay collection written by students and collaborators that includes 26 essays from across Asia and the Pacific Islands, and covers topics ranging from the Internet of Things, to digital rights, to the impact of mobile technologies. Earlier this year, the Hub appointed its first Executive Director, Malavika Jayaram, a former Berkman Center Fellow and current Faculty Associate.
[http://www.digitalasiahub.org/]

The NoC's international efforts were advanced through a number of initiatives, projects, and events over the course of the last year, with a particular focus on research and policy development in Latin America. The Berkman Center partnered with the Institute for Technology & Society in Rio and the Biblioteca del Congreso de la Nación in Buenos Aires, and collaborated with representatives from industry, civil society, funders, and local academics on a series of

meetings to explore opportunities for strategically engaging in policy debates in the region and identifying topics for which NoC research could influence the course of policy debates and outcomes. In addition to these conversations, the Center also conducted a survey among Latin American collaborators and produced a scoping document that suggests opportunities and challenges that a Digital Latin America Hub may address with respect to digital policymaking in the region. Additionally, the Center of Studies in Informatics Law at University of Chile's Law School hosted a workshop on international regulatory trends on personal data protection with the Ministry of Economy in Chile in collaboration with the NoC.
[https://networkofcenters.net]

Harmful Speech. The Berkman Center has launched a research, policy analysis, and network building effort devoted to the study of hate speech, in close collaboration with the Center for Communication Governance at National Law University in New Delhi and the Digitally Connected network, and in conjunction with Network of Centers (NoC). This effort aims to develop research methods and protocols to enable and support robust cross-country comparisons; study and document country experiences, including the policies and practices of governments and private companies, as well as civic society initiatives and responses; and build and expand research, advocacy, and support networks. Over the past year, the Harmful Speech project has developed two regional case studies, including one that examines legal and policy issues related to hate speech in India, and another that looks at the impact of hate speech online and its capacity to catalyze social exclusion among Afro-descendant youth in Brazil and Colombia. Both map existing research and intervention in the area, identify key researchers and institutions, and offer perspectives into the current state of knowledge. The team is also currently drafting a research methodology module to inform future efforts of researchers looking to explore hate speech issues in other countries, as well as a framework by which the concept of "hate speech" can be identified and understood from a mixture of sources. Harmful Speech has also begun to explore possible experimental study designs that might enable the analysis and comparison of different interventions to reduce the production and spread of hate speech, including a study of the propagation of hate speech online in North Africa and network analysis of prominent online debates in the United States. These efforts build upon many complementary projects and initiatives, including the Berkman Center's ongoing work related to Youth-Oriented Online Hate Speech/Viral Peace, as well as the activities of individuals and institutions within the Center's networks.

Harvard Open Access Project. The Harvard Open Access Project (HOAP), directed by Senior Researcher Peter Suber, fosters open access (OA) to science and scholarship within Harvard and beyond, undertakes research and policy analysis on OA, and provides access to timely and accurate information about OA itself. During the 2015-2016 academic year, HOAP consulted pro bono with 20 universities, foundations, government agencies, and nonprofit publishers about OA, OA policies, and OA practices. Of the universities consulting HOAP about OA policies, past and present, 14 adopted OA policies in 2015-2016. In addition, HOAP supervised the Open Access Tracking Project (OATP), enlarged the OATP feeds reporting OA-related news and comment to the OA community, and upgraded TagTeam, the open source social tagging software HOAP is developing at the Berkman Center to serve as the platform for OATP. It enlarged the Open Access Directory, the wiki-based encyclopedia of OA, and expanded the Societies and Open Access Research catalog of open access journals published by scholarly societies. It expanded its widely endorsed guide to good practices for university OA policies and gathered new endorsements for it. While the master edition of the guide evolves online in real

time, HOAP also published the second print edition in Fall 2015. In the same period, HOAP deepened its collaboration with the Harvard University Office for Scholarly Communication and expanded its outreach on and off campus with 16 public talks on OA.
[https://cyber.law.harvard.edu/hoap]

Herdict. The Internet Monitor and Herdict teams are engaged in ongoing conversations in order to identify opportunities for integration.
[http://herdict.org]

Internet Governance. Over the past year, the Berkman Center has expanded upon and leveraged its previous work exploring the tools used by successful multistakeholder governance groups. In particular, it was because of the Center's expertise on multistakeholder governance that the National Telecommunications & Information Administration (NTIA) asked the Center to be part of an expert panel reviewing the multistakeholder community's proposed accountability reforms for the Internet Corporation for Assigned Names and Numbers (ICANN). As part of this review, Urs Gasser and Senior Researcher Ryan Budish, along with two other experts in corporate and nonprofit governance, evaluated the reforms in order to describe a good governance framework for ICANN and to determine whether the proposed reforms were consistent with good governance practices. The expert panel report was included as part of the NTIA's recommendation about the Internet Assigned Numbers Authority (IANA) transition. In addition, over the past year the project conducted a student writing competition about multistakeholder governance models in order to support student scholarship as well as expand its existing set of case studies.

Internet Monitor. Internet Monitor, led by Urs Gasser, Jonathan Zittrain, Rob Faris, and Rebekah Heacock Jones, evaluates, describes, and summarizes the means, mechanisms, and extent of Internet content controls and Internet activity around the world. In September 2015, the project launched the Internet Monitor dashboard, a freely accessible tool that aims to improve information for policymakers, researchers, advocates, and user communities working to shape the future of the Internet by helping them understand trends in Internet health and activity through data analysis and visualization. The dashboard lets users customize a collection of data visualization widgets—some offering real-time data—about Internet access and infrastructure, online content controls, and digital activity. Users can create multiple collections that enable easy comparisons across countries and data sources and are quick to configure, edit, and share. In addition to creating their own collections, visitors to the dashboard can view a selection of featured collections based on topics such as online media, Internet use worldwide, and companies' practices around freedom of expression and privacy. Internet Monitor also provides expert analysis on the state of the global Internet via its special report series and annual reports on notable events and trends in the digital space. Internet Monitor published three special reports in 2015-2016: "Beyond the Wall: Mapping Twitter in China," "Openness and Restraint: Structure, Discourse, and Contention in Saudi Twitter," and "#IranVotes: Political Discourse on Iranian Twitter During the 2016 Parliamentary Elections." The project team is working closely with Justin Clark, Assistant Director of Information Technology Reinhard Engels, and Web Developer Ryan Morrison-Westphal to expand the dashboard's data availability and visualization offerings and to develop AccessCheck, a forthcoming tool that enables users to test in real time whether different websites are available in different countries. The tool's intended audience includes researchers, freedom of expression and censorship activists, and reporters, among others.
[https://thenetmonitor.org/]

Internet Robustness. The Internet Robustness project, led by Jonathan Zittrain, Rob Faris, Sebastian Diaz, and Project Coordinator Genève Campbell, publicly launched software in addition to completing its grant from the US State Department to develop, test, and pilot a system to allow websites to mirror one another's content seamlessly as a form of distributed mutual aid. The heart of the project is what the Center calls Amber, a proof of concept for the "Mirror-As-You-Link" protocol initially suggested by Zittrain. When installed on a website, Amber detects when the website publishes a new link and automatically makes a backup of the content at the other end of that link if the linked site does not object. If a visitor to the website clicks on a link that is unavailable, Amber springs into action by notifying the user about the broken link and presenting a mirrored page; the visitor is then able to view the mirror of the page when it would otherwise be inaccessible. In the past year, the team completed beta testing by a small beta community of blogs and websites; users who downloaded Amber during this phase include a legal resources website, an academic study guide clearinghouse, a journalist trainer, a political fact-checking and archiving group, an Internet history digital archive, a Vietnamese activist blog, a European academic job listing website, a fair use blogger, and a Nigerian storytelling archive. Echoing the mantra that "lots of copies keeps stuff safe," new features introduced during this period include the ability for Amber users to store snapshots using a combination of the following third party storage and archiving systems: the Internet Archive, Perma, and Amazon Simple Storage Service (Amazon S3). Based upon feedback from the user community, Amber graduated from beta and was publically launched within the official WordPress.org plugin directory and Drupal.org module directory. As of July 2016, over 1,360 unique WordPress websites and have downloaded Amber to preserve their outgoing links. In addition, this year Amber was featured by Slashdot, The Register, Poynter, Nieman Lab, Infodocket, and Webwereld (Dutch Computerworld), among other outlets.
[https://amberlink.org]

Lumen. Led by Project Coordinator Adam Holland and Christopher Bavitz, the Lumen project (formerly known as the Chilling Effects Clearinghouse) is a comprehensive and transparent online database of takedown requests related to online content. The project launched in the early 2000s, focused primarily on tracking takedown notices sent under the United States' Digital Millennium Copyright Act (DMCA) safe harbor provisions. In November 2015, the Chilling Effects project re-branded itself, announcing a new name, "Lumen," as well as pilot partnerships with teams at research centers in Italy, Brazil, and India, extending the project's breadth and reach and leveraging local expertise and connections to gather and analyze notices globally. The response to the new name and international focus has been overwhelmingly positive, as evidenced in part by a continued increase in the number of requests for access to the API from a range of researchers and Internet professionals, and by a warm reception at an oversubscribed workshop session presented by Lumen team members at the 2016 RightsCon in San Francisco, where Lumen was able to introduce itself to an entirely new swath of stakeholders.

Lumen also continues to experience substantial growth in the volume of notices it receives, with the number of notices received per day currently over 5,000, and over four and a half million notices referencing approximately two billion URLs in the database. Lumen continues to work closely with its two largest sources of notices by volume—Google and Twitter—to help them integrate their notice submissions into the new site's API protocols, and has added several more companies as notice submitters, including its first ever bulk Sender of notices, which has expanded the range of Recipients represented in the Lumen database. Lumen continues to proactively seek out new notice submitters and researchers with which to work.

[https://lumendatabase.org]

Media Cloud. A joint project spearheaded by Yochai Benkler and Ethan Zuckerman from the MIT Center for Civic Media, Media Cloud is an open source, open data platform that allows researchers to examine what media sources cover which stories, what language different media outlets use in conjunction with different stories, and how stories spread from one media outlet to another. The scope and scale of Media Cloud activities have grown substantially in 2015-2016, building upon the support of the Ford Foundation, the Gates Foundation, and the Robert Wood Johnson Foundation. The Media Cloud research now features a major emphasis on the role of media in gender and development as well as media coverage of wellness issues. In the past year, the research team has published on a variety of platforms on topics such as the media treatment of the Ebola outbreak and online social mobilization related to net neutrality. Research currently underway includes media perception of violence, the portrayal of race in online media, the US presidential election, teen pregnancy, and debate over vaccines. On the technological side, infrastructure upgrades now support the collection of 500,000 stories per day and 450 million archived stories covering 25,000 media sources. The geographic coverage continues to grow to include more global sources and the platform is now integrating data from Facebook, Twitter, and Bitly. Following on the release of a new website, developers and user interface experts are currently developing new user interface tools that we anticipate will markedly increase usability and uptake of the tool among a broader set of media scholar and public interest organizations. In the past year, the team has welcomed a research director, Fernando Bermejo, and two full-time researchers and community managers in addition to the expanding development team. [http://mediacloud.org]

Mesh Networking. The Mesh Networking Project has been pursuing a novel approach to creating an auxiliary communication network using mobile phones that is resistant to disruption. The project plans to implement a simple, multi-purpose capability in all mobile phones for communication during emergencies, which would make it substantially easier—indeed, newly possible—for ordinary people to send private, secure messages to one another during times of distress. While standard ad hoc and mesh networks use data-heavy, short-range communications, the Mesh Networking Project uses data-light, long-range communications and a simple, easy-to-use method for establishing trusted identity. This past year, through discussions with various stakeholders, the Center has further refined its proposal to focus on developing a Boston-Cambridge network infrastructure. This long-term infrastructure will enable any person or organization working in this space to develop and deploy an application capable of operating such a network using low-frequency, licensed and unlicensed spectrum. It will also serve as a proof of concept, demonstrating to stakeholders that it is possible, cost efficient, and useful to develop emergency ad hoc networking capabilities. The Center has been collaborating with companies and nonprofits, both large and small, to further develop and refine its mesh networking proposal, and is currently soliciting support for the planned Boston-Cambridge network. The team has also been working with these stakeholders, as well as government officials, to identify ways in which legislative and regulatory policy can better facilitate decentralized networking, including by making dedicated spectrum available for mesh networking during emergencies.

metaLAB (at) Harvard. With partners at the Berkman Center, across the university, and in the world at large, metaLAB explores the digital arts and humanities through research, experimentation, tool building, teaching, through publications in print and online, and via exhibition, performance, and social practice. metaLAb's projects infuse traditional modes of

academic inquiry with an enterprising spirit of hacking, making, and creative research. In the 2015-2016 academic year, metaLAB's work took the form of art-making and exhibition in public and gallery contexts (A Bit in the Abyss, a multimedia installation for Boston's Illuminus festival, and Your Story Has Touched My Heart, a video installation, at Harvard Art Museums); technology development for library systems (Book a Nook); data visualization to ground humanities data in institutional contexts (Curarium; Curricle); research-level design ethnography (reCenter, our report on visual markers of culture and identity at the Berkman Center), and teaching ("Appropriate Memories: a Photography Remix Studio," an art and design course offered during the winter session).
[https://metalab.harvard.edu/]

Mobilization for Change in the Middle East and North Africa. This project seeks to better understand the role of the networked public sphere as an alternative platform for information sharing and mediating collecting actions related to political and social life in the Arab world. This research effort is being carried out in close collaboration with a team of researchers at the Access to Knowledge for Development Center (A2K4D) at the American University in Cairo, led by Berkman Faculty Associate Nagla Rizk, along with Fares Mabrouk and Jazem Halioui in Tunisia. Yochai Benkler, Rob Faris, Berkman Fellow Bruce Etling, Berkman Affiliate Dalia Othman, and Research Affiliate Helmi Noman contribute to the research effort from the Center. Over the past year, the researchers have analyzed the structure of Twitter conversations related to Bahrain, Egypt, and Tunisia and have mapped the Arab blogosphere. This quantitative work was complemented by a series of interviews and focus groups with key digital media actors in the region. In March 2016, the team published a series of papers examining the role of the networked public sphere in advancing civic participation and collective action in the Arab region: "Structure and Discourse: Mapping the Networked Public Sphere in the Arab Region," "The Networked Public Sphere and Civic Engagement in Post-2011 Egypt: A Local Perspective," and "An Accelerated Story of the Emergence and Transformation of the Networked Public Sphere: The Case of Tunisia." The team also published a synthesis of their research findings and a memo on the research methods used in the study. Full Arabic-language translations of the papers are forthcoming.
[http://arabnps.org/]

Privacy Tools for Sharing Research Data. In this project, the Berkman Center joins Harvard's Center for Research on Computation and Society (CRCS), Institute for Quantitative Social Science, and Data Privacy Lab, as well as the Program on Information Science at MIT Libraries, to translate the theoretical promise of new technical measures for privacy protection and data utility into an array of practical tools, methods, and policy recommendations. The project is supported by the National Science Foundation and the Alfred P. Sloan Foundation. Led by Urs Gasser, with support from David O'Brien and Berkman Project Fellow Alexandra Wood, the project's legal team directs the development of new privacy frameworks, legal instruments, and policy recommendations that complement advanced tools for private data analysis being developed in the project. In 2015-2016, this team, together with Berkman Fellow Effy Vayena and Micah Altman, published an article outlining a new ethical framework for big data research, which was selected as a firestarter for the "Beyond IRBs: Ethical Review Processes for Big Data Research" workshop hosted by the Future of Privacy Forum in December 2015. The team also led the authorship of joint comments submitted to the Department of Health and Human Services regarding proposed changes to the privacy protections established by the federal policy for the protection of human subjects. In close collaboration with computer scientists from CRCS, the

team contributed to the development of a methodology for bridging the gap between legal and mathematical definitions of privacy and demonstrating that a privacy technology satisfies a legal standard for privacy protection. This work, summarized in a forthcoming article, was presented at the Privacy Law Scholars Conference in Washington, DC, the Boston University Security Group, and the Berkman Center Luncheon Series, among other venues. The team also contributed to the development of an initial prototype of a logic programming system for automating the generation of custom data sharing agreements based on applicable regulatory requirements. Further development and refinement of this tool will be the subject of intensive research over the next academic year.
[https://cyber.law.harvard.edu/research/privacy_tools]

Responsive Communities Initiative
The Responsive Communities Initiative is an umbrella for those Berkman Center projects aimed at increasing adoption of competitive fiber optic networks providing inexpensive high speed Internet access across entire communities, assisting cities to adopt responsible data governance practices, and building a pipeline of people who will serve in local government.

> **Mass Municipal Fiber.** In August 2015, Susan Crawford and David Talbot gave presentations about the enormous potential of public fiber optic infrastructure to attendees at the annual conference of the Northeast Public Power Association, which represents some of the entities best positioned to build fiber networks: the 80 municipal electric utilities in New England. During the academic year the project held two convenings of members of this group—and a separate convening of Boston-area municipal leaders— to facilitate communication and collaboration across municipal lines. The project released a report and toolkit on the recent changes to the $3.9 billion federal E-Rate program (E-Rate subsidizes high-speed Internet access to libraries and schools) and explained how the program can be leveraged to support regional municipal fiber buildouts nationwide. In April the project released a study on a group of western Massachusetts municipalities proposing to cooperatively build and operate a fiber optic network. The group is meeting resistance from the state agency responsible for providing funding. The report led to extensive media and political attention and was followed by a change of leadership at the agency. The team made progress on several other ongoing projects including two unique pricing studies: one involving creating a database of Internet access pricing and service levels offered by US municipal providers of high-speed Internet access; and a second, now under IRB review, that will involve collecting data from hundreds of consumers to learn what they pay.

Transparency 2.0. Over the past year, the Berkman Center continued its work aimed at improving the consistency, impact, and usefulness of corporate transparency reports about government requests for user data. This year saw the culmination of the significant investment of time in the first phase of the project, conducted in collaboration with the Open Technology Institute (OTI) at New America. After several years of surveying and assessing reports, updating those surveys, interviewing key stakeholders at companies, and holding multiple workshops, the Berkman Center and OTI released a series of eight policy memos cataloging both best practices and notable practices across 43 different transparency reports. This work was presented at the 2016 RightsCon in San Francisco. The RightsCon event was also an opportunity to workshop the next phase of the collaboration: a template and guide aimed at helping companies create more robust and consistent transparency reports. That work continues this year, having already held an east coast workshop in May; at least one more workshop is planned for late July 2016.

US-Russia Peer-to-Peer Dialogue. Last year's week-long study tour, during which the Berkman Center hosted nine visiting researchers from the Moscow-based Center for the Study of New Media and Society (CSNMS), constituted the first phase of "Crossing Boundaries with New Media," our US-Russia Peer-to-Peer Dialogue Program. In June 2015, Rob Faris and Bruce Etling traveled to Moscow for five days to present on "New Technology in Media" at the American Center at the Library of Foreign Literature; deliver a lecture on "Mapping Twitter Conversations and Communities: a Comparison of Four Country Case Studies" at the Faculty of Communications, Media and Design at the Higher School of Economics; give a talk titled "Digital Regime: How the Internet Affects Politics" at the Strelka Institute; participate in a meeting of the Club for Internet and Society at the CSNMS office; and meet with CSNMS researchers. These efforts enabled the Berkman Center and CSNMS to share knowledge on a number of topics of critical interest, including online security, new media literacy, the connection between online and offline civic engagement, and current issues in Internet governance and online regulation. Conversations between CSNMS and the Berkman Center, and more broadly the GNI, are ongoing, and we continue to explore possible opportunities for research focused on the role of social media in political and social movements in Russia.

World Economic Forum. The Berkman Center team has collaborated closely with the World Economic Forum (WEF) Future of the Internet Initiative through a number efforts related to research and analysis and pursued many of these activities through the lens of creating and facilitating better information for decision makers. The team notably publicly launched the Internet Monitor dashboard and pursued opportunities for partnership among FII trustees and WEF collaborators around data sharing; developed an opportunity map that has helped inform the work of multiple tracks and identify cross-cutting themes across the Future of the Internet Initiative; scoped and launched the pilot Assembly program to take place in spring 2017; and collaborated with the Global Agenda Council on Cybersecurity to produce a green paper. The team also participated in many fruitful meetings and conversations, including those hosted by the Forum, as well as related conferences and workshops. Overall, our efforts aim to continue to strengthen the evidence base for decision makers in the public and private sectors through rigorous research and analysis, build and bridge the interface between code and policy, and create avenues for decision makers to better use data in order to serve the public interest.

Youth and Media. Led by Urs Gasser, together with Sandra Cortesi, Paulina Haduong, Andres Lombana, and Berkman Fellow Leah Plunkett, in cooperation with Christopher Bavitz, Dalia Topelson Ritvo, and the Cyberlaw Clinic, as well as the Geek team, Youth and Media (YaM) encompasses an array of research, advocacy, and development initiatives around youth and digital technology. By examining young people's interactions with digital media, this collaborative project aims to gain insights into digital practices and fluencies, harness the associated opportunities, address the challenges, and, ultimately, shape the regulatory and educational frameworks in ways that advance the public interest. The YaM project is split into multiple research topics, projects, and initiatives:

Digital Economy: Exploring Blurring Lines Between Work and Play. The rise of the Internet and the resulting social, commercial, and entertainment platforms have enabled a digital economy in which youth are participating as they develop a range of sociocultural practices. As young people engage in a greater variety of leisure activities online that create value such as gameplay, media production, and content circulation, the boundaries between work and play are sometimes blurred. While the new networked platforms may provide youth with beneficial new means of

expressing themselves, learning, and connecting to others, they can also be used in ways that allow youth to earn income. Inspired by the dynamics of the emergent networked environment, this project examines how youth regard the changes to their current play and their future work.

Learning. Over the past academic year, the YaM team produced, evolved, and curated an evolving collection of tools that enable people (e.g. youths, educators, parents) to learn more about online safety, privacy, information quality, creativity, and copyright. These tools aim to equip people with knowledge about connected learning environments, empower youth to make better online choices, and support adults in teaching, parenting, and giving valuable guidance.

> **Coding for All.** Currently in its third year, with support from the NSF, Coding for All is a collaboration of the Berkman Center with Mimi Ito, Professor in Residence at the University of California Irvine Humanities Research Institute and Research Director of the Digital Media and Learning Hub, Department of Anthropology, Department of Informatics, and School of Education; and Mitchel Resnick, Professor of Learning Research and head of the Lifelong Kindergarten group at the MIT Media Lab. This interdisciplinary collaboration seeks to address resilient challenges in expanding pathways to computational fluency and STEM interests and careers through multiple approaches: designing online tools and environments (primarily using the Scratch programming language), researching social and cultural factors, and examining the legal and policy dimensions. The project aims to create diversified pathways to the Scratch programming environment by integrating the interest areas and cultural referents of nondominant youth, addressing the national need for a diversified high-tech workforce and a computationally fluent public, as well as providing robust research that can inform the design and deployment of related efforts in STEM education. Over the course of the past year, the project explored the potential of introducing educators to Scratch through interest-based pathways, as well as ways to support positive youth-oriented online communities through policies and practices.

> **Digital Literacy Toolkit.** With support from the Digital Media and Learning Trust Challenge, the Digital Literacy Toolkit project addressed hard problems that arise out of connected learning environments and interact with law, policy, and social norms. In collaboration with the MIT Scratch team, New York Public Library, Press Pass TV, NuVu, the Engagement Game Lab, iKeepSafe, WGBH, and the Walnut Hill School, outputs—such as K-12 digital literacy curricula and other resources for district staff and educators—tackle three sets of issues with cross-layer implications identified by various stakeholders as concerns in connected learning environments: safety concerns, privacy threats, and restrictions on creative expression. [https://dlrp.berkman.harvard.edu/]

Privacy. This focus area seeks to build a more nuanced understanding of youth's conception of privacy to gauge how this conception may differ from an adult perspective, and observe how it is reflected in the kinds of activities youth engage in online. Additionally, the project aims to study and address the larger ecosystem by which youth's privacy is shaped.

> **Student Privacy Initiative.** The Student Privacy Initiative (SPI) explores the opportunities and challenges that may arise in the new and rapidly evolving ecosystem of networked technology being used in education ("ed tech"), engaging and sustaining a multi-disciplinary, multistakeholder conversation on student privacy in the age of connected learning. SPI conducted research, organized and engaged in ongoing

conversations, and produced outputs that assess federal and state laws, expectations, current practices in the field, and social norms in these contexts. Moving forward, the YaM team intends to focus on the innovative opportunities of ed tech, with a particular eye to evolving educational practices and opportunities that may also present unique privacy challenges.
[https://cyber.law.harvard.edu/research/studentprivacy]

Rights. Digital technology plays an important role in the lives of a rapidly growing number of young people around the globe. The increased access to and use of digital technologies is associated with a diverse set of risks and opportunities, which in turn interact in important ways with children and young people's rights. This year, Urs Gasser and Sandra Cortesi wrote a book chapter, "Children's Rights and Digital Technologies: Introduction to the Discourse and Some Meta-Observations." The chapter seeks to provide an introduction to the relatively nascent, but quickly evolving children's digital rights discourse, and aims to serve as a navigation aid.
[www.youthandmedia.org]

HLS Library Innovation Lab
The HLS Library Innovation Lab (LIL) [http://librarylab.law.harvard.edu/], also directed by Jonathan Zittrain, is a group within the library that focuses on innovation in academic spaces. Through its software development and prototypes, LIL serves as an incubator for projects to make libraries better. Its staff and fellows collaborate regularly with the Berkman Center on many of these projects, including:

> **Free the Law.** The HLS Library has undertaken to scanning and digitizinge all published US case law. The ultimate goal of Free the Law is to provide free public access to US case law for the benefit of scholars, researchers, governments, entrepreneurs, the legal community, and the general public. The project team has scanned nearly 30 million of an estimated 40 million pages in the corpus, and is on track to complete scanning by early 2017. The project is led by Jonathan Zittrain, HLS Library Associate Director for Collection Development and Digitization Kim Dulin, and LIL Managing Director Adam Ziegler.

> **H2O.** As part of their commitment to providing open source online educational resources and materials, the HLS Library and the Center have continued to collaborate to offer the suite of H2O classroom tools, with a particular emphasis on free, adaptable digital casebooks. These free online casebooks can be curated to fit the faculty's pedagogy and 19 teaching objectives and draw on a growing corpus of diverse materials. Adam Ziegler and Project Coordinator Brett Johnson have worked closely with Sebastian Diaz and outside developers to enhance the performance and usability of the H2O platform, to expand administrative capabilities, and to prepare for continued growth and adoption among faculty and other users. In the 2015-2016 academic year, the platform counts over 2,500 users, including an estimated 50 faculty who use H2O to develop, remix, and share online textbooks under a Creative Commons license.
> [https://h2o.law.harvard.edu]

> **Perma.** Perma is an open source, user-directed solution to link rot. It enables authors, journals, courts, and publishers to create archived versions of cited web sources and to direct readers to those archives using permanent, unique URLs. To ensure resiliency, the archive will be distributed among multiple "mirror" partners —principally libraries—that

dedicate physical or cloud server capacity to the preservation effort. Perma is focusing initially on law journals and courts, where the problem is acute as documented by Jonathan Zittrain, Berkman Center co-founder Lawrence Lessig, and Kendra Albert in their study, "Perma: Scoping and Addressing the Problem of Link and Reference Rot in Legal Citations," 127 *Harv. L. Rev. F. 176* (2014). The project is led by Jonathan Zittrain and a team at the HLS Library that includes Kim Dulin, Adam Ziegler, Harvard Library Innovation Lab Web Developer Matt Phillips, and Jack Cushman. Perma currently counts over 125 library partners; over 500 journals, courts and faculty members; and 5,500 individual account holders. Together, they have created over 280,000 Perma Links. The Perma Team won the 2015 Webby Award for the law category, and Perma was cited in The Bluebook as a reliable web archiving service. Perma also received a major grant from the Institute of Museum and Library Sciences to scale the service beyond academic legal scholarship and court opinions.
[https://perma.cc]

Strong Dark Archives. The Strong Dark Archives project is developing tools to preserve high-value cultural materials that would otherwise be lost by storing them in encrypted, distributed archives held by multiple institutions. With support from Google Summer of Code 2016, Strong Dark Archives is updating existing distributed archive techniques to use new cryptographic primitives for long-term storage.

3. Selected Independent Scholarship

The Berkman Center's institutional advancements, research, and events would be far from complete without including updates from our community. This was exemplified in the report "Fifteen Lessons from the Berkman Fellows Program," generously commissioned this year by the Ford Foundation to explore what makes our Fellows program successful, with the aim to derive lessons that can be applied to other institutions. (The full report may be found as a PDF [https://cyber.law.harvard.edu/node/99168] on the Berkman Center website, or in an online text version [http://berkmanlessons.net].) To showcase their independent scholarship and accomplishments over the past academic year, we invited fellows, faculty, faculty associates, and affiliates to contribute short updates to this report. While not all community members are represented below, the updates included here offer a sense of some of the notable milestones members of the 2015-2016 community chose to share.

Olivier Alais, a fellow, has been involved in the development and the implementation of the eGovernment Web Development Strategy for the Government of Liberia. Alais has been working closely with the Liberian Ministry of Posts and Telecommunications to determine the current Government web presence, invent a future state, and design a methodology to move forward. Alais also spent several weeks at United Nations University in Macao as he developed his ideas around national ICT policy development and MOOC systems tailored for developing countries. He wrote an article for the *Georgetown Journal of International Affairs* on the "Impact of a Move Towards Open Data in West Africa." Alais currently works with the Instituto de Tecnologia e Sociedade in Rio de Janeiro, focusing on access to technology in the framework of the Global Policy Fellowship.

Kendra Albert, an affiliate, spent last year finishing their law degree at Harvard Law School. Albert also did an externship at Public Citizen, as well as a summer associateship at CloudFlare.

At the Berkman Center, they helped run Angry Tech Salon as well as the Boston-area Tech Book Club. They gave an invited talk at Rochester Institute of Technology titled "The Angry Birds in the Coal Mine: The History and Future of Video Games, Reverse Engineering, and Digital Rights Management," and presented their work on legal talismans and abuse system design at Theorizing The Web. Next year, they'll be joining Zeitgeist Law (formerly the Law Offices of Marcia Hofmann), a boutique technology and free expression law firm in the Bay Area.

Virgilio Almeida, a fellow, has been working on different facets of cyberspace governance. Focusing on multistakeholder models, he published two articles in *IEEE Internet Computing*: "Whither Social Media Governance?" and "What Is Algorithm Governance?" He gave a talk about Internet governance models at the Council on Foreign Relations in New York and was one of the key interveners of the OECD Ministerial Meeting Panel on Policies for the Digital Economy. He has been working on the analysis of cyberspace policies from a quantitative viewpoint. His work on a quantitative study of the Right to Be Forgotten Policy was featured in the *New York Times* in an article titled "Researchers Uncover a Flaw in Europe's Tough Privacy Rules." He has also given several talks about cyberspace governance in different departments and schools at Harvard and MIT and keynotes in conferences such as the SIAM International Conference on Data Mining.

Meryl Alper, a faculty associate, joined the Communication Studies department at Northeastern University as assistant professor in August 2015. During the past year, she has been developing a research program at the intersections of communication, technology, and disability, with a particular focus on the role of digital media in the lives of youth with developmental disabilities and their families. In 2015, Alper signed a contract with MIT Press for her book, *Giving Voice: Mobile Communication, Disability, and Inequality*, which will be published in Spring 2017. Alper also served as a Project Consultant on a $36 million US Department of Education/Ready to Learn grant focused on science, literacy, and media, and delivered the keynote address at the project's advisory board meeting in April 2016. This year, she co-authored articles in Journal of Children and Media and Communication Research Reports, penned a commentary for Zócalo Public Square, and wrote a widely circulated blog post titled, "'Please Read the Article'? Please Cite Women Academics." She gave talks at the University of Washington and Center on Media and Child Health at Children's Hospital Boston, and guest lectures at the MIT Lab and Harvard Graduate School of Education. As a Faculty Associate, she participated in the Faculty Ideas Session in February 2016 and presented at a Fellows Hour alongside Ricarose Roque and Andres Lombana-Bermudez in April 2016 on the topic of parents in the digital age and their relevance to understanding inequalities affecting youth.

Geanne Belton, a faculty associate and professor at City University of New York's (CUNY) Baruch College, includes among her 2015-2016 highlights: directing and completing major writing of an online learning module on "Avoiding Plagiarism and Fabrication" in collaboration with Ruth Hochberger, Jane Kirtley, and the Poynter Institute, with funding from the Harnisch Foundation; serving as director of the Harnisch Journalism Projects; serving as chair of the Governance Committee and vice chair of the Board of Directors of the Student Press Law Center, based in Washington, DC; designing hybrid and fully online approaches to teaching news and digital literacy and media law and ethics for her courses at Baruch College; designing and piloting the CUNY Graduate School of Journalism's first hybrid online course in Legal and Ethical Issues in Journalism; conducting journalism workshops for student newspaper editors and staff at Bates College, in Lewiston, Maine; serving as facilitator for a community discussion on children and their use of technology that included active participation from students from

elementary school through high school grades, parents, teachers and school administrators from the Greater Portland, Maine area; serving as executive director and principal fundraiser for the New York City High School Journalism Collaborative's annual High School Journalism Conference and annual New York City-wide public high school journalism awards competition, based at Baruch College; and raising funds for next year's New York City public high school journalism programs.

Susan Benesch, a faculty associate, completed a project to study "successful counterspeech" on Twitter as part of her ongoing research focus on methods for diminishing online vitriol without impinging on freedom of expression. She and her co-investigator Derek Ruths wrote two papers: "A Web of Hate: Tackling Harmful and Hateful Speech in Online Social Spaces" and "Counterspeech on Twitter: A Field Study." Benesch published two other papers: "Charlie the Freethinker: Religion, Blasphemy, and Decent Controversy," in the Religion and Human Rights journal's special issue on the aftermath of the Charlie Hebdo massacre; and "Dangerous Speech and Dangerous Ideology: An Integrated Model for Monitoring and Prevention" (with Jonathan Leader Maynard) in Genocide Studies and Prevention. She worked with Berkman staff and Chinmayi Arun of the National Law University in India to organize workshops on hateful and dangerous speech online at the Internet Governance Forum in November 2015, and at the RightsCon meeting in San Francisco in March 2016. Benesch also gave talks, led workshops, or taught courses this year in New Delhi, Lahore, Istanbul, Bogota, Dar es Salaam, Tokyo, Brussels, Barcelona, London, Bath, San Francisco, Cambridge, and Washington DC. She was quoted as an authority on hate speech and counterspeech online, in publications including the *New York Times*, the *Wall Street Journal*, the *Washington Post*, and *The Hindu* (India).

Griffin Boyce, a fellow, worked on Satori as a Berkman fellow and censorship detection as an OTF Information Controls Fellow. As part of his research of censorship in post-Soviet states, Griffin was able to determine that there is a stark difference between the filters of commercial and residential ISP connections in countries where filtering is in place. In particular, Russia, Kazakhstan, Kyrgyzstan, Estonia, and Tajikistan seem to currently have no filtering in place for commercial connections, despite filtering residential connections. This implies that network operators are aware of the potential economic impact of filtering, and wish to minimize that impact. Satori 1.0 was released, and with it came a large increase in distributed software (including Lantern, Psiphon, and Guardian Project apps). The software verification library expanded from 3,000 to more than 22,000 entries. The interface was translated into 18 languages, and Satori surpassed 400,000 downloads in April. Griffin is currently working on a full redesign of Satori to improve its overall usability, and make the experience more intuitive. In June, Griffin began working on Filter Fairy, a project to create an ideal Twitter client for people experiencing harassment online. Notable features include: auto-filtering messages that are from low-quality users, contain expletives, or contain photos; the ability to mute certain hashtags or words for x time; and a private client-side "mute list."

Maria Paz Canales, a fellow, researched the regulatory framework for new technologies and business models that disrupt traditional markets. Among other projects, she developed a deep research in the different types of Zero Rating programs and their impact for access to Internet and competition in Latin America and other regions. As a result of her independent academic research during Fall 2015, she published the article "Oracle v. Google: Copyright Protection on Functional Elements of Computer Programs that Puts at Risk Interoperability and Innovation" in the Universidad de Chile's Revista Chilena de Derecho y Tecnología. She was a teaching fellow for the CopyrightX course during Spring 2016, lecturing online copyright seminars to students

around the world. Recently, she has been appointed as president of the board of directors of Derechos Digitales, an independent, nonprofit organization with Latin American reach that has as mission the development, defense, and promotion of human rights in the digital environment. From this position she expects to enlarge her commitment with the development of inclusive technology for Latin America that respects and provides space for the development of free expression, privacy, and access to knowledge.

Ken Carson, a fellow, presented to the De-Identification Working Group on the touch points of federal human subjects research regulations that are relevant to the design and promotion of a differential privacy-based approach to sharing research data. He also consulted with individual Berkman Center fellows about human subjects research issues arising in their projects.

Charlie Ruth Castro, a fellow, managed Conectados al Sur, the Latin American initiative of Digitally Connected, where she contributed to strengthening the international community of experts on the opportunities and challenges facing children and youth in their relationship with the Internet in the region. Her main contributions to the project include the following: creating the translated version of Digitally Connected/Conectados al Sur; the development of five events of the Breakfast of Ideas series, which brought together more than 95 experts and people in the Cambridge area with an interest in Latin American affairs revolving around issues of youth, technology, and technology's new applications for social change; and the "CaS Stories" video interview series about the new innovation stories transforming the Latin America region and the Latino community in the United States. She also collaborated on the RErights project, leading seven creative workshops on digital empowerment in rural and suburban communities in Mexico and Colombia with 160 young people between the ages of 12 and 18, and co-organized the second regional symposium "Conectados al Sur: Chile" on children, youth, and digital citizenship in Santiago de Chile on May 12-13, 2016. Her contributions as a speaker include the Innovation Match México 2016, Collision Conference, Harvard Women's Law Association Conference, and as a supporter of the Latin American Conference at Harvard Kennedy School, "Latin America: Another Lost Decade?" at the David Rockefeller Center and Science Clubs Colombia. Castro also founded "Mujeres con Derechos," a Latin American social movement launched in March 2016 bringing together more than 3,500 experts, activists, and community leaders from around the world, proposing solutions to end violence against girls and women in Latin America through digital innovation. Castro is working on her first book about new innovators in Latin America and the causes and effects of empowerment through digital education, science, technology, and innovation for children and youth in Latin America. This book will be published in 2017.

Rebecca Richman Cohen, a fellow, taught two classes on media literacy at HLS. She presented on a panel at the American Association of Law Schools called "Beyond Cellphone Evidence: Video Advocacy in Criminal Proceedings." She produced and directed a short video with the Harvard Food Law and Policy Clinic that aired on LA Times and Quartz's websites. She also produced a new feature-length documentary about the sex offender registry called UNTOUCHABLE that won the Albert Maysles New Documentary Director Award at Tribeca Film Festival. She is currently researching a film on psychedelics.

Gabriella Coleman, a faculty associate, has been researching, teaching, and writing on computer hackers and Anonymous. She published an updated version of her book *Hacker Hoaxer Whistleblower Spy: The Many Faces of Anonymous* with a new chapter on anonymity. The book won the 2015 Diana Forsythe Prize awarded by the American Anthropological

Association. It has been translated into Spanish, French, and Italian and is currently being translated into six other languages. She published "Hackers and the Craftiness of Craft" in *Digital Keywords: A Vocabulary of Information Culture and Society* (Benjamin Peters ed., Princeton: Princeton University Press). She co-edited and co-wrote the introduction for *The Participatory Condition in the Digital Age*, which will be out with University of Minnesota Press in December 2016; she completed a journal article "From Internet Farming to Weapons of the Geek," which has been accepted by *Current Anthropology*, and finally, she completed "The Many Faces of Making Ethnography/Anthropology Public: Gopher, Translator, Trickster, and Media Maker" which will be included in *Truth be Told* (Didier Fassin. ed. Durham: Duke University). She also co-organized a conference on anonymity in authorship and activism, has been an executive consultant for a Vice News documentary series on cyberwar, runs a monthly research group, Bits, Bots, and Bytes, and gave 35 talks, five of them keynotes or named lectures.

Sasha Costanza-Chock, a faculty associate, was promoted this year from Assistant to Associate Professor of Civic Media at MIT. They continue to work on participatory research and co-design of media projects with social movement organizations and worker-owned enterprises. Recent peer-reviewed publications include "Media in Action: A Field Scan of Media & Youth Organizing in the United States," in the *Journal of Digital & Media Literacy*, and "PageOneX: New Approaches to Newspaper Front Page Analysis," in the *International Journal of Communication*. In 2015-2016, Costanza-Chock was principal investigator on a grant from the Ford Foundation's Advancing LGBT Rights Initiative to co-design transformative media organizing work [http://transformativemedia.cc] at the intersection of LGBTQ & Two-Spirit rights and racial justice, as well as a FUSE Labs Peer Economy Research Award for the project "Think Outside the Boss: Towards Co-Design of Worker-Owned Platforms in the 'Sharing Economy.'" In the fall, they taught MIT's Intro to Media Studies course, and in the spring, they taught a seminar on Civic Media, as well as the Collaborative Design Studio [http://codesign.mit.edu]. This year's Co-Design Studio partnered students, staff, and volunteers (including Berkman Fellows) on design teams with worker-owned cooperatives in the Boston area, to design media and technology projects in response to real-world needs in the cooperative business sector. Costanza-Chock also continues to work with Research Action Design (RAD.cat), a worker-owned cooperative that uses community-led research, transformative media organizing, technology development, and collaborative design to build the power of grassroots social movements.

Jack Cushman, a fellow, continued his work on the Perma link preservation tool with the Harvard Library Innovation Lab. In April 2016, Perma won a major grant from the Institute of Museum and Library Services to expand service to academic and commercial users. For the Free the Law project, he led a wintersession sprint where Harvard computer science students analyzed a complete collection of California caselaw, resulting in a presentation at the CALI Conference for Law School Computing in June 2016. He also helped to design and launch the Berkman Assembly.

Kate Darling, a fellow, has been engaged in continuous research on human-robot interaction and the way that human responses to robots impact law, ethics, policy, and society. She also travelled around the world to keynote on robotics, attended US policy meetings on robotics and AI, taught a workshop on research methods at We Robot 2016 (the annual robotics law & policy conference), and contributed a piece to *Robot Ethics 2.0*, which is forthcoming by Oxford

University Press. She has continued to work in intellectual property and finalize her co-edited book *Creativity Without Law,* to be published by NYU Press in February 2017.

Tim Davies, an affiliate, has been working on the write-up of his PhD, "How the Civic Potential of Open Data has been Shaped: 2009 and 2016." His article on "The Daily Shaping of State Transparency: Standards, Machine Readability and the Configuration of Open Government Data policies," written with Sam Goeta, is forthcoming in a special issue of *Science & Technology Studies on Knowledge Infrastructures*. As a member of the Technical Working Group of the International Open Data Charter, he has facilitated workshops on open data, law enforcement and anti-corruption, feeding into the 2016 UK Anti-Corruption Summit. Davies has continued to take an active role developing Open Data Services Cooperative, a start-up workers co-op, working on open government data standards in procurement, aid, agriculture, and philanthropy.

Primavera De Filippi, a faculty associate, began work as a permanent researcher at the National Center of Scientific Research in Paris in October 2015. She founded the Institute for Interdisciplinary Research on Internet & Society, which has recently become part of the Network of Centers. De Filippi's research has focused mostly on the legal aspects of blockchain technologies and the new governance models that can be built around them. She has been involved as part of the Global Agenda Council on the future of IT software of the World Economic Forum to elaborate policy guidelines for governments to better cope with recent technological advances, in particular related to blockchain technology. Over the past academic year, De Filippi has published three papers in academic journals and edited two books, one each on the issue of net neutrality and on big data and algorithmic governance. De Filippi also organized several conferences on blockchain technologies in Paris, New York, Sydney, and Hong Kong. She contributed to the organization of two symposiums at the European Parliament and at the European Commision in order to analyze uses of blockchain technologies for the social good. Finally, De Filippi has been invited to give a large number of talks and keynotes at international conferences. She has given talks at TEDx Cambridge and TEDx Paris on the topic of blockchain and cooperation. Beyond her academic career, De Filippi has focused on an artistic experiment that eventually gave birth to the Plantoid: a "blockchain-based life-form" that is able to collect funds in order to reproduce itself on its own.

Juan Carlos De Martin, a faculty associate, contributed to a draft Declaration of Internet Rights as a member of a study commission established by the President of Italy's Chamber of Deputies. This draft was presented at the Internet Governance Forum 2015 in Joao Pessoa, Brazil. He also started to work on the topic of Internet and power, and preliminary results were presented at several seminars and workshops. In May 2015 the Fondation Maison des Sciences de l'Homme appointed him Directeur d'Etudes Associé to conclude his research on digital power during a one-month stay in Paris in Fall 2016. De Martin also continued to work on a book on the future of universities and on a preliminary draft of a textbook for his "Digital revolution" course, a course designed while at the Berkman Center in 2011-2012. De Martin's editorials on digital issues continued to appear on the front page of leading Italian newspapers.

Judith Donath, a member of the Fellows Advisory Board, started the year by signing a contract with Yale University Press for her next book, *The Cost of Honesty: Evolution, Technology and Deception*. It can be quite profitable to lie—to claim to be smarter, faster, or nicer than you actually are. But if all communication was dishonest, we'd ignore it all. Fortunately, that is not the case—but what keeps it reliable enough to function? Signaling theory, as developed in evolutionary biology, provides an economic model of how honesty and deception are kept in a

working equilibrium. Today, however, technology threatens to destabilize this balance. On the one hand, deception is rampant in online forums, where identities are fluid and disposable. Yet on the other, extensive personal databases, ubiquitous surveillance, and sophisticated bio-sensing promise (or threaten) to nearly eradicate deception. At the same time, advances in AI and robotics are bringing us new companions and confidants that can expertly mimic any human emotion—with none of the constraints that actual feelings and empathy place on real people. Donath's focus this year has been writing a first draft of the book addressing these issues. She's given related talks including at Microsoft Research's Social Computing Conference, Stanford's HCI seminar, a keynote at Theorizing the Web conference keynote, and an address to the annual meeting of Massachusetts psychologists and psychoanalysts.

Shannon Dosemagen, a fellow, continues as executive director of Public Lab (publiclab.org). Her work at the Berkman Center over the last year focused on issues of trust and verification in the use of community-collected data for the purpose of influencing policy around the environment and public health. In Spring 2016, Dosemagen was appointed to the US EPA National Advisory Council on Environmental Policy and Technology and joined the Board of Directors for the Citizen Science Association. In March 2016 she co-organized the Gathering for Open Science Hardware at the European Organization for Nuclear Research. Over the last year, Dosemagen has co-authored several papers including "Mapping Grassroots: Geodata and the structure of community-led open environmental science" in *ACME: An International E-Journal for Critical Geographies*, the forthcoming article "Public Lab: Community-based Approaches to Urban and Environmental Health and Justice" in *Science and Engineering Ethics*, a chapter in a forthcoming book on science, policy, and communication titled "Civic Technology and Community Science: A new model for public participation in environmental decisions," and "The Political Geography of Aerial Imaging" in *Drones and Aerial Observations: New Technologies for Property Rights, Human Rights and Global Development*. Popular press mentions of Dosemagen's work with Public Lab have recently appeared in *Nature* ("Open Hardware Pioneers Push for Lowcost Lab Kit") and *MAKE Magazine* ("Public Lab Puts Eco Justice in the Hands of Citizen Scientists").

Nathan Freitas, a fellow, continued his work both as a researcher and practitioner in the field of mobile security, privacy, and access technologies for both everyday users and people who undertake higher risk activities, such as activists, journalists, and human rights defenders. In December 2015, his article "6 Ways Law Enforcement Can Track Terrorists in an Encrypted World" was published by the *MIT Technology Review*. The article was referenced by the Berkman Center's own "Don't Panic" report, sharing the perspective that even in this age of mainstream strong encryption governments still have many tools at their disposal for law enforcement and surveillance. Nathan and his team at Guardian Project collaborated with developers at Facebook to integrate support for his app Orbot, which provides increased security and privacy for Android devices through use of the Tor network, into the official Facebook for Android app. This new feature provides the potential for a simple security boost to hundreds of millions of Facebook users around the world. He also continued his work on Wind, investigating non-Internet communication technologies and how the physical movements of people and communities through the day could help power that, especially in less connected parts of the planet. This topic overlapped with the work of fellow Jason Griffey, who leads the LibraryBox project, which provides a simple solution for off-grid, portable private digital file distribution, beginning a great collaboration that is expected to continue. Finally, Nathan began to look into the use of technologies like strong, authenticated end-to-end encryption and onion routing as

solution to address the rampant security issues in Internet of Things devices and networks. A presentation on this work, along with a live demo, was presented both at the Berkman Center and at West Point's Army Cyber Institute.

Rob Frieden, a faculty affiliate, published several law review and journal articles on net neutrality and other timely public policy issues. Additionally he participated in many conferences including two International Telecommunication Union events in Brasilia, Brazil, addressing infrastructure development. Frieden also offered insights on near complete blockage of telecommunications and Internet access in the Northern Marianas Islands, caused by multiple equipment failures, and in a village in Bahrain resulting from government-imposed blockage.

Mayo Fuster, a faculty affiliate, gained a tenure position in January 2016 at the Internet Interdisciplinary Institute of the Open University of Catalonia, where she created and directs the Dimmons.net research group on commons production. She is the main researcher of the European Project P2Pvalue, investigating the conditions that favor value creation in commons production. In March 2016 she organized a major event on public policies on collaborative economy, procomuns.net. She has participated in the research that informed the European Agenda of Collaborative Economy released in June by the European Commission. She is also an advisor to the Barcelona City Council on commons, technology, and economical innovation, and directs BarCola, a joint working group between the City Council and the commons in Barcelona.

Lex Gill, an affiliate, has presented Berkman Center research on digital constitutionalism on several occasions over the past year, including talks at the University of Pennsylvania and McGill University, with an upcoming workshop at the Association of Internet Researchers' annual conference in Berlin. Her upcoming paper "Law, Metaphor and the Encrypted Machine" has also been the subject of several academic talks, and served as the basis for a presentation at Northsec, the largest applied security conference in Canada. As the resident Google Policy Fellow at the Canadian Internet Policy and Public Interest Clinic, her core research has focused on legal issues surrounding Internet intermediaries and global freedom of expression, supporting the organization's critical court intervention work. In conjunction with the Canadian Civil Liberties Association, she has also conducted an extensive interview series with legal experts, activists, Indigenous leaders, and members of Muslim communities as part of a major report on the state of surveillance in Canada, to be released Fall 2016. In addition to her academic and advocacy work, she has spent the year on various initiatives intended to build community and bridge gaps between social justice organizing and technical communities, particularly around issues of security and gender.

Mary Gray, a fellow, published the co-edited volume *Queering the Countryside: New Frontiers in Rural Queer Studies* with NYU Press. She also completed a two-year study examining who works in the nascent world of on-demand economies and how they navigate technologies that render their labor invisible, by design. This study was joint work with computer scientist Siddharth Suri. Over the past academic year, Mary has focused her energy on sharing her work with a broader public. As a result, and through mentoring from the Berkman Fellowship community, Mary wrote a series of op-eds, published in the *Pacific Standard*, Bloomberg News and the *Los Angeles Times*. With Dean Jansen she co-convened "Platformation," a Fall Summit of labor, industry, and academic stakeholders invested in automation's role in shaping workers' experiences of on-demand services. Mary also participated in a series of events sponsored by the Department of Labor and Aspen Institute aimed at identifying the data gaps that must be filled to better understand on-demand economies and AI's impact on the future of work. Mary published

papers for both the annual ACM conferences on cooperative work (CSCW) and computational studies of the Internet (WWW). Among her other presentations, Mary gave the opening keynote for the Human Computation Conference in October 2016 as well as talks for the AFL-CIO, Economic Policy Institute, and Federal Reserve Board in June 2016.

Nicola Greco, a fellow, has been researching technologies to make the web more decentralized. Greco's interests are in building technologies that are decentralized: no single point of control, censorship resistant, trust-less, and verifiable. He started the Center for Decentralization as an informal discussion group on decentralized systems both at the Berkman Center and elsewhere at Harvard and participated at the Blockchain WG. This year, he started his PhD at MIT, advised by Sir Tim Berners-Lee. His work has focused on two main projects: Solid, at MIT, and Inter-Planetary Linked Data (ILPD) with Protocol Labs. Solid decouples data from the applications to avoid vendor lock-in and seamlessly switch the apps and data providers, without losing any data or social connections, while IPLD is a data format for a secure distributed web. Greco has also been active in the Decentralized Web community. He participated, presented at, and organized different events, including the Decentralized Web Summit, WWW 2016, W3C Blockchain Workshop, and Rebooting the Web of Trust. Amongst the many interesting conversations at the Berkman Center, Greco met weekly with David Weinberger to discuss the values and the importance of decentralized systems.

Jason Griffey, a fellow, has been studying the equity and access to information as well as building technologies for libraries and nonprofits. His LibraryBox project [http://librarybox.us], an open source international project dedicated to the distribution of digital works in areas lacking infrastructure or where information access is heavily censored or monitored, released their largest feature set to date with the v2.1 codebase. His work at the Berkman Center and MIT with the decentralization working group led to the publication of an essay "How Libraries Can Save the Internet of Things…" for BoingBoing. He covered SXSW 2106 for the American Library Association, and filed three multimedia reports on technologies that will influence libraries over the next year. Griffey delivered keynotes on privacy, future technology, and decentralization at the American Library Association conference, the Ontario Library Association Superconference, and the Metropolitan New York Library Council, among many others. His Knight Foundation News Challenge project, Measure the Future [http://measurethefuture.net/], will launch in 2016. Griffey worked to introduce new technologies to the Berkman Center itself, installing a 3D printer and holding workshops on its use. He also took David Weinberger's excellent publication "15 Lessons from the Berkman Fellows Program" and ported it to text-based formatting [http://berkmanlessons.net].

Eldar Haber, a fellow, continued his research on cyber-related and law and technology topics. He finished writing two law review articles that were accepted for publication in American law reviews. The first project was on the protection of critical infrastructures from cyber-attacks. This project was conducted with Professor Tal Zarsky from the faculty of law in Haifa University and is forthcoming in the *Florida State Law Review*. The second project was on governance in the age of distributed networks and information flow ("Governance by Proxy"). This second project was conducted with Professor Niva Elkin-Koren, the Director of the Haifa Center for Law & Technology at the faculty of law in Haifa University and is forthcoming in the *Brooklyn Law Review*. Another research project was on the role of the state in cyber-warfare. This research, conducted with Professor Amnon Reichman, is supported by the Minerva Center for the Rule of Law under Extreme Conditions at Haifa University, and is currently in the writing phase. During his time at Berkman, Haber also began a new project on the EU's "Right to be

Forgotten" (RTBF). This research eventually turned into two projects. In the first RTBF project, Haber examined the right to be forgotten as a form of privatization of the judiciary. This project generated a law review article forthcoming in the Seattle Law Review. The second RTBF project deals with expungement in the digital age. Under this project, Haber examines whether rehabilitation under expungement statutes could co-exist with the wide availability of information online, and if potential solutions like the right to be forgotten should apply for individuals who were convicted of a crime and rehabilitated. This project is still in an early writing phase.

Samer Hassan, a fellow and Assistant Professor at the Universidad Complutense de Madrid, focuses his research on the crossroads between decentralized systems and commons-based peer production. During this year, he led a team within the EU-funded P2Pvalue project on commons-based peer production, which has resulted in two free/open source web tools: Teem, an app for collaborative communities that facilitates newcomer onboarding, and SwellRT, a development platform for building real-time collaborative decentralized apps. These two projects were part of the Berkman Center's successful application to Google Summer of Code 2016, where he was one of the Center's student mentors. He has co-organized the Berkman Center's Blockchain Working Group, which met every other week for conversations around blockchain applications and decentralized systems. In Winter, he taught his beloved course on cyber-ethics and law at Universidad Complutense de Madrid. He also co-organized the conference on Commons Collaborative Economies held in March 2016 in Barcelona, and participated in the first Decentralized Web Summit organized by the Internet Archive in June 2016 in San Francisco. In this period he has published several papers, including Springer and INC book chapters, forthcoming papers in the journals *World Wide Web* and *First Monday*, and is currently co-editing the book *Decentralizing the Commons*.

Felipe Heusser, a fellow, has explored and developed technology to decentralize the production and distribution of civic media. Leading Rhinobird.tv, an open source video software platform, Heusser has explored the role of web standards for video communication while also understanding the increasing dominance of video over Internet bandwidth. In particular, he has developed technology that allows the curation and syncing of video data, paying attention to different contexts of space and time. Using mainly video metadata, Rhinobird has been able to organize and sync large amounts of video content, more and faster than previous syncing technologies. The exploratory nature of Rhinobird has also fostered a collaboration with Berkman's Cyber Clinic, where staff and students have worked together to understand and regulate the space of online video. This year Heusser presented in several conferences on topics of Civic Technology and Open Government, including the Taipei G0V Summit on Civic Technology and the Latin America Open Government and Anti-Corruption summit at the David Rockefeller Center for Latin American Studies. Heusser continues to serve on the boards of the NGO's Fundación Ciudadano Inteligente, Code for All, and 4Change Media.

Jennifer Holt, a faculty associate and Associate Professor of film and media studies at UC Santa Barbara, continued work on her second book *From Convergence to the Cloud: Media Policy in the Digital Era*, which looks at the legal and cultural history of policies related to digital media infrastructure and distribution from 1996-2016. She published an article on the privacy ecosystem in the *Journal of Information Policy* and an interview for the net neutrality issue of *International Journal of Communication*, co-edited a special issue of Convergence on connected viewing, and wrote two chapters related to policy foundations for media history anthologies. Over the past year, her work on digital media policy also took her to Australia, where she gave

several invited talks and a keynote address and was a visiting research fellow at Swinburne University in Melbourne.

Dariusz Jemielniak, a fellow, has conducted several projects, including studying online harassment on Wikipedia through qualitative interviews, and understanding the perception of fairness in sharing digital media among Harvard LL.M. lawyers. For this project, he has won a grant from Polish National Science Foundation. He has published several papers: "Inequalities in Open Source Software Development: Analysis of Contributor's Commits in Apache Software Foundation Projects" in *PLoS ONE*, "Wikimedia movement governance: the limits of a-hierarchical organization" in the *Journal of Organizational Change Management*, "Bridging the Gap between Wikipedia and Academia" in the *Journal of the Association for Information Science and Technology*, as well as "Naturally Emerging Regulation and the Danger of Delegitimizing Conventional Leadership: Drawing on the Example of Wikipedia" in the *SAGE Handbook of Action Research*. On the Wikimedia Foundation Board of Trustees he had his plate full with a new Executive Director search, as well as running the governance committee. He held a workshop on avoiding surveillance for the Nieman Foundation and prepared a guide for international scholars coming to Harvard.

Damon Krukowski, a fellow, completed work on *The New Analog*, a book about sound and technology to be published in April 2017 by the New Press in New York. He was awarded a 2016 Creative Capital / Warhol Foundation Arts Writers Grant in support of the project. During the Fellowship year, he participated in exhibitions at two area art institutions. At the ICA Boston, he presented a recurring performance, "Theater Piece no 1 Revisited," as a part of their exhibition on Black Mountain College; at the Carpenter Center for the Visual Arts, he curated an exhibition on Ezra Pound's audio recordings, "Not To Be Played." He also continued his career as a performing musician, traveling for shows in the US and Canada, the UK, Europe, Japan, Korea, Taiwan, and Hong Kong.

ChaoYin Kuo, a fellow, has been working on learning the criminal judicial system of the US and conducting analysis of how criminal courts, prosecutors, and defense attorneys achieve justice and fairness together, especially the possible application in trade secret cases regarding cyber usage. Through observation of court activities, including the oral arguments of the Supreme Court of the United States, as well as reading and discussion with experts in the field, she gained a better understanding of how the criminal laws play essential roles impacting society as a whole, social security, equity, and the distribution of judicial resources.

Amanda Lenhart, an affiliate, released her last two reports as an Associate Director of Research for the Pew Research Center on "Teens, Technology and Friendships" and "Teens, Technology and Romantic Relationships" in Summer and Fall 2015. In July 2015, Lenhart was awarded a Digital Trust Foundation grant to conduct a national study at the Data and Society Research Institute on digital abuse and cyberstalking among Americans 15 and older. She transitioned to Data & Society in November 2015. In the spring, she began working, along with Affiliate Mary Madden, on a Knight Foundation-funded focus group project studying how young Americans ages 14 to 24 consume news content in a mobile environment. In her capacity as an independent researcher, Lenhart is leading the survey and focus group design of a multi-part study of the technology ecosystem of very young children in Silicon Valley, in conjunction with the Silicon Valley Community Foundation, New America, and the Joan Ganz Cooney Center at the Sesame Workshop. Lenhart is also serving as a consultant and focus group moderator for a Pew Research Center project on paid family leave, funded by Pivotal Ventures.

Dustin A. Lewis, an affiliate, is the Senior Researcher at the HLS Program on International Law and Armed Conflict. Over the past academic year, he co-authored two legal briefings reports. The first addressed how state responses to terrorism risk eroding foundational law-of-war protections for impartial medical care. And the second examined how 25 states are attempting to suppress "foreign terrorist fighters" while supporting principled humanitarian action. He also co-authored a briefing memorandum on humanitarian exemptions and UN Security Council practice. Among his presentations included a Stockton Seminar at the US Naval War College, a lecture as part of the ARTIS Political Violence seminar series at the Center on Terrorism at the John Jay College of Criminal Justice, and an event in Geneva at the International Association of Professionals in Humanitarian Assistance and Protection. He is currently drafting research reports on whether international law provides sufficient guidance to know when modern wars end, and on autonomous weapons systems, accountability, and international law concerning armed conflict.

William Li, a fellow and a PhD student at the MIT Computer Science and Artificial Intelligence Laboratory, focused on data science and open government datasets with a particular emphasis on large collections of text documents. He defended his doctoral dissertation, "Language Technologies for Understanding Law, Politics, and Public Policy," in January 2016 and conducted research on a novel model, called Probabilistic Text Reuse, to automatically discover ideas in large collections of public comments on regulations, draft legislation, and other large unlabeled text corpora. He spoke about this work at the University of Maine School of Law, Emerson College, and the 2016 Personal Democracy Forum. In addition, he continued to pursue efforts in teaching and promoting assistive technology and accessibility education, including the publication of "6.811: Principles and Practice of Assistive Technology" on MIT OpenCourseWare and involvement in the industry-academic partnership Teach Access. William joined Apple Inc. in June 2016.

Andres Lombana-Bermudez, a fellow, collaborated on several Berkman Center initiatives, such as the Digital Literacy Toolkit, Coding for All, Digitally Connected, and Youth and Media. One of his major endeavors was helping to design and develop the Digital Literacy Resource Platform, an evolving collection of learning resources related to the themes of online safety, privacy, creative expression, and information quality. In addition, Lombana-Bermudez continued to research digital equity and learning. Drawing on his dissertation work with Latino/Hispanic youth, he published an article in a special issue of the *Journal of Digital and Media Literacy* and an essay on the London School of Economics' "Parenting for a Digital Future" blog. He also continued to research youth-driven innovation and connected learning and helped to design and launch Doing Innovation, a website that features multimedia content from his ethnographic work with creative communities of hip hop practitioners and indie game designers in Austin, Texas. Andres presented his research in conferences, conducted digital literacy workshops, and helped to organize the symposium at Harvard University titled "Transparencia: Open Data in Latin America," a gathering co-hosted by the Berkman Center, the David Rockefeller Center for Latin American Studies, and the Ash Center for Democratic Governance and Innovation. In the fall, Andres began to develop an exploratory research project about Alfabetizaciones Digitales, an initiative leaded by the National Center for Historical Memory in Colombia that supports peace-building through the acquisition of digital literacy skills among marginalized communities and victims of war. He also joined the Clubes de Ciencia-Latinoamerica initiative, and led the educational team in planning, implementing, and evaluating week-long STEM workshops for low-income high school students in six Colombian cities.

Mary Madden, an affiliate, has spent the year as a researcher for Data & Society, leading an initiative to understand the intersection of privacy and socioeconomic status. The centerpiece of the project, which is funded by the Digital Trust Foundation, is a large, national survey that examines the privacy and security experiences of low-SES Americans. Madden has been focused on various projects involving survey design, data analysis, and writing throughout the year, and she will have several publications coming out of this work in the fall. In September 2015, Madden appeared on a panel discussing parents' attitudes about educational data collection and privacy at the Future of Privacy Forum's National Student Privacy Symposium. In December 2015, she participated in a National Science Foundation-funded workshop on designing ethical review processes for big data research. In the early months of 2016, Madden wrote an article for the Privacy Law Scholars Conference (along with co-authors Michele Gilman, Karen Levy, and Alice Marwick) titled, "The Class Differential in Privacy Vulnerability," which combines legal, empirical, and case study analysis to describe an overlapping set of privacy-related vulnerabilities that low-income Internet users face. Other notable events included a presentation as part of the Digital Equity event organized by the Joan Ganz Cooney Center to discuss low-income families and their access to educational technology, a presentation at Microsoft headquarters about American's privacy attitudes, and a Data & Society workshop with Digital Trust Foundation grantees. Most recently, Madden has been working with fellow Berkman Affiliate and Data & Society colleague Amanda Lenhart on a Knight Foundation project to understand changing patterns of youth news and media consumption.

Catharina Maracke, a faculty associate, has been studying the intersection of law and technology. She published a paper on patent pledges, "Playing Nice with Patents," co-authored with Professor Axel Metzger of Humboldt-University Berlin in the *North Carolina Journal of Law and Technology* and continued to work and present on legal questions around Free and Open Source Software licenses. She has also taught classes on IT Policy (co-taught with Professor Jun Murai) and Legal Thinking at Keio University, and on Publishing and Open Access Models at the Institute of Library and Information Science at Humboldt-University Berlin.

J. Nathan Matias, a fellow and PhD candidate at the MIT Media Lab with Ethan Zuckerman, began the academic year as a PhD intern at the Microsoft Research Social Media Collective with Tarleton Gillespie and Mary Gray. While at Microsoft, he published research on a strike by moderators on the social news site Reddit, testing hypotheses about what factors explain a group's decision to join a strike. Nathan published a working paper on gender discrimination by audiences of UK online news with Hanna Wallach. He also coordinated contributions from 20 scholars to create an open access literature review of responses to online harassment. After returning to MIT, Nathan published research on networks of gratitude in the workplace with Emma Spiro and Andrés Monroy Hernández. He also published a replication paper on skill progression in online learning with Sayamindu Dasgupta and Benjamin Mako Hill, overturning former research that had influenced "big data" approaches to learning evaluation. At the Berkman Center, Nathan continued to facilitate the Cooperation Working Group, a Boston-wide gathering of researchers and practitioners to support practical efforts and research on cooperation. Topics included digital labor, platform cooperatives, online learning, and mass replication of social psychology research. In February 2016, Nathan gave a Berkman Center lunch talk on developing effective citizen responses to discrimination and harassment online. Together with Ricarose Roque and Sayamindu Dasgupta, Nathan taught the MIT class "Unpacking Impact," focused on supporting graduate students to develop critical perspectives on

impact-oriented design and data science. As the year came to a close, Nathan began the final year of his dissertation, developing CivilServant, a software system to support self-governing online communities to run social experiments to test the outcomes of their community policies. In addition to experimental results, the dissertation will offer contributions on theories of social policy and research ethics.

Lauren McCarthy, an affiliate, continued her artist research into social interactions and identity mediated by technology. Her most recent work was a performance and software piece that allowed people to hire a real life follower. She was an artist in residence at both the Stochastic Labs in San Francisco and the Queensland University of Technology in Brisbane, Australia. She also lectured at MIT, the Massachusetts Commission Against Discrimination, Stanford, and Eyeo Festival. She exhibited artwork at Ars Electronica and Share Festival and had a solo exhibition at Open Gallery in Boston. She continued development of p5.js, a creative coding platform she created, and published the O'Reilly/Make book *Getting Started with p5.js*. As a director of the Processing Foundation, she helped launch the fellowship program that supported artists working to make p5.js and processing more accessible to blind and seeing impaired programmers, teach coding to children of immigrants, and create multi-lingual coding resources.

Sarah Newman, an affiliate and artist-in-residence at metaLAB (at) Harvard, continued her creative explorations of the hidden lives of objects in the past, present, and future. Exhibitions included "Homage to a Future Self," a photographic installation exploring memory, time, and water at Indiana Wesleyan University; "Your Story Has Touched My Heart" with Matthew Battles, a video installation contending with photographic abundance and dark archives at Harvard Art Museums; and "A Bit in the Abyss" with metaLAB, a light and sound installation visualizing the growth of the Internet, at the Illuminus Festival in Boston. She also contributed photographic work to the forthcoming "Tree" with Matthew Battles, "After Belonging," the publication of the forthcoming Oslo Triennial with Jeffrey Schnapp, and the exhibition "Not to be Played" at the Carpenter Center for the Visual Arts' Cert Gallery. Newman gave artist talks at Indiana Wesleyan University and Harvard Art Museums and taught a Harvard Wintersession Course with metaLAB titled "Appropriate Memories: A Photography Remix Studio." She launched "The Future of Secrets," a multi-output exploration of the future life of digital correspondence, taking form as a series of workshops, experimental publications, and web outputs. At metaLAB, Newman played a role as a member of the core team, contributing to the group's practice in design research, facilitation, and cross-disciplinary engagement.

Dalia Othman, an affiliate, co-founded Vecbox, the first hackerspace in Palestine. Through Vecbox, Dalia organized a pop-up makerspace that was set up alongside the Global Game Jam week. As part of Vecbox's objectives Dalia also organized a series of workshops focusing on concepts of making and makers, digital privacy and DIY gaming. In the fall, Dalia guest spoke at the Humboldt Foundation and Siegen University and was on a panel at the Arab Internet Governance Forum after participating in the MENA Internet Policy Camp in Beirut. In the spring, she participated in the Global Voices project GV Exchange and helped develop a guide for activists in the Global South. She also joined Jillian York at re:publica to speak about Freedom of Expression in the Arab World. Dalia also wrote a chapter on digital rights violations in the report: "Palestinian Social Media Activity during 2015." She is currently working at Tactical Tech on their Gender and Tech project spending much of her time researching online harassment and tech-based violence against women.

Leah Plunkett, a fellow, continued to engage questions about why and how to use data in creating and fostering positive connected learning environments through both her research with the Berkman Center and in her role as Associate Professor and Director of Academic Success at University of New Hampshire (UNH) School of Law. At UNH, Plunkett continued to design and implement a new preliminary bar exam initiative, which she presented at the New England Consortium of Academic Support Professionals. Plunkett also continued her work in the access to justice space through activities such as teaching a UNH Law class on the topic this spring.

Dennis Redeker, an affiliate, spent the year analyzing and writing about digital rights documents and researching the role of the Internet in helping communities affected by climate change to preserve immaterial culture. Together with Lex Gill and Urs Gasser, he released a working paper titled "Towards Digital Constitutionalism? Mapping Attempts to Craft an Internet Bill of Rights." The paper investigates thirty digital rights documents circulated during the last twenty-five years, analyzing changes over time with regard to substantive rights entailed and targeted level of intervention. Advancing this work on digital constitutionalism, he presented the working paper at the Oxford Internet Institute's Connected Life 2016 Conference. He also served as the leading researcher and a team member of the Island Ark Project, a platform project to support small island state communities preserve and transmit their immaterial cultural heritage online. He and his colleagues presented the project during the 2015 UNESCO General Conference in Paris, and he also travelled to the Republic of Palau to investigate the feasibility of the platform and to gather support from stakeholders. Additionally, he started a multi-year dissertation research project on the role of transnational civil society groups in the debate on net neutrality in India, Europe, and the US.

Justin Reich, an affiliate, started the new Teaching Systems Lab at MIT, investigating the complex, technology-rich classrooms of the future and the systems needed to prepare teachers to thrive in those classrooms. His research and writings appeared in *Science*, *Journal of Learning Analytics*, *MindShift*, Education Week: EdTechResearcher blog, and proceedings from Learning@Scale and Learning Analytics and Knowledge. He is the program chair for next year's Learning@Scale Conference at MIT.

Michel José Reymond, an affiliate, is a visiting researcher under a grant from the Swiss National Science Foundation. Reymond spent the year working on the interface between European and American speech and privacy laws. Arriving at Berkman following the publication of his PhD work, "La compétence internationale en cas d'atteinte à la personnalité par Internet," which dealt with the international dimensions of defamation law on the Internet and the phenomenon of "libel tourism," he turned his focus towards the emergent issue of the digital "Right to be Forgotten." Providing a European conflict of laws perspective, he has been involved in many talks conducted at Berkman on the topic, alongside Christopher Bavitz and Adam Holland. Following up on this fruitful cooperation, Reymond gave a public luncheon talk about his research, "Finding common standards for the Right to be Forgotten: Challenges and Perspective," which took place at the Berkman Center on May 4, 2016. His full report, "Hammering Square Pegs into Round Holes: the Geographical Scope of Application of the EU Right to be Delisted," will be published as part of the Berkman research publication series. Outside of this main area interest, Reymond has also assisted the Privacy Tools project and has published an article on copyright, "Lenz v Universal Music Corp: Much ado about nothing?" in the *Oxford International Journal of Law and Information Technology*.

Ricarose Roque, a fellow, defended her MIT Media Lab dissertation "Family Creative Learning: Designing structures to engage kids and their parents as computational creators." This research focused on exploring ways to engage families to create and learn together using creative technologies like the Scratch programming environment. She worked with community-based organizations that served families with limited social support and resources around computing. Ricarose published and presented a paper "'I'm not just a mom': Parents Developing Multiple Roles in Creative Computing" at the International Conference of Learning Sciences. She also published two book chapters, one called "Family Creative Learning" for the book *Makeology: Makerspaces as learning environments* and "Supporting diverse and creative collaboration in the Scratch online community" for the book *Mass Collaboration.* In Fall 2015, she co-taught a course with Nathan Matias and Sayamindu Dasgupta called "Unpacking Impact: Reflecting as we make" to invite MIT and Harvard students to reflect on the ethical and societal implications of their work. In January 2016, Ricarose spent time working with the Tinkering Studio at the Exploratorium as a "Tinkerer-in-Residence" exploring the connections between coding and tinkering.

Niousha Roshani, a fellow, analyzed the impact of race and inequality in Colombia and Brazil within the Harmful Speech project at the Berkman Center. Her work explores racist speech patterns and how they are being replaced by the positive approach of initiatives of dedicated Afro-Brazilian and Afro-Colombian youth civic engagement and leadership-forging. This research will eventually be published by the Berkman Center. As part of this project, she co-organized a conference on Digital Racism in Rio de Janeiro in April 2016 that brought together the country's private, public, and third sectors. She also published book chapter titled "Changing the Notions of Child Soldiers: Rethinking Children's Engagement in the Armed Conflict in Colombia" and an article in the Hutchins Center's *Transition* magazine, "Building Identities in the Midst of Conflict: The Fine Line Between Survival and Combating Racism for Young Afro-descendants in Colombia."

Cynthia Rudin, a faculty associate, has been working in the area of machine learning with applications including criminology and the Internet. In the area of computational criminology, she and her collaborators have been working on automated detection of crime series, and automated methods of producing risk scoring systems for recidivism. Her team is also building machine learning tools for causal inference that can be broadly relevant to computational social science. She is a winner of the 2016 INFORMS Innovative Applications in Analytics Award, given by INFORMS Analytics Society.

Bruce Schneier, a fellow, has been studying the intersection of security, technology, and people. He taught two seminars in conjunction with the Kennedy School of Government: a "Catastrophic Risk Study Group" in Fall 2015, and "Special Topics in Internet Security Policy" in Spring 2016. He also led his popular op-ed writing seminar at the Berkman Center and guest lectured at several Harvard Law School and Harvard Kennedy School classes. He has published many essays and op-eds on these topics as well, and researched his next book on the Internet of Things and catastrophic risk. In June 2016 he hosted the 9th Interdisciplinary Workshop on Security and Human Behavior.

Brittany Seymour, a fellow and assistant Professor at Harvard School of Dental Medicine, dedicated her fellowship year to analyzing how digital information and misinformation influences public perception of prominent public health issues. In collaboration with the Media Cloud team, she assisted in introducing new methods for network analysis and digital media

modeling to the health communication arena. Her work was recognized by public health experts as "novel" and a "model for a new area of inquiry." She has completed over two dozen related local and national presentations and publications. Highlights include contributions to digital media blogs and videos for the American Dental Association, *American Journal of Public Health*, American Academy of Pediatrics, and the American Public Health Association. Her team's work on the Ebola epidemic led to an invitation to speak with the US State Department Working Group on Strategic Communications for Ebola, a presentation at the 8th Annual Conference on Dissemination and Implementation Sciences sponsored by the National Institutes of Health, and a publication in the peer reviewed Journal of Health Communication. Her work in community water fluoridation resulted in a publication in the peer reviewed *Journal of Dental Education* and invitations to join national committees for the American Association of Public Health Dentistry and the American Dental Association. She has also been invited to audition as a national spokesperson for the ADA. Following the completion of her team's work on childhood vaccinations, they held an event with guest speaker Dr. Richard Pan, California State Senator and pediatrician, to discuss the Disneyland measles outbreak and resulting vaccine legislation. This event drew attendees from across the Harvard community. Seymour was also invited to be a featured session presenter at the CDC's 2016 National Immunization Conference, "Immunization: It Takes A Community."

Hasit Shah, an affiliate, researches and writes about the development of digital media in India. He has regularly visited the country as part of his research, funded by a grant from the Knight Foundation. Over the past year, Shah has written pieces for Slate, Niemanlab, Quartz, and Nieman Reports on various aspects of the Digital India initiative, from net neutrality to foreign investment. He publishes a weekly newsletter, gathering useful pieces and news about these issues. He has delivered lectures at Harvard about the history of the Internet in India, and has spoken at the Online News Association's annual conference about Indian news startups. He also moderated a keynote panel at the Harvard India Conference about the impact of the Internet on entertainment in India. Shah is also interested in broader digital culture. In March 2016, he published a major piece for NPR Music about Prince's difficult and often misunderstood relationship with the Internet as a platform for music. He is currently making a podcast about the subject for Radio Berkman. Shortly before his tragic death, Prince called Hasit and had an hour-long discussion about the piece and its various trajectories. Hasit is now working on a further article about that conversation and the wider consequences of Prince's personal views on digital music.

Jake Shapiro, a member of the Fellows Advisory Board, announced the formation and funding of RadioPublic, a mobile listening platform for podcasts and on-demand radio, in May 2016. RadioPublic is a Public Benefit Corporation and a hybrid enterprise together with the nonprofit public radio distribution network PRX, which Jake founded in 2002 after serving as Associate Director of the Berkman Center. Investors in RadioPublic include Project11, the New York Times, Knight Foundation, American Public Media, McClatchy, Graham Holdings, UP2398, Matter Ventures, and Homebrew. RadioPublic will launch first versions of its mobile listening apps later in 2016.

Ben Sobel, a fellow, graduated mid-year with an A.B. from Harvard College and spent Spring 2016 teaching a section of CopyrightX, a networked course on copyright law offered under the auspices of the Berkman Center, Harvard Law School, and HarvardX. Ben will serve as CopyrightX's Head Teaching Fellow for the 2016-2017 academic year. In addition, he will continue to work on the Berklett Cybersecurity project, which convenes experts from academia,

civil society, and the US intelligence community to evaluate the global privacy and cybersecurity ecosystem. Throughout the year, Ben also maintained an independent research project on copyright law's construction of authorship and its implications for computer-generated works of art, which he expects to complete during the 2016-2017 academic year.

Lana Swartz, a fellow, spend the year as a post-doctoral researcher at Microsoft Research New England. In the fall, she will join the faculty of the University of Virginia's Media Studies department. She spend the year conducting research and writing about money and other communication technologies. Her edited collection, *Paid: Tales of Dongles, Checks, and Other Money Stuff*, will be published by MIT Press in 2017. It contains chapters from scholars across field about transactional objects and a foreword by Bruce Sterling. She also wrote a chapter about money technology in the 20th century for Bloomsbury's forthcoming history of money book series and a chapter about blockchain dreamers for a forthcoming book about economic cultures edited by Manuel Castells. She was also an artist in residence at the Ace Hotel in Manhattan, where she displayed her installation, "The Lonely Old Bitcoin Miner Touches Eternity." She remains hard at work on her next project, a book about the past, present, and maybe future of payment technology.

Emy Tseng, an affiliate, convened and co-facilitated the Inclusive Innovation Working Group with Shannon Dosemagen, a Berkman fellow. The group discussed and shared information on how marginalized communities create, adapt, and use technology to serve their own needs and goals. Tseng also organized the Inclusive Innovation Speaker Series with the talks "Techno-Vernacular Creativity and STEAM Education," "Black 2.0 and the New Liberation Movement," and "Under-connected in America: How Lower-Income Families Respond to Digital Equity Challenges." Her research and work with the National Telecommunications and Information Administration (NTIA) focuses on technology adoption in underserved communities.

Sara M. Watson, an affiliate, has been researching the state of technology criticism through a fellowship with the Tow Center for Digital Journalism. She argues that we currently have a too narrow definition of what is recognized as technology criticism, or who identifies as a tech critic, which misses the larger critical discourse about technology. Besides deconstructing, naming, and interpreting technological phenomena, technology criticism has the potential to assemble around new insights and interpretations. Constructive technology criticism, she argues, brings stakeholders together rather than pitting them against each other and poses alternative possibilities. This research and forthcoming report took most of her attention, but she also continued writing about personal data and algorithms. In a contribution to Schirn Mag's "Me: The Limitless Self," paired with the ~~ME~~ exhibit on contemporary self portraiture, she described the personality of her data doppelgänger in "Bits of Me." She continued co-hosting the Mindful Cyborgs podcast and contributed to episodes on alter egos and digital doppelgängers for Radio Berkman and BBC 4's Digital Human podcast. Notable speaking engagements included a panel on Covering Technology at the Tow Center's Journalism + Silicon Valley conference and exploring speculative scenarios about the Internet of Things at FutureEverything in Singapore. In the coming year, Watson will continue writing technology criticism, and plans to investigate personal data and smart city initiatives in Southeast Asia, alongside colleagues at the newly developed Digital Asia Hub from her home base in Singapore.

Josephine Wolff, a faculty associate, began her position as an assistant professor at Rochester Institute of Technology in the public policy and computing security departments this fall. In 2015-2016, she held a fellowship from New America to work on a book project analyzing the

aftermath of a series of cybersecurity incidents, and their economic, legal, and technical fall-out. She presented papers at the Research Conference on Communications, Information and Internet Policy and the Hawaii International Conference on System Sciences and also continued contributing articles to *Slate* and *The Atlantic*.

4. Publications (Selection)

Renewing its commitment to Open Access publishing, the Berkman Center released 21 publications in the 2015-2016 academic year through the Center's website, the Social Sciences Research Network (SSRN), and other online channels. The list includes:

- Three reports from the Internet Monitor project, which focus on key events and new developments in Internet freedom;

- Two reports from the Municipal Fiber Initiative, examining developments in bringing high speed broadband to small communities; and

- A major report on security and privacy from the Berklett Cybersecurity Project that brought together an unprecedentedly diverse community of experts from academia, civil society, and the US intelligence community.

- A first-of-its kind e-book offering reflections on the 25th anniversaries of the invention of the World Wide Web by Sir Tim Berners-Lee and the adoption of the Convention on Rights of the Child by the US General Assembly, in collaboration with PEW Internet, EU Kids Online, the Internet Society (ISOC), Family Online Safety Institute (FOSI), and YouthPolicy.org.

Each release was promoted over the Berkman Center listservs and via social media outlets; in some cases, hard copies of the publications were produced. Below are summaries, which are no means comprehensive. A full list of scholarly work published with SSRN can be seen at http://brk.mn/ssrn.

Internet Monitor

- "#IranVotes: Political Discourse on Iranian Twitter During the 2016 Parliamentary Elections": This report maps and analyzes the content and structure of the Iranian Twittersphere over the course of the 2016 legislative elections in order to identify the communities that developed around various political, social, and cultural issues and to assess the influence of online political campaigning on the platform.

- "Openness and Restraint: Structure, Discourse, and Contention in Saudi Twitter": This report maps and analyzes the structure and content of the Saudi Twittersphere and identifies the communities that coalesce around different political, religious, social, and cultural topics and viewpoints.

- "Beyond the Wall: Mapping Twitter in China": This report maps and analyzes the structure and content found on Twitter centered around users in mainland China, offering a rare look at the activity of Chinese Internet users on a platform that is largely

unregulated by the state and only reachable through the use of tools that circumvent state-mandated Internet filters.

Municipal Broadband

- "WiredWest: a Cooperative of Municipalities forms to Build a Fiber Optic Network": This case study details how a legal cooperative of 31 western Massachusetts towns plans to finance the construction of a state-of-the-art fiber optic network and then operate and provide services over that network.

- "Holyoke: A Massachusetts Municipal Light Plant Seizes Internet Access Business Opportunities": This case study documents the success of a municipally-owned electric utility in providing Internet access services.

Cybersecurity

- "Don't Panic: Making Progress on the 'Going Dark' Debate": This report from the Berkman Center's Berklett Cybersecurity Project offers a new perspective on the "going dark" debate from the discussion, debate, and analyses of an unprecedentedly diverse group of security and policy experts from academia, civil society, and the US intelligence community.

- "A Worldwide Survey of Encryption Products": This paper identifies and surveys 865 encryption products from 55 different countries, 546 of them from outside the United States, calling into question the efficacy of any US mandates forcing backdoors for law enforcement access.

Privacy

- "Towards a Modern Approach to Privacy-Aware Government Data Releases": This article delves into the recent trend towards open government data in which government entities at the federal, state, and local levels are increasingly releasing government-held data sets for use by the public.

- "Between Openness and Privacy in Genomics": This paper examines the questions around open access to genomic data in the era of big data, particularly around the issues of individual rights, control, and appropriate governance models.

- "Comments on the Proposed Rules to Revise the Federal Policy for the Protection of Human Subjects": These comments offer suggestions to the US Department of Health and Human Services in response to a proposed rule changes to the "Common Rule" human subjects research regulations updating the approach to protecting the privacy of human participants in research.

Additional Reports

- "Towards Digital Constitutionalism? Mapping Attempts to Craft an Internet Bill of Rights": This paper proposes a unified term to describe efforts to craft an "Internet Bill of

Rights" using the umbrella of "digital constitutionalism" and conducts an analysis of thirty initiatives spanning from 1999 to 2015.

- "Designing Successful Governance Groups": This paper uses case studies to outline a set of useful, actionable steps for policymakers and other stakeholders charged with creating, convening, and leading governance groups.

- "Fifteen Lessons from the Berkman Fellows Program": This report, funded by the Ford Foundation, focuses on how the Berkman Fellows program has evolved over time to derive lessons that can be applied to other institutions.

- "The Transparency Reporting Toolkit: Best Practices for Reporting on U.S. Government Requests for User Information": Using research on the current state of transparency reporting, this report identifies best practices, creates a template transparency report, and establishes reporting guidelines.

C. Communications and Digital Media

Communications at the Berkman Center are an important component of our commitment to access to knowledge and support for the public good, as well as a driver of community growth. The Center's communications team continues to develop an adaptive and modular approach, with our fellows, faculty, affiliates, faculty associates, staff, and general community contributing to public discussions through a variety of modes, channels, and contexts. Our team has strategically employed multimedia production, print and digital design, social networking, email communications, direct communications with press, and many other tools and methods to have an impact on the dialog and practice of our field.

In 2015-2016 the Communications Team pursued several major avenues to increase the reach and impact of the Berkman Center's research, including: (a) a substantial rethinking of how the Berkman Center presents its work as a whole, culminating in a fleet of outreach materials that helped bring in new funding and interest; (b) a dramatic refresh of our email outreach strategy, resulting in a doubling of our subscriber base; (c) a strategic push for our podcast series, which is now enjoying a string of successful episodes; and (d) a continuing effort to better connect projects with design resources both in-house and externally, for reports, branding, and other creative contributions to make our research outputs more accessible.

The Center's communications continue to generate high attendance at Berkman events, and also yield an ever-increasing number of requests for comment from faculty and fellows. Our community is quoted almost daily in a vast range of news publications: the *New York Times*, *The Atlantic*, the *Economist, BBC, NPR, CBC, Wall Street Journal, Washington Post, Financial Times, Harvard Gazette, Ars Technica, Guardian, MIT Technology Review, Al Jazeera, Business Insider, Wired*, and many others. One particular highlight: on January 31, 2016, our Cybersecurity team partnered with the *New York Times* for an exclusive preview of their "Don't Panic" report [http://www.nytimes.com/2016/02/01/us/politics/new-technologies-give-government-ample-means-to-track-suspects-study-finds.html]. This Berkman Center report was also covered by the *Washington Post, NPR*, the Wall Street Journal, and the *Guardian*, among over 20 other mentions in major media outlets.

The Center's own media, including its websites and mailing lists, anchor its communications and community work. The Center's primary email lists—sharing information about new events, videos, research, and conversations in the Berkman community—have grown to reach tens of thousands of people each week. The Center maintains a substantial presence on a growing number platforms, including Facebook, YouTube, SoundCloud, Instagram, Medium, and Twitter.

Output	2015-2016
Berkman Buzz, Events, & Publications Lists	15,178 subscribers (Up from 7,733 subscribers in 2014-2015)
YouTube from May 31, 2015-May 31, 2016	10,901 subscribers/182,753 video views/1.553m views overall (From 9,668 subscribers /168,430 video views in 2014-2015)
Twitter	43,292 followers/10,286 tweets (From 38,687 subscribers/9,189 tweets in 2014-2015)
Facebook	17,832 followers (From 13,986 followers in 2014-2015)
RSS Subscribers for all Berkman Digital Media (podcast, audio/video from events)	1,291 subscribers (From 1,226 in 2014-2015)
Radio Berkman episode listens/downloads (via podcast) from June 31, 2015-June 10, 2016	25,490
SoundCloud Radio Berkman	377 followers/11,701 listens (from 211 followers/4,700 listens in 2014-2015)

Nearly all public meetings, presentations, book talks, lectures, and other relevant events are webcast live and archived online in a variety of formats, and continue to attract unique and growing audiences. Technical explainers on censorship and mesh networks were the most popular, aside from big name events, but the Center's custom-made videos to promote its Amber and Internet Monitor tools also received a great deal of engagement.

D. Events

Through discussions, lectures, conferences, workshops, and other gatherings, the Berkman Center convenes diverse groups around a wide range of topics that examine the Internet as a social and political space. The unique interactions generated through these events both as process and as product are fundamental elements of the Center's modus operandi. While research and teaching are the Center's top priorities, these auxiliary connections facilitate the continuous expansion and renewal of the Center's core network. They also stimulate interactions with other disciplines and institutions so that diverse perspectives from academics, policymakers, activists, students, and technologists can be brought to bear on the complex issues generated by the interaction between technology and society.

1. Ongoing Events and Series

Luncheon Series. For over a decade, the Center has hosted its flagship seminar and discussion series in its offices or on campus. These presentations attract a loyal following among students, faculty, and others from Harvard and beyond, are webcast live, and are made available as a podcast series. Many important projects and scholarly works have been vetted and influenced early in their trajectory at the Berkman Center Luncheon Series. This year's seminars featured the following conversations (in chronological order):

- **Justin Reich**, educational researcher, highlighted some of the exciting innovations within education that seek to put students and learners in charge of their online lives through means of production and sharing.

- **Olivier Sylvain,** associate professor, Fordham School of Law, critiqued the prevailing approach and called for a fundamental return to the distributional equality principle at the heart of communications law.

- **Jason Griffey**, fellow, presented an overview of the LibraryBox project and its current state, goals, and development roadmap, and a discussion of possible next directions and needs.

- **Cynthia Rudin**, associate professor of statistics at MIT, discussed the current generation of search engines and held a brainstorming session on the next generation of search engines.

- **Camille François**, researcher, with Berkman community members Josephine Wolff, Andy Ellis, and Bruce Schneier, discussed the findings of the study titled "Mozilla Delphi Cybersecurity 1.0. Study: Towards A User Centric Policy Framework."

- **Chris Lydon** of Radio Open Source, **Jake Shapiro** and **Kerri Hoffman** of PRX, and **Benjamen Walker** of Radiotopia's podcast Theory of Everything held a conversation moderated by Christopher Bavitz about the past, present, and future of podcasting and the distribution of serialized audio content.

- **Cory Doctorow**, science fiction author, activist, journalist and blogger, held a discussion with Jonathan Zittrain about Digital Rights Management technologies and Doctorow's desire to end them.

- **Patrick Murck**, fellow, discussed property rights in blockchain assets and the basic property interests one can have in a bitcoin.

- **Sarah Jeong**, journalist, discussed how the history of the Internet can offer a new lens through which to understand online harassment, along with lessons and caveats.

- **Mary Gray**, fellow, presented the findings from a two-year collaborative study of crowdwork, examining present day examples of people doing crowdwork as part-time, contingent employment to theorize the "last mile" of technological innovation-via-automation.

- **Alexandra Wood**, fellow, and **Kobbi Nissim**, senior research fellow at the Center for Research on Computation and Society at Harvard, discussed the gap between legal and technical approaches to privacy and presented a methodology for formally proving that a technological method for privacy protection satisfies the requirements of a particular law.

- **Robin Chase**, co-founder of Zipcar and Veniam, discussed the future of communications and software platforms and their impact on privacy.

- **The Berkman Center's Student Privacy Initiative** team covered in-depth the 1.0 and 2.0 privacy conversations that have been dominating the student privacy and educational technologies landscape over the past three years.

- **Dr. Nettrice Gaskins**, STEAM Lab director at Boston Arts Academy, discussed her model for 'techno-vernacular' creative production as an area of practice that investigates the characteristics of this production and its application in STEAM (Science, Technology, Engineering, Art, Mathematics) learning.

- **Mariano-Florentino Cuéllar,** California Supreme Court Justice, reflected on his years at the Treasury and discussed some of the connections between the challenges he encountered at the Treasury then and some of the dilemmas facing the world today.

- **Shannon Dosemagen**, fellow, discussed how participatory online communities can strategically support hyper-local goals and help to scale the ability for replicable change in how the public engages with decision-making processes.

- **Aaron Halfaker**, computer scientist, used the metaphor of biology as a "living system" to discuss the relationship between subsystem efficiency and the overall health of Wikipedia.

- **Bruce Schneier**, fellow, discussed what had been learned from past attempts to secure technological systems, and what technologies, laws, regulations, economic incentives, and social norms are necessary to secure them in the future.

- **Nathan Matias**, fellow, presented four years of research and design interventions aimed at expanding the power of citizens to understand and develop effective responses to discrimination and harassment online.

- **Dries Buytaert**, open source developer, discussed how in the next wave of the web, information will come to people, versus people seeking it out and the sort of issues this

will pose on areas ranging from policy, to personal privacy, to standardization across devices.

- **Jessie Rossman** and **Kade Crockford** of the Massachusetts ACLU shared the results of their research on student privacy policies in diverse communities throughout the state and how these policies impacted the constitutional rights of the students.

- **Sanna Kulevska**, lawyer in the legal department at Google's European Headquarters, and **Michael L. Rustad**, professor at Suffolk University Law School, discussed the legal dilemmas that policymakers face between constraining the right of expression and diminishing an individual's right to control their personal data.

- **Geoff Manaugh**, presented a history of heists and burglaries and discussed topics ranging from the complicated legal definition of an interior space to the relationship between the physical and digital worlds.

- **Peter Menell**, UC Berkeley School of Law professor, presented a copyright year in review.

- **Susan Crawford**, Berkman Faculty Director, discussed what potential future society faces as it considers how to invest in fiber optic wires that provide better Internet service for all.

- **Carl Williams**, attorney at the Massachusetts ACLU, discussed the current Black liberation movement, its origins, and how social media has played a role in the movement.

- **Brittany Seymour**, fellow, presented research on how network science can be used to develop social communication strategies for public health that build on the strengths and opportunities provided by today's Internet.

- **Vikki Katz**, communications professor at Rutgers University, discussed how being under-connected impacts the everyday lives of lower-income parents and children, how parents assess the risks and rewards that connectivity can offer their children, and the implications of under-connectedness for policy development and program reform.

- **Michel Bauwens**, founder and director of the P2P Foundation, contended that there is consistent evidence that the structural crises of the dominant political economy are leading to responses that are prefigurative of a new value regime, of which the seed forms can be clearly discerned.

- **Dalia Topelson Ritvo** and **Kira Hessekiel** of the Cyberlaw Clinic discussed the various corporate structures and governance models available to open source organizations, including a discussion on when it is appropriate for an open source organization to seek tax exempt status.

The Center continued to host monthly internal community-facing luncheons over the past year. Topics included presentations from the Youth and Media project, Lumen, metaLAB team, the Berkman Geeks, and the Digital Asia Hub. The Center also held a series of internal Digital Health Lunch Talks with the Petrie-Flom Center for Health Law Policy, Biotechnology, and Bioethics over the academic year, featuring speakers such as Glenn Cohen, Assistant Professor

of Law at Harvard Law School and co-director of the Petrie-Flom Center, and Nir Eyal, Associate Professor of Global Health and Population at the Harvard School of Public Health.

2. Conferences, Workshops, and Special Events

The Center's conferences engage students, faculty, and fellows as well as government representatives, business leaders, and civil society members through their unique tenor and approach, and often lead to new collaborations. A selection from this year:

- **Team Fiber Public Event:** This event served as an opportunity for Massachusetts Municipal Light Plants (MLPs) to hear from the leadership at Holyoke Gas & Electric's Telecommunications Division and other municipal utility leaders who have succeeded in the area of community fiber optic networks to diversify and help their economies.

- **Global Access in Action (GAiA) Workshop:** This workshop continued GAiA's research and aim to explore best practices for increasing access to pharmaceutical products in the developing world.

- **SHARIAsource:** The Islamic Legal Studies Program at Harvard Law School convened a working group to identify next steps for SHARIAsource, a new portal for Islamic Law and policy. The goal was to receive input on the next steps for the portal so it can serve as a resource in the future and become a go-to online resource for researchers, policymakers, and journalists, as well as generally interested readers seeking to access both primary sources and secondary source analysis on Islamic law.

- **Boston's Hub Week:** The Berkman Center participated in Boston's Hub Week, an effort supported by Harvard University, Massachusetts General Hospital, MIT, and the Boston Globe, by hosting several public events including a luncheon focused on the "State of the Podcasting" and a panel discussing "Libraries: the Next Generation" featuring the director of the Digital Public Library of America, Dan Cohen; Jeffrey Schnapp; and librarian and technologist Andromeda Yelton.

- **The United States Court of Appeals for the Federal Circuit at Harvard Law School:** The United States Court of Appeals for the Federal Circuit is popularly considered the most important technology law court in the country. The Berkman Center coordinated an actual session of the Federal Circuit, and the Court heard real cases presented in front of members of the public on Harvard Law School campus.

- **Privacy & Europe: Debating the "Right to be Forgotten," Trans-Atlantic Data Flows, and the World's Toughest New Privacy Laws:** Featured Peter Fleischer, Google's Global Privacy Counsel shared anecdotes and perspectives from his years of practice, going from HLS ('87) to life and work in Paris, overseeing privacy compliance and advocacy for Google around the world.

- **Privacy Tools Workshop:** The Berkman Center with Harvard's Center for Research on Computation and Society, coordinated a visit by the National Science Foundation to monitor progress and meet with the team working on the Privacy Tools grant.

- **Blockchain Patents Roundtable:** The purpose of this event was to address patent issuance and use in the blockchain ecosystem and the risks they may pose to permissionless innovation for this nascent technology. Participants shared existing research and prior efforts to reach and achieve consensus on a high-level patent and free and open source software strategy in other fields.

- **Podcasters and Broadcasters Music Licensing Workshop:** The Center and PRX (Public Radio Exchange) hosted a private, invite-only workshop focused on podcasting and broadcast radio music rights.

- **Zero Rating Workshop:** Members of the Cyberlaw Clinic along with Jonathan Zittrain hosted an invite-only roundtable with Facebook to discuss special programs to use zero-rating as means to provide their service more broadly into developing markets.

- **Northeast Public Power Association (NEPPA) Informational Session:** Team Fiber held a similar public event to the one held with Municipal Light Plants to hear from other municipal utility leaders who have succeeded in the area of community fiber optic networks to diversify and help their economies.

- **Breakfast of Ideas - Conectados al Sur:** The Center hosted a series of five events bringing together experts and people with an interest in Latin American affairs revolving around issues of children and youth, technology, Internet and social media, education technology, and new applications for social changes. Featured speakers included Antonio Copete, PhD. Postdoctoral researcher at the Harvard-Smithsonian Center for Astrophysics and Amanda Martinez, the Executive Director of the Latino STEM Alliance (LSA).

- **Shared Digital Ledgers and Financial Laws and Regulations Roundtable:** The Center convened a group to discuss the legal and regulatory landscape for settling payments, derivatives, securities, and other financial obligations using shared ledger technology, like the blockchain.

- **Data-driven Policymaking: Cross-sector Approaches to Reducing the Connectivity Gap:** The Center convened a small group of representatives from academia, civil society, government, and the private sector for a series of roundtable discussions on the state of open data on global connectivity and how it can inform better Internet policy.

- **Deterrence and Arms Control in Cyberspace:** The Center hosted US National Intelligence Officer for Cyber Issues, Sean Kanuck, who highlighted the technology trends that are transforming cybersecurity and the future of intelligence at a public forum.

- **Zero Rating Workshop:** For the second workshop, the Center brought together a diverse group of participants from academia, the media, the government sector, corporations, and NGOs to discuss conflicting perspectives on the topic. The Center's workshop was focused on devising and evaluating new and alternative frameworks for zero rating.

- **How to Combat Bullying, Meanness, and Cruelty on Social Media?:** A panel of experts, Christopher Bavitz, Susan Benesch, Sandra Cortesi, and Perry Hewitt with moderation by Urs Gasser, addressed, "How can we work together to address 'bad

behavior' on the Internet while preserving its promise for expression and engagement?" for the benefit of the Harvard Law School community.

- **Online Violence Against Women & Emerging Legal Protections:** A conversation with Congresswoman Katherine Clark hosted by the Center along with the HLS Women's Law Association for a conversation around the growing threat of online harassment, and emerging legal protections.

- **Spring 2016 Comparative Online Privacy seminar at HLS Mini-Symposium:** Panelist speakers shared their insight from various industries and engage in an interactive discussion on bringing data privacy from theory to reality. Panelists included Sara Cable, Heather Egan Sussman, John Deighton, and Scott Gallant.

- **Berkman Center OSS Governance Workshop:** The goal of the daylong workshop was to put out a product that best reflects the needs of the open source community.

- **Big Data, Health Law, and Bioethics Conference:** Hosted by the Petrie-Flom Center for Health Law Policy, Biotechnology, and Bioethics at Harvard Law School in collaboration with the Berkman Center and the Health Ethics and Policy Lab, University of Zurich, this conference aimed to: (1) identify the various ways in which law and ethics intersect with the use of big data in health care and health research, particularly in the United States; (2) understand the way US law (and potentially other legal systems) currently promotes or stands as an obstacle to these potential uses; (3) determine what might be learned from the legal and ethical treatment of uses of big data in other sectors and countries; and (4) examine potential solutions (industry best practices, common law, legislative, executive, domestic and international) for better use of big data in health care and health research in the US.

- **Financial Crime and the Blockchain Roundtable:** Participants at this event discussed new techniques to combat financial crime and increase transparency in the financial system using shared ledger technology while addressing the need to reduce the compliance burden on individual firms and improving privacy protections for citizens.

- **Workshop on Security and Human Behavior:** The ninth Workshop on Security and Human Behavior (SHB) brought together computer scientists, security engineers, psychologists, economists, sociologists, law professors, philosophers, and other scholars interested in understanding security and human behavior. The workshop's goal was to discuss, in an informal and interdisciplinary setting, issues where security, psychological, and behavioral sciences interact.

- **TRANSPARENCIA, A Symposium on Open Data and Anti-corruption in Latin America:** The Center collaborated with the David Rockefeller Center for Latin American Studies and the Ash Center for Democratic Governance and Innovation to convene a regional symposium of experts drawn from academia, government, and civil society to identify the incentives that lead to corruption in Latin American governments, to explore specific current anti-corruption efforts in the region, as well as to examine the kinds of government transformation brought about by open data and its future potential in promoting transparency.

The Center also co-hosted and participated in various international events for the NoC and YaM Projects and supported event logistic efforts for the new Digital Asia Hub and early stage support for the LatAm Hub. These project-related events are described in the Research and Scholarship section of this report.

The Center also hosted various local events that we supported logistically. These include: a UNESCO-MINEPS IV Conference conversation about modeling a more democratic community planning process; a Civic Tech Brainstorming Meeting; Digital Problem Solving Initiative student events; "Privacy and Open Data: What Cities Need to Know Today" hosted by Susan Crawford; the Computers Gone Wild Workshop; the Data Privacy Forum, organized by the Massachusetts Attorney General's Office in partnership with MIT's Internet Policy Research Initiative, the Center, and others; the "Whose Security" Symposium, hosted by the Human Rights Clinic, the Immigration and Refugee Clinic, the Women's Law Association, and the International Law Journal at BU; a Student Privacy Initiative Workshop; "Digital Racist Speech in Latin America - Narratives and Counter-Narratives," part of the Harmful Speech Project; and "HLS Thinks Big" featuring Urs Gasser.

3. Working Groups

Berklett Working Group. Over the past year, the Berklett Cybersecurity project convened a series of meetings where members discussed a wide range of enduring problems of surveillance and cybersecurity, such as encryption, public-private information sharing, software liability, and the vulnerability equities process.

In addition to working groups, the Center also held study groups, practice groups, fellows groups, and alumni groups. Study groups held at the Center during the 2015-2016 academic year include "Law and Regulation of Emerging Robotics and Automation Technologies: Study Group" with Harvard Law School visiting professor Kenneth Anderson and one on "Apple and the FBI." The Center also hosted a variety of community meetings such as Bruce Schneier's op-ed writing seminar for the Berkman community, and Rey Junco's Stats Crash Course.

4. Visitors and Delegations

The Berkman Center hosted a number of special guests and visitors over the course of the year. Notable guests included: members of ACLU's Speech, Privacy, and Technology Project; Pam Samuelson of University of California at Berkeley shared her views on Oracle v. Google; Keith Krueger (CoSN) on issues of digital access and equity; Nieman Foundation for Journalism IGNITE Talks; Cynthia Dwork, Microsoft Research Silicon Valley private roundtable on privacy research; Timothy H. Engström, Department of Philosophy at R.I.T. on "Technology, Agency, and Ontology: Some Lethargic Reflections on our Hybridity"; Assistant USAG John Carlin; an evening Roundtable Reception with California Supreme Court Justice Mariano-Florentino Cuéllar and the Honorable Lucy H. Koh, who serves on the United States District Court for the Northern District of California around the state of law and technology; a briefing by Massachusetts Congresswoman Katherine Clark; Mr Andrus Ansip, former Prime Minister of Estonia and current Vice-President of the European Commission; FTC Commissioner Terrell McSweeny; Quinn Norton on "From Conduits into Barriers and Back Again: how the Internet reconfigures human sociality"; Megan and Grace Phelps-Roper spoke about social media and their experience leaving the Westboro Baptist Church; Susan Crawford convened with various local government officials from Cambridge, Somerville, Boston, and others about the possibility

of collaborating on a fiber network; Trebor Scholz from the New School; Monika Bickert, Facebook's Head of Global Policy; Roundtable Discussion with European Data Protection Supervisor Giovanni Buttarelli; Alan Weinberger '73, Entrepreneur and Founder and CEO, The ASCII Group, Inc.; Jon Penney presented on "'Chilling Effects': Insights on how laws and surveillance impact people online"; a Roundtable with Helen Margetts, Director of the Oxford Internet Institute; "Finding common standards for the Right to be Forgotten - Challenges and Perspective" with Dr. Michel Reymond; Ellery Biddle on the state of the Internet in Cuba; "Disneyland, measles, and parents' choice not to vaccinate," a conversation with CA State Senator Dr. Richard Pan and Dr. Brittany Seymour; Roya Ensafi of Princeton University on "Studying the Great Firewall of China: From Internet Filtering to Actively Probing Anti-Censorship Tools"; the Center welcomed several delegations visiting through the Office of the University Marshal at Harvard University including delegations from across Asia, the Middle East, Eurasia, Africa, and Latin America.

E. Technical Infrastructure and Software Development

"The Geeks"—as the technical staff at the Center are affectionately called—work to sustain two large (and overlapping) mandates. At the core of the Center's operations, the Geeks build, support, and maintain the hardware and core services on which the Center relies to conduct its day-to-day work; more broadly, the Geeks develop software solutions and provide project management services, frequently in collaboration with teams working elsewhere within HLS or within the wider University, to meet the needs of the Center's various initiatives.

All software at the Berkman Center, whether developed exclusively in-house or in collaboration with partners, passes through the development group; likewise, all hardware deployed at the Center—from workstations and mobile devices to enterprise-grade servers—is specified, provisioned, and maintained by the technical infrastructure support group. The Geek team consists of: Genève Campbell; Justin Clark; Sebastian Diaz; Reinhard Engels, who joined the team in January 2016 as Assistant Director of Information Technology; Edward Popko; Ryan Morrison-Westphal; and Matthew Zagaja, who joined the team in September 2015 as a Ford Mozilla Technology Exchange Fellow. Developer David Larochelle left the Center in July 2015.

In the past year, the Geeks have liaised with more than three dozen projects and initiatives within and outside the Center, producing novel solutions to technical challenges. Selected outputs of their participation include, but are by no means limited to:

- the public launch of Amber in the official plugin and module directories hosted by WordPress.org and Drupal.org, in support of the Internet Robustness project which is managed by Geneve Campbell;
- the public launch of the Internet Monitor dashboard, which allows users to explore, create, customize, and share data visualizations about Internet access, controls, and activity, developed by Justin Clark, Reinhard Engels, and Ryan Morrison-Westphal and managed by Rebekah Heacock Jones;
- the launch of the Net Data Directory, a free, publicly available, searchable database of different sources of data about the Internet, developed by Justin Clark and managed by Rebekah Heacock Jones;
- the first production release of Curarium, a platform to create, share, and collaborate upon rich media from library collections, developed by Ryan Morrison-Westphal; and

- the public launch of the Mobilization for Change research website, arabnps.org.

The Geeks also continued to support some projects created during the Library Lab Project, a collaboration among the Harvard Library, the Office for Scholarly Communication, and Harvard University IT Library Technology Services that successfully ended in FY 2014-2015. Library Lab aimed to produce useful tools for librarians, instructors, researchers, and the broader scholarly community. The Geeks continued to provide development and coordination work for TagTeam, middleware between tagging platforms which allows readers to harness the power of social tagging. TagTeam is used heavily by the Center's HOAP project to provide real-time alerts and by organizing knowledge in the field by tags and subtopics.

This extensive development work is undergirded by the hardware and software platforms maintained by the infrastructure support group. These systems run everything from directory services and e-mail to development and production environments for the vast majority of Center projects and collaborations, with 24/7 monitoring and on-call response. Over the past year, the Geeks continued to deliver critical infrastructure and technical support to the Center's community of staff, faculty, and fellows out of its 23 Everett Street home base. The infrastructure support group manages a deployed base of 47 Windows, OS X, and Linux workstations (15% of which are new or added capacity compared to last year), in addition to a pool of loaner laptops and mobile devices, a multimedia conference room, and a full-service media production setup. Over the past year, the team responded to 1,144 support inquiries, incidents, and issues from the Berkman community. The Geeks also added a new maker-workspace with a 3D printer setup in the Garden Lounge at the Berkman Center. In Spring 2016, the Geeks completed a major overhaul of the Berkman Center conference room projector system. In addition to new hardware throughout the room, the media center software includes a more responsive and intuitive user interface designed for ease of use by staff and fellows.

The Geeks have continued to provide guidance and expertise to Center projects in ways that go beyond software development and technical infrastructure support. For example, the team has provided project management support for the substantial continued development of the Lumen database website and API, the Internet Monitor dashboard, the Net Data Directory, the Internet Robustness project's Amber tools, and for metaLAB's Curarium project. The Geeks are also heavily involved in support of on-going and stand-alone events—both locally and remotely held—serving a critical technical consulting and operations-management role within the events layer of the Center. The Geeks have always collaborated with teams outside of the Center and shared practices and understandings regarding how to navigate through technology. To this end, the Center continues to host blogs, wikis, content management systems, and custom applications for use not only by the Center's affiliates but also by various other Harvard departments and individuals.

In March 2016, the Berkman Center was designated as a mentor organization for Google Summer of Code (GSOC) 2016, an international annual program in which Google awards stipends to university students who successfully complete a requested free and open-source software coding project. Major organizations also selected as GSOC 2016 mentors include the Apache Software Foundation, Github, Mozilla, and more. From May through August 2016, the Center has taken on eleven full-time student developers to work on a Berkman programming project, including Amber, Internet Monitor, and Lumen, among others. Students, each paired with a Berkman Geek or technical community member throughout the summer, work remotely from around the globe. This summer's GSOC cohort at the Berkman Center is overwhelmingly

international, with students hailing from Austria, Egypt, Ghana, India, and Pakistan, among others.

The team continually keeps up with the latest technological trends and expertise, as well as plays a technical advisory role in a variety of initiatives within the Harvard community and beyond. Big data analysis and real-time, interactive visualization are becoming increasing priorities for the Geek team. This year, they began using the Go-based Heka platform for large scale analysis of censorship data, the StreamSets dataflow performance management system to power more flexible APIs, and Kibana for sophisticated visual exploration. This was also the year of the plugin: Geeks mastered browser, web server, and Content Management System plugin APIs in order to create sophisticated tools for monitoring censorship and web preservation.

In addition, the Geeks regularly speak on topics in which they have expertise at both Harvard and non-Harvard events. In October 2015, Diaz presented on Amber at the New England Library Association (NELA) annual conference in Manchester, New Hampshire. In January 2016, Campbell gave a tech demo of the Amber system at a WordPress New England event in Providence, Rhode Island. In March 2016, Zagaja presented on the Lumen Database at RightsCon, a major conference convened around the issues of the Internet and human rights, in San Francisco. In April 2016, Campbell gave a brief presentation on Amber at the International Internet Preservation Consortium (IIPC) General Assembly in Reykjavik, Iceland. Engels, through his involvement with the ABCD Library and Mobile working groups, organized talks and tutorials at Harvard on Perma, D3.js for librarians, and the ResearchKit API for developing medical research apps on IOS devices, among others.

II. LOOKING AHEAD

In Fall 2015, the Berkman Center received a generous gift of $15 million from Harvard Law School alumnus Mike Klein '67. Along with the Center's upcoming transition to become the Berkman Klein Center for Internet & Society at Harvard University, this gift will allow the Center to start new explorations, launch innovative programs, and incubate novel collaborations both nationally and internationally. Most importantly, this gift ensures the continuation of the rare liberty for the Center to plan and build according to imagination and conscience. We plan to do this by building new and enhanced connections among the worlds of computer science, engineering, law, governance, and policy through powerful research initiatives, educational programs, and outreach efforts, bringing together the best know-how from both academia and practice, and engaging the next generation of technology and policy leaders and makers.

As an example of these connections, the Center plans to explore new modes of education through the cross-pollination of digital literacy and technical expertise across diverse fields. A new pilot program, Berkman Assembly, will experiment with this through a three-week intensive course and twelve-week development period. During this new collaborative educational process, a cohort of approximately ten developers and tech industry professionals from the private sector and open source community will work toward solving some of the difficult problems at the intersection of code and policy in digital security. Similarly, an Executive Education pilot program aims to help board members and senior executives build basic literacy of cybersecurity issues as well as navigate the legal and policy challenges they face when executing their duties in the midst of a cybersecurity crisis.

Similarly, the Center seeks to expand our collaboration and outreach efforts to draw closer to HLS projects with shared values, specifically those within the HLS Library. The HLS Library Innovation Lab's (LIL) focus on innovation in academic spaces regularly overlaps with Berkman Center research goals, and the Center hopes to collaborate more regularly with LIL on many of these projects. In 2015-2016, the Center shared a consultant graphic designer with LIL in order to pool resources; we plan to replicate this model in the future with research and curriculum development projects such as Perma and H2O.

Finally, in the spirit of the recent gift, we aspire to make the Berkman fellows program, highlighted as "a jewel in the Berkman Center's crown" by the Committee to Review the Berkman Center for Internet & Society in Fall 2015, fully funded. Currently, only a few fellows are able to experience a fully immersive sustained fellowship. Our fellows' diversity of interests and backgrounds and their connections to real world problems and projects are a major strength; the 50 fellows in our 2016-2017 class come from a wide range of disciplines, backgrounds, and countries of origin, and will focus on research areas such as connected learning, digital health, privacy and security, digital labor, and social justice. Greater core funding for these individuals would enhance the quality of the fellowship experience and allow the Center to cast an even wider recruitment net in terms of professional experience, geography, and increased diversity. It would also help fellows devote all of their efforts to their projects during their time at Berkman. Our aim is to ensure that the same ability to explore according to imagination and conscience that the Klein and Berkman family support have enabled for the Center is in turn provided for our community of fellows.