



Law and Technology at Penn

2014-2015



Center for Technology, Innovation and Competition



The University of Pennsylvania Law School's Center for Technology, Innovation and Competition is dedicated to promoting foundational research that will shape and reshape the way policymakers think about technology-related issues. To do so, CTIC organizes events that explore the full range of scholarly perspectives.

The University of Pennsylvania is uniquely well positioned to support the Center's mission. The Law School is home to many of the nation's leading experts on intellectual property, Internet law, and technology policy. In addition, CTIC is able to draw on the expertise of scholars from across the University, including the Wharton School, the Annenberg School for Communication, the Cinema Studies Program, and the School of Engineering and Applied Science. Philadelphia is home to a vibrant high-tech legal community and many of the world's leading technology companies. CTIC's proximity to New York and Washington, D.C. allows it to enjoy frequent visits from key industry players and policymakers.

For more information and current events at CTIC, visit our website at www.law.upenn.edu/institutes/ctic.

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Back Row, Left to Right: Gideon Parchomovsky, Bryan Choi, Shyamkrisha Balganesh, Camilla Hrdy;
Front Row, Left to Right: Cynthia Dahl, Christopher Yoo, R. Polk Wagner, Tess Wilkinson-Ryan, Jeffrey Vagle

A Message from the Directors

This book is a celebration of the Center for Technology, Innovation and Competition's eighth year, a year of remarkable expansion across all of our programs.

This year, we hosted several major conferences at Penn Law, as well as off-campus. Our April conference on user responsibility for data privacy featured an impressive list of scholars, industry professionals, and policy makers. In May, we hosted the third annual *Roundtable on Computer Science and the Law*, and the annual *Philadelphia Area Cyberlaw Colloquium*. CTIC's *Roundtable on Computer Science and the Law* engaged policymakers, industry experts, and both established and emerging scholars in discussions that spanned multiple disciplines, from law to engineering to social sciences. The *Cyberlaw Colloquium* gathers leading law and technology scholars from Philadelphia area universities to discuss current research in a small group setting. In July, we hosted the annual meeting of the International Society for the History of Intellectual Property (ISHTIP).

Policymakers, business leaders, and fellow academics continue to seek out CTIC faculty for their expertise. For example, Christopher Yoo was invited to participate in multiple FCC roundtables to discuss the future of the Open Internet and network neutrality. Professor Yoo and Jeffrey Vagle have also been asked to participate in a National Science Foundation program studying the security and privacy of cyber-physical systems, and have been invited to speak to a panel of Fortune 100 executives on cybersecurity law.

As always, CTIC has continued to support Penn Law students in numerous ways. We worked closely with the student-run Penn Intellectual Property Group (PIPG) to help them organize their annual conference, which focused this year on design patents. CTIC also continued our summer public interest fellowship program and our student research fellowship program. We are proud that two of our students, under the guidance of CTIC faculty, advanced in the 2013 IP LawMeet to become National Finalists. And the Detkin Intellectual Property and Technology Legal Clinic completed its third successful year, giving students the opportunity to work in a transactional IP setting with both large and small clients.

Looking ahead, CTIC welcomes a faculty fellow Bryan Choi and looks forward to welcoming a new cohort of students into the University of Pennsylvania's Joint Degree Program in Law and Engineering.

Finally, CTIC is thankful to all of our friends and supporters for bringing their perspectives, experiences, participation, and expertise to our programs. Through their support, we have been able to continue serving as a leading academic center in technology and innovation policy.



Center for Technology, Innovation and Competition



CTIC Programs

Taking Responsibility for One's Own Data Privacy and Security–
Is it Possible, and How?

Third Annual Roundtable on Computer Science and the Law

Philadelphia Area Cyberlaw Colloquium

Openness and Intellectual Property: 2015 ISHTIP Annual Workshop

Taking Responsibility for One's Own Data Privacy and Security—Is it Possible, and How?

April 24, 2015

The rapid emergence of ubiquitous computing, widely available wireless connectivity, and “big data” has prompted an increased public interest in information privacy and data security. While individuals differ in their associations with—and definitions of—these topics, recent polls have shown that a majority feel that their privacy is being challenged, but fewer are certain about solutions to this problem. In recent years, a great deal of technical and legal research has been conducted on these topics, much of which has focused on the duties and capabilities of the technology manufacturers, providers, and resellers. Less well explored are the questions that focus on the user: What can and should individual consumers of technology be expected to do to protect their privacy? Do hybrid provider-user approaches exist that might do a better job of protecting privacy than a sole focus on the technology provider? Do cognitive aspects exist that providers may need to take into account when enabling user-controlled privacy? Do generational differences exist regarding the concept of privacy altogether?





Above: Jonathan Smith and Lorrie Faith Cranor

Opposite Page, Left to Right: Ryan Calo, Florencia Marotta-Wurgler, Hal Varian



Taking Responsibility for One's Own Data Privacy and Security—Is it Possible, and How?

April 24, 2015

PANEL 1

THE LAW, ETHICS, AND PHILOSOPHY OF END USER RESPONSIBILITY FOR PRIVACY

How much responsibility can society reasonably expect end users to take for protecting their own privacy? This panel explored the proper balance from the standpoint of philosophy, ethics, and fairness.

Anita Allen

Vice Provost for Faculty and Henry R. Silverman Professor of Law and Professor of Philosophy, University of Pennsylvania

Adam Moore

Associate Professor, Information School, University of Washington

Helen Nissenbaum

Professor, Department of Media, Culture and Communication, and Director, Information Law Institute, New York University

Moderator

Christopher Yoo

John H. Chestnut Professor of Law, Communication, and Computer & Information Science, and Founding Director of the Center for Technology, Innovation and Competition, University of Pennsylvania

PANEL 2

THE ECONOMICS OF END USER RESPONSIBILITY FOR PRIVACY

Our modern information economy has been built upon users' acceptance and use of digital technologies that have enabled companies and government organizations to glean valuable meaning from the data generated by this use. This panel of experts discussed the potential tradeoffs inherent in asking users to take a greater or lesser role in protecting their own privacy.

Alessandro Acquisti

Professor of Information Technology and Public Policy, Heinz College Carnegie Mellon University

Kirsten Martin

Assistant Professor of Strategic Management & Public Policy, George Washington University School of Business

Peter Swire

Nancy J. and Lawrence P. Huang Professor of Law and Ethics, Georgia Institute of Technology

Hal Varian

Chief Economist, Google

Moderator

Joseph Turow

Robert Lewis Shayon Professor of Communication, Annenberg School for Communication, University of Pennsylvania

PANEL 3

GENERATIONAL DIFFERENCES IN END USER RESPONSIBILITY FOR PRIVACY

Both young people and senior citizens are widely viewed as having different levels of interest and ability to control their own privacy. This panel explored the empirical foundations of these differences and similarities to help bring clarity to this debate.

Kelly Caine

Assistant Professor, School of Computing, Clemson University

Heng Xu

Associate Professor of Information Sciences and Technology, Pennsylvania State University

Moderator

Jeffrey Vagle

Lecturer in Law and Executive Director, Center for Technology, Innovation and Competition, University of Pennsylvania

Left to Right:
Adam Moore
Tess Wilkinson-Ryan
Heng Xu

PANEL 4

COGNITIVE LIMITS TO END USER RESPONSIBILITY FOR PRIVACY

The ability of users to manage their privacy with increasingly complex technologies depends heavily on the user's ability to understand their environment. This panel drew on expertise in cognitive and social psychology and privacy law to explore whether and how end users can exercise control over their information privacy.

Jonathan Baron
Professor of Psychology, University of Pennsylvania

Ryan Calo
Assistant Professor of Law and Faculty Director, Tech Policy Lab,
University of Washington School of Law

Florencia Marotta-Wurgler
Professor of Law and Faculty Director,
NYU Law Abroad in Buenos Aires, New York University School of Law

Moderator

Tess Wilkinson-Ryan L'05
Assistant Professor of Law and Psychology,
University of Pennsylvania

PANEL 5

TECHNOLOGY TO ENHANCE OR REPLACE END USER RESPONSIBILITY FOR PRIVACY

Since the Snowden revelations of 2013, countless articles have been written advising users on raising their information security and privacy awareness by taking a more defensive approach in their online lives. These approaches often require users to develop a deeper understanding of new technologies and tools, a proposition many users do not relish. This panel discussed how technology can be used to enhance user privacy without inadvertently making the problem worse.

Lorrie Faith Cranor
Professor, School of Computer Science and Engineering and Public Policy, and
Director, CyLab Usable Privacy and Security Lab, Carnegie Mellon University

Roger Dingledine
President, Director, and Co-Founder, Tor Project

John Verdi
Director of Privacy Initiatives, National Telecommunications and Information
Administration, U.S. Department of Commerce

Moderator

Jonathan Smith
Olga and Alberico Pompa Professor of Engineering and Applied Science,
University of Pennsylvania



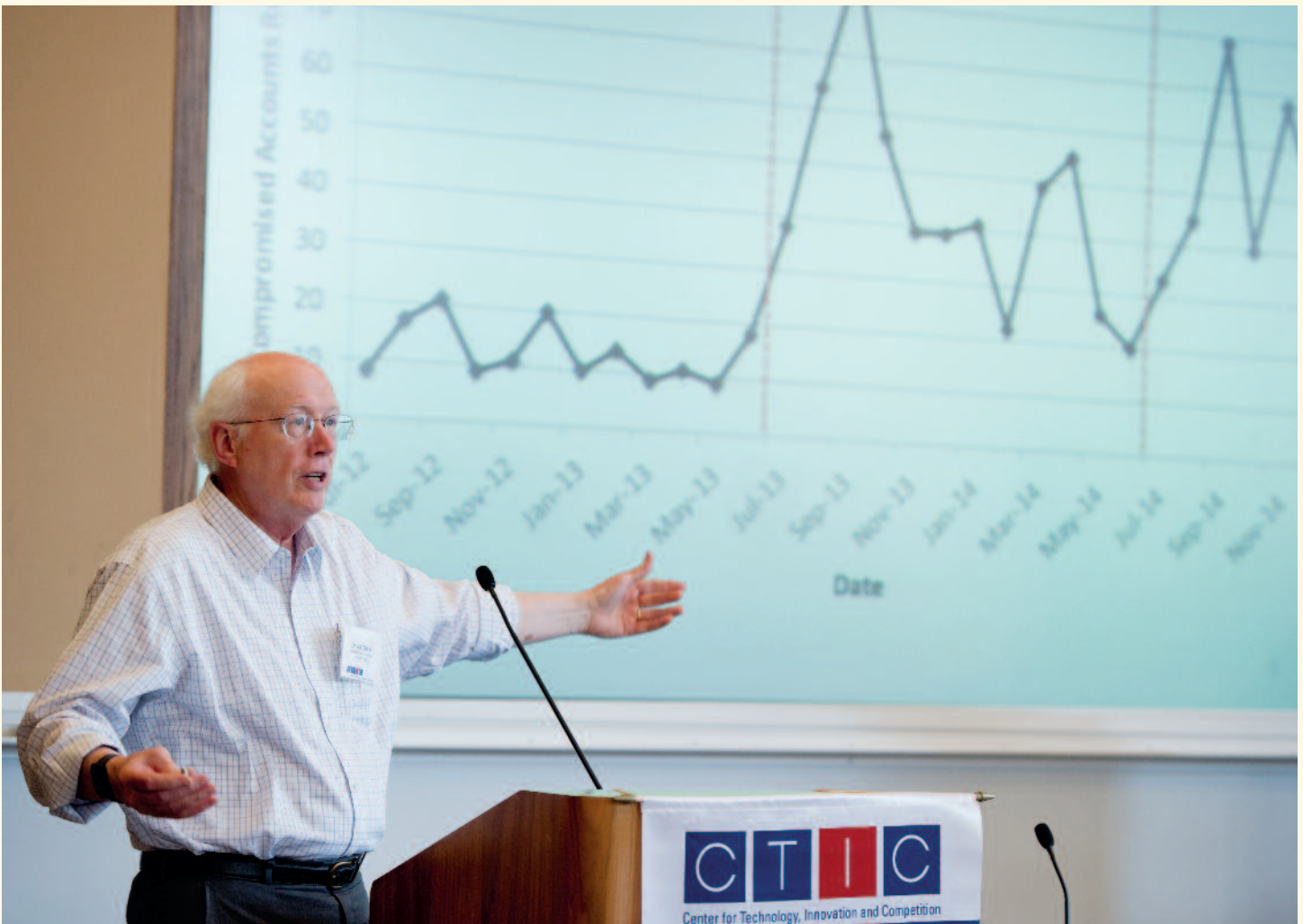
Top to Bottom:
Anita Allen
Jonathan Baron

Third Annual Roundtable on Computer Science and the Law

May 12-13, 2015

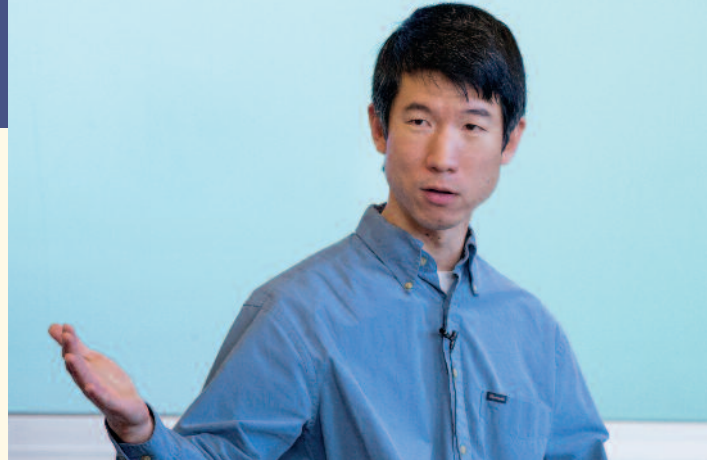
In 2013, CTIC launched a roundtable that brought together scholars and professionals working at the intersection of law and computer science. The first roundtable was a resounding success, nurturing productive dialogue between scholars in different disciplines and facilitating understanding and a common language between legal academics, engineers, social scientists, and others. CTIC held its second roundtable in May 2014. Encouraged by last year's success, CTIC held its third annual roundtable on *Computer Science and the Law* in May 2015. The event began with a tutorial that helped create a body of terminology that everyone could use throughout the two-day conference, and establish a baseline understanding of certain technical issues. We concluded the conference with an open discussion about future directions the roundtable should take.





Above: David Clark

Opposite Page, Left to Right: Craig Partridge, David Thaw



Third Annual Roundtable on Computer Science and the Law

May 12-13, 2015

Welcome

Christopher Yoo

John H. Chestnut Professor of Law, Communication, and Computer & Information Science, and Founding Director of the Center for Technology, Innovation and Competition, University of Pennsylvania

SESSION 1

David Clark

Senior Research Scientist, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology

Steven Bellovin

Professor of Computer Science, Columbia University

Moderator

Matthew Blaze

Associate Professor of Computer and Information Science, School of Engineering and Applied Science, University of Pennsylvania

SESSION 2

Scott Jordan

Professor of Computer Science, University of California, Irvine, and Chief Technologist, Federal Communications Commission

kc claffy

Founder and Director, Center for Applied Internet Data Analysis

Moderator

Jean-François Blanchette

Associate Professor of Information Studies, University of California, Los Angeles

SESSION 3

Christopher Yoo

John H. Chestnut Professor of Law, Communication, and Computer & Information Science, and Founding Director of the Center for Technology, Innovation and Competition, University of Pennsylvania

William Lehr

Research Associate, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology

Moderator

Marvin Sirbu

Professor of Engineering and Public Policy, Carnegie Mellon University

Left to Right:
Steven Bellovin
Felix Wu
kc claffy

SESSION 4

Felix Wu

Professor of Law and Faculty Director, Cardozo Data Law Initiative,
Cardozo School of Law

Bryant Walker Smith

Assistant Professor of Law,
University of South Carolina School of Law

Moderator

Craig Partridge

Chief Scientist, Raytheon BBN Technologies

SESSION 5

David Thaw

Assistant Professor of Law and Information Sciences, University of Pittsburgh,
and Affiliated Fellow of the Information Society Project, Yale Law School

Jeffrey Vagle

Lecturer in Law and Executive Director, Center for Technology,
Innovation and Competition,
University of Pennsylvania

Moderator

Justin (Gus) Hurwitz

Assistant Professor of Law,
University of Nebraska College of Law



Top to Bottom:
Scott Jordan
William Lehr

Philadelphia Area Cyberlaw Colloquium

May 29-30, 2015

CTIC was host to this year's Philadelphia Area Cyberlaw Colloquium, where scholars from the extended Philadelphia region's law schools present their current research in a workshop setting. This year's program included a moving tribute to Rutgers Law School Professor Greg Lastowka, a leading scholar in intellectual property and cyberlaw, who passed away in April 2015.





Left
Ellen Goodman

Opposite
Gerald Faulhaber, Salil Mehra
Kevin Werbach

PANELISTS

THE SONG REMAINS THE SAME

Kevin Werbach

Associate Professor of Legal Studies and Business Ethics,
Wharton School, University of Pennsylvania

TRANSPARENCY THEATER: DIGITAL PLATFORMS AND THE PROBLEMS OF DISCLOSURE

Ellen Goodman

Professor, Rutgers School of Law-Camden

NET NEUTRALITY AND TITLE II: WHAT HATH THE FCC WROUGHT?

Gerald Faulhaber

Professor Emeritus of Business Economics and Public Policy,
Wharton School, University of Pennsylvania

TRIBUTE TO GREG LASTOWKA

NET NEUTRALITY, COMMON CARRIER, AND THE CONSOLIDATION OF ISPS

Michael Risch

Professor of Law, Villanova University School of Law

ANTITRUST AND THE ROBO-SELLER: COMPETITION IN THE TIME OF ALGORITHMS

Salil Mehra

Professor of Law, Temple University Beasley School of Law

MODULARITY THEORY AND WIRELESS PLATFORMS

Christopher Yoo

John H. Chestnut Professor of Law, Communication, and
Computer & Information Science, and Founding Director of the Center for
Technology, Innovation and Competition, University of Pennsylvania



Top to Bottom:
Michael Risch
Christopher Yoo

Openness and Intellectual Property: 2015 ISHTIP Annual Workshop

Cosponsored by Cinema Studies Program,
University of Pennsylvania School of Arts and Sciences

July 22-24, 2015

Scholars from around the globe gathered at Penn for the 7th annual workshop of the International Society for the History and Theory of Intellectual Property (ISHTIP). As the birthplace of the U.S. Constitution (including its Intellectual Property Clause) and the home to inventor, printer, and IP-skeptic Benjamin Franklin, Philadelphia represented a distinctively appropriate host for this event. Today, many movements exist to promote open access scholarship, open source software, open data, and open culture. This conference explored what it means for intellectual property to be open and how current calls for openness connect with the history, theoretical underpinnings, and national traditions of intellectual property.





Above: Conference participants

Opposite Page, Left to Right: Fiona Macmillan, Christopher Yoo, Peter Decherney



Openness and Intellectual Property: 2015 ISHTIP Annual Workshop

Cosponsored by Cinema Studies Program,
University of Pennsylvania School of Arts and Sciences
July 22-24, 2015

Opening Remarks

Peter Decherney

Professor of Cinema Studies and English, School of Arts and Sciences,
University of Pennsylvania

Christopher Yoo

John H. Chestnut Professor of Law, Communication, and Computer & Information
Science, and Founding Director of the Center for Technology, Innovation and
Competition, University of Pennsylvania

Fiona Macmillan

Professor of Law, Birkbeck School of Law, University of London

PANEL 1

EARLY CAREER

Megan Rae Blakely

Ph.D. Candidate, CREATE Centre in the School of Law, University of Glasgow

Xan Sarah Chacko

Ph.D. Candidate, University of California, Davis

Henrique Carvalho

Ph.D. Candidate and Graduate Teaching Assistant, Birkbeck School of Law,
University of London

Omri Rachum-Twaig

Ph.D. Candidate, Tel Aviv University

Moderator

Peter Jaszi

Professor of Law and Faculty Director,
Glushko-Samuelson Intellectual Property Clinic, American University

PANEL 2

EARLY CAREER

Monica Huerta

Postdoctoral Associate, Women's Studies Program, Duke University

Douglas O'Reagan

Postdoctoral Fellow, Fung Institute for Engineering Leadership,
University of California, Berkeley

Brent Salter

J.S.D. Candidate, Yale Law School

Moderator

Fiona Macmillan

Professor of Law, Birkbeck School of Law, University of London

SESSION 1

ACCESS AND DEVELOPMENT: THE HISTORY OF 'DEVELOPMENT' AND WIPO

Author

Sara Bannerman

Assistant Professor, McMaster University

Commentator

Christopher Yoo

John H. Chestnut Professor of Law, Communication, and Computer & Information
Science, and Founding Director of the Center for Technology, Innovation and
Competition, University of Pennsylvania

THE BODY AS SLIPPERY OBJECT, 1900-2015

Author

Kara Swanson

Professor of Law, Northeastern University School of Law

Commentator

Rebecca Tushnet

Professor of Law, Georgetown University Law Center

Moderator

Ellen Goodman

Professor, Rutgers School of Law-Camden



Left to Right:
Lionel Bentley
Kathy Bowrey
Regina Austin

SESSION 2

LORD ELDON, LORD BYRON, AND THE PUBLIC DOMAIN

Author

Gary Dyer

Professor of English, Cleveland State University

Commentator

Simon Stern

Associate Professor & Co-Director, Centre for Innovation Law & Policy,
University of Toronto Faculty of Law

JURISDICTIONAL BOUNDARIES OF PRIOR USE WITHIN BRITAIN: AN ANALYSIS OF THE HOUSE OF LORDS' JUDGMENTS IN ROEBUCK V STIRLING (1774) AND BROWN V ANNANDALE (1842)

Author

Barbara Henry

Senior Lecturer and Director of LLB Programme, University of Hertfordshire

Commentator

Eva Hemmungs Wirtén

Professor of Mediated Culture, Linköping University, Sweden

Moderator

Dina Leytes

Intellectual Property and New Media Group Chair, Griesing Law, LLC



Top to Bottom:
Eva Hemmungs Wirtén, Catherine Bond
Michael J. Madison



SESSION 3

DESIGN AND COPYRIGHT: AN OPEN QUESTION?

Author

Stina Teilmann-Lock

Associate Professor of Design, University of Southern Denmark

Commentator

Jessica Silbey

Professor of Law, Northeastern University Law School

CHALLENGING THE BLACK BOX:

ON THE ACCOUNTABILITY OF ALGORITHMIC LAW ENFORCEMENT

Authors

Maayan Perel

Post-Doctoral Fellow, Haifa Center for Law and Technology,
University of Haifa Faculty of Law

Niva Elkin-Koren

Former Dean and Founding Director, Haifa Center for Law and Technology,
University of Haifa Faculty of Law

Commentator

Maria Lillà Montagnani

Associate Professor of Commercial Law, Department of Law,
Bocconi University, Italy

Moderator

Marianne Dahlén

Senior Lecturer, Department of Law, Uppsala University, Sweden

SESSION 4

CONFEDERATE COPYRIGHT:

THE ROLE OF NATIONALISM IN DESIGNING A COPYRIGHT REGIME

Author

Shane Valenzi

Associate, Carmen D. Caruso Law Firm

Commentator

Shyamkrishna Balganesh

Professor of Law, University of Pennsylvania Law School

SHARING IN SPIRIT: KOPIMISM AND THE DIGITAL EUCHARIST

Author

Aram Sinnreich

Associate Professor, American University School of Communication

Commentator

Kristopher Erickson

Lord Kelvin Adam Smith Research Fellow,
CREATE Centre in the School of Law, University of Glasgow

Moderator

Traci Zimmerman

Professor, School of Writing, Rhetoric and Technical Communication,
James Madison University



Left to Right:

Martha Woodmansee, Fiona McMillan, Adrian Johns, Joseph Slaughter, and Dan Hunter
Aram Sinnreich, Kristopher Erikson
Maayan Perel, Niva Elkin-Koren, Maria Lillà Montagnani, Jessica Silbey, Stina Teilmann-Lock,
and Marianne Dahlén

SESSION 5

OPEN SOURCE INTELLIGENCE: COUNTERINSURGENCY, STATE SECRETS, AND SMALL NOVELS

Author

Joseph Slaughter

Associate Professor of English and Comparative Literature, Columbia University

Commentator

Catherine Bond

Senior Lecturer, University of New South Wales Faculty of Law

FROM INTELLECTUAL PROPERTY TO OPENNESS? ON THE POTENTIALS OF LITERATURE IN PRINTED BOOKS AND IN DIGITAL MEDIA

Author

Thomas Ernst

Assistant Professor of Literary and Media Studies,
University of Duisburg-Essen, Germany

Commentator

Michael Madison

Professor of Law and Faculty Director, Innovation Practice Institute,
University of Pittsburgh School of Law

Moderator

Martin Fredriksson

Assistant Professor and Marie Curie Fellow, Department of Culture Studies,
Linköping University, Sweden

LUNCH PANEL

METHODOLOGY: WHAT SHOULD HISTORIES AND THEORIES OF IP BE DOING? WHAT ROLE SHOULD INTERDISCIPLINARITY PLAY?

Lionel Bently

Herchel Smith Professor of Intellectual Property,
University of Cambridge Faculty of Law

Kathy Bowrey

Professor, University of New South Wales Faculty of Law

Adrian Johns

Allan Grant Maclear Professor, University of Chicago

Moderator

Martha Woodmansee

Professor of English and Law, Case Western Reserve University School of Law

SESSION 6

IN SEARCH OF A TRADE MARK: SEARCH PRACTICES AND BUREAUCRATIC POETRY

Authors

Jose Bellido

Senior Lecturer in Law, University of Kent Law School, UK

Hyo Yoon Kang

Lecturer in Law, University of Kent Law School, UK

Commentator

Amanda Scardamaglia

Senior Lecturer, Swinburne Law School

THE MODERN EXPANSION OF TRADEMARK RIGHTS, AND HOW ONE FORGOTTEN TREATY MADE IT POSSIBLE

Authors

Jose Bellido

Senior Lecturer in Law, University of Kent Law School, UK

Hyo Yoon Kang

Lecturer in Law, University of Kent Law School, UK

Commentator

Dan Hunter

Foundation Dean, Swinburne Law School

Moderator

Josh Sarnoff

Professor of Law and Former Director, Center for Intellectual Property Law and
Information Technology, DePaul University College of Law



Center for Technology, Innovation and Competition



Policy Events

The Open Internet: Classifying Communications Services

The Open Internet: Should Wireless Technologies Be Regulated Differently?

The Open Internet: Classifying Communications Services

October 1, 2014

The D.C. Circuit's January 2014 decision overturning the FCC's Open Internet Order sparked a spirited debate over the scope of the FCC's authority to mandate network neutrality. In particular, the FCC proposed and eventually adopted rules bringing broadband Internet access within the regulatory classification that governs traditional telephone service (Title II). This policy event brought new voices into these debates, including VoIP pioneer and Vonage founder Jeff Pulver and Communications Workers of America economist Debbie Goldman. The event also explored the lesser studied questions about whether and how the regulatory regimes governing wireless services (Title III) and cable television services (Title VI) apply to broadband Internet access.





Above: Christopher Yoo, Larry Downes, Jeff Pulver, Mark Cooper, and Debbie Goldman

Opposite Page, Left to Right: Jonathan Neuchterlein, James Speta, Gus Hurwitz, and Geoffrey Manne



The Open Internet: Classifying Communications Services

PANEL 1

TITLE II – TELECOMMUNICATIONS SERVICES

Mark Cooper

Research Director, Consumer Federation of America

Larry Downes

Project Director, Evolution of Regulation and Innovation Project,
Georgetown Center for Business and Public Policy

Debbie Goldman

Telecommunications Policy Director, Communications Workers of America

Jeff Pulver

Founder, Vonage, and Co-Founder and Chairman, Zula

Moderator

Christopher Yoo

John H. Chestnut Professor of Law, Communication, and Computer & Information
Science, and Founding Director of the Center for Technology, Innovation and
Competition, University of Pennsylvania

PANEL 2

TITLE III – MOBILE SERVICES

Michael Calabrese

Director, Wireless Futures Project, New America Foundation

Russell Hanser

Partner, Wilkinson Barker Knauer, LLP

Geoffrey Manne

Founder and Executive Director, International Center for Law and Economics

Nicol Turner-Lee

Vice President and Chief Research and Policy Officer, Minority Media and
Telecommunications Council

Moderator

Gerald Faulhaber

Professor Emeritus of Business Economics and Public Policy,
Wharton School, University of Pennsylvania

Left to Right:
Gerald Faulhaber, Russell Hanser, Geoffrey Manne, and Nicol Turner-Lee
Jeff Pulver

PANEL 3

TITLE VI – CABLE SERVICES

Shyamkrishna Balganesh
Professor of Law, University of Pennsylvania Law School

Justin (Gus) Hurwitz
Assistant Professor of Law, University of Nebraska College of Law

James Speta
Senior Associate Dean for Academic Affairs and International Initiatives,
Northwestern University School of Law

Moderator

Jonathan Nuechterlein
General Counsel, Federal Trade Commission



Top to Bottom:
Michael Calabrese
Shyamkrishna Balganesh

The Open Internet: Should Wireless Technologies Be Regulated Differently?

October 15, 2014

One of the key compromises that made the 2010 Open Internet Order possible was the decision to subject wireless and wireline technologies to different legal standards. The 2014 Open Internet Order reversed course, applying the same legal standard to both technologies and leaving any technical differences to be taken into account when determining what types of network management practices are reasonable. This policy event explored the propriety of that decision from the standpoint of industry, engineering, economics, and law, and with the perspective of a former FCC Commissioner and a former FCC and U.S. Justice Department Antitrust Division Chief Economist.





Opposite Page, Left to Right: Daniel Lyons, Michael Katz, Jeffrey Reed,
Meredith Atwell Baker
Left: Christopher Yoo

Opening Remarks

Meredith Atwell Baker
President and CEO, CTIA-The Wireless Association

SHOULD WIRELESS TECHNOLOGY BE REGULATED DIFFERENTLY?

Jeffrey Reed
Willis G. Worcester Professor in Electrical and Computer Engineering,
Virginia Tech University

Michael Katz
Sarin Chair in Strategy and Leadership, Haas School of Business,
University of California-Berkeley

Daniel Lyons
Associate Professor, Boston College Law School

Moderator

Christopher Yoo
John H. Chestnut Professor of Law, Communication, and Computer & Information
Science, and Founding Director of the Center for Technology, Innovation and
Competition, University of Pennsylvania Law School



Top to Bottom:
Daniel Lyons
Jeffrey Reed



Center for Technology, Innovation and Competition



Seminars

Cybersecurity and Law Enforcement Back Doors: Risk Regulation Seminar

Are Software Patents Critical to Innovation?

The Digital and Mobile Future: A Fireside Chat with FCC Commissioner
Jessica Rosenworcel

CTIC Workshops

CTIC Lunchtime Speaker Series

Cybersecurity and Law Enforcement Back Doors: Risk Regulation Seminar

December 9, 2014

This panel explored the legal and technical issues surrounding the difficult policy question regarding law enforcement agencies' ability to bypass software security to gain access to user data. Cybersecurity experts, such as those on this panel, agree that the creation of security "back doors" carries a significant risk of weakening system security in unexpected ways. In other words, laws or policies that allow back door access by the government can easily become a vector for criminals and foreign intelligence agencies to hack into government, commercial, and individual computer systems and networks.



Opposite Page, Left to Right: Jeffrey Vagle, Matthew Blaze
Howard Kunreuther
Left: Cary Coglianese

Opening Remarks

Cary Coglianese

Edward B. Shils Professor of Law, Professor of Political Science,
and Director of the Penn Program on Regulation,
University of Pennsylvania

PANELISTS

Matthew Blaze

Associate Professor of Computer and Information Science,
School of Engineering and Applied Science, University of Pennsylvania

Jeffrey Vagle

Lecturer in Law and Executive Director,
Center for Technology, Innovation and Competition,
University of Pennsylvania Law School

Moderator

Howard Kunreuther

James G. Dinan Professor, Professor of Decision Sciences and Business
and Public Policy, and Co-Director, Risk Management and Decision
Processes Center, Wharton School, University of Pennsylvania



Top to Bottom:
Jonathan Smith
Seminar Participants



Are Software Patents Critical to Innovation?

Cosponsored by the Penn Center for Innovation; the Master of Computer and Information Technology Program, School of Engineering and Applied Sciences, University of Pennsylvania; and the Detkin Intellectual Property and Technology Legal Clinic, University of Pennsylvania Law School

February 19, 2015

This panel of experts from the fields of business, technology and law led a lively discussion of their different perspectives on one of the most complicated – and polarizing – IP issues of this era: patentable subject matter, specifically as concerns the realm of software. Moderated by Zach Seward, the Editor of Technical.ly, the technical online news source for Philadelphia, the panel debated the purpose of software patents, how to improve their quality, and how to maximize their value to the companies that file them and the society as a whole.

PANELISTS

Michael Dunnam
Partner, BakerHostetler LLP

Haig Farris
Chairman, D-Wave

Eric Raymond
President Emeritus, Open Source Initiative

Dan Slawe
Corporate Counsel, SAP

Moderator

Zack Seward
Editor-in-Chief, Technical.ly



Opposite Page, Left to Right: Eric Raymond, Dan Slawe, Haig Farris, and Michael Dunnam
Left: Jessica Rosenworcel



The Digital and Mobile Future: A Fireside Chat with FCC Commissioner Jessica Rosenworcel

Cosponsored by the Wharton School of Business, the Wharton Women in Business, the Wharton Technology Club, and the Mid-Atlantic Chapter of the Federal Communications Bar Association

April 22, 2015

Jessica Rosenworcel was nominated in 2012 by President Obama as one of the five Commissioners of the Federal Communications Commission (FCC), the primary U.S. government authority for the communications, media, and information industries. In this “fireside chat” moderated by Wharton professor Kevin Werbach, she discussed important initiatives shaping technology and entrepreneurial opportunities, such as wireless innovation, open Internet protections, and education technology.

PANELISTS

Jessica Rosenworcel
Federal Communications Commission Commissioner

Moderator

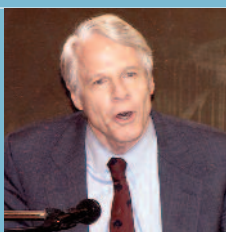
Kevin Werbach
Associate Professor of Legal Studies and Business Ethics,
Wharton School, University of Pennsylvania



Kevin Werbach

2014-2015 Workshop Series

Every year, CTIC invites scholars to campus to present new work in fields related to CTIC's research in law and technology. Our workshops were well-attended by both Penn Law faculty and students, who offered constructive comment and critique.



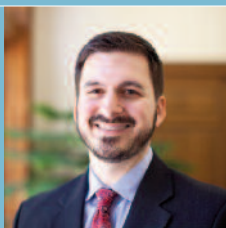
Robert D. Cooter

Herman F. Selvin Professor of Law,
UC Berkeley School of Law
*Progress in the Useful Arts: Foundations of
Intellectual Property Law in Growth Theory*



Ben Depoorter

Professor of Law,
UC Hastings College of the Law
*Enforcing Against Norms:
Trial and Error in Copyright Law*



Woodrow Hartzog

Associate Professor of Law, Sam University
Cumberland School of Law
A Theory of Privacy and Trust



Pierre Larouche

Professor, Tilburg University Law School
Law and the Global Challenge of Innovation



Michael J. Meurer

Abraham and Lillian Benton Scholar
and Professor of Law, Boston University
School of Law
Transparent Patents



Zahr Said

Assistant Professor of Law,
University of Washington School of Law
Reforming Copyright Interpretation

2014-2015 Lunchtime Speaker Series

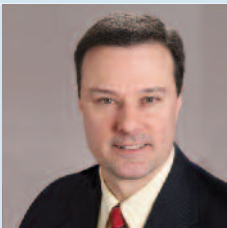
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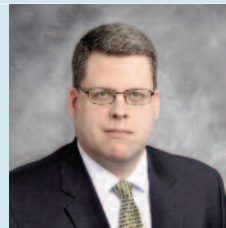
Peter Detkin (EE '82, L '85)
Founder, Intellectual Ventures



Haig Farris (L '63)
President, Fractal Capital Corporation



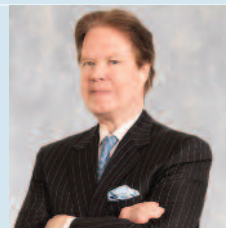
Gerard (Jerry) Lewis
Senior Vice President, Deputy General Counsel, and Chief Privacy Officer, Comcast Corporation



Matthew Pearson (L '05)
Partner, Akin Gump Strauss Hauer & Feld LLP



Gigi Sohn (L '86)
Counselor to the Chairman, Federal Communications Commission



M. Kelly Tillery (L '79)
Partner, Pepper Hamilton LLP

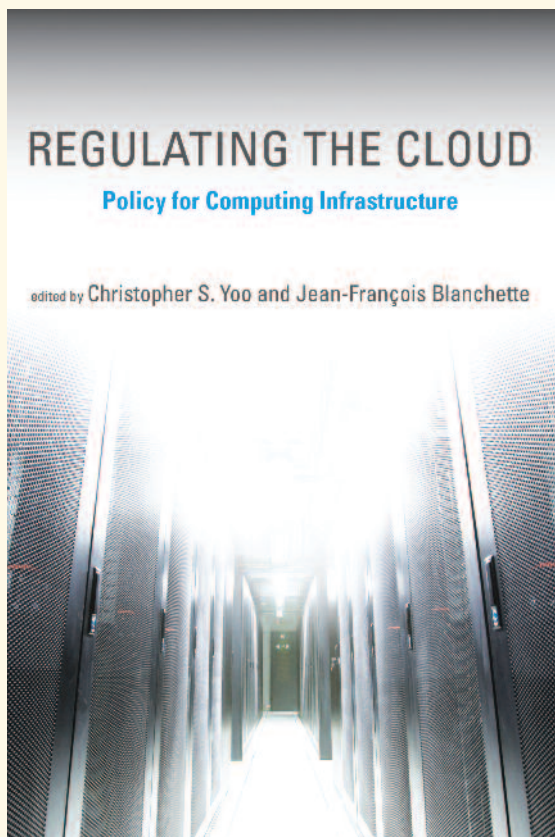


Center for Technology, Innovation and Competition



CTIC News

CTIC Faculty Awarded Multiple Grants
FCC Roundtable on the Open Internet
Detkin Intellectual Property and Technology Legal Clinic
CTIC Law and Engineering Joint Degree Programs
CTIC Faculty Fellows
Student Achievements and Fellowships



CTIC Faculty Awarded Multiple Grants

The Future of Cloud Computing

CTIC faculty have been awarded two NSF grants relating to the future of technology and the law. The first grant was awarded to uncover how the Internet might be different if it was designed from scratch. The entirety of this grant research will focus on the cloud and redesigning computing infrastructure to remove and or improve up current structural flaws – as related to security.

“The challenges,” according to Professor Christopher Yoo, “are also potential privacy issues when you are dealing with a virtual machine. It’s great that users can access their information from wherever they are, but this creates room for hackers to do their malicious work, as well.”

The second problem inherent with cloud computing, according to Yoo, is security. Everything is passing over networks and all users and data on that network are much more exposed. The convenience of cloud computing now has to be reexamined with an eye on reliability, security, and privacy.

CTIC Executive Director Jeff Vagle said, “We need to find ways to make cloud computing as reliable as computing on the desktop. This will require redesigning the architecture.”

How do we govern or regulate content, security, etc.” Yoo’s recently published book by MIT Press, *Regulating the Cloud Policy for Computing Infrastructure*, is both a culmination and collaboration of efforts birthed from a February 2011 conference on the topic.

Ensuring the Security of Cyber-Physical Systems

A second NSF grant was issued in September 2015. It is a three-year, \$3 million grant to study the security of cyber-physical systems. CTIC Fellow Bryan Choi was brought on specifically to study this issue over his two year fellowship.

Security and privacy concerns in the increasingly interconnected world are receiving much attention from the research community, policymakers, and general public. However, many of the recent efforts concentrate on privacy in communication and social interactions. The advent of cyber-physical systems, which describe the tight integration between distributed computational intelligence, communication networks, physical world, and human actors, opens new possibilities for developing intelligent systems with new capabilities. Autonomous cars may



reduce the number of accidents and increase throughputs of transportation networks. Intelligent medical devices can improve patient safety, mitigate caregiver errors, enable personalized treatments, and allow older adults to remain in their homes as they age.

According to Yoo, “These systems weren’t designed for a hostile environment. They’re designed with other objectives in mind but security of its users is not considered and this needs to be addressed. How do you keep the bad guys (the hackers) out? You don’t. So, where efforts and focus needs to be is in the fast identification of the problem and then fast remediation.”

Vagle added, “What is the optimal level of regulation and of freedom within these cyber-physical systems? Are users of these technologies fully aware of the privacy information involved? Are the manufacturers?”

Finally, this NSF funded research begs the question about why is a law school involved? Yoo said it comes back to conventional tort law, what makes a product defective. With both NSF funded projects, Yoo summarized, “There is a lot of research being done and there is a bank of research already sitting with the NSF. How do they deploy it?”

Yoo continued that CTIC will host a spring 2016 conference, which will focus on these very issues with product liability at its core. The goal is to provide engineers on cyber-physical projects with security awareness, challenges and potential solutions.

A German Study of Thai Government Regulation

This two-year grant is a study of how different nations across the globe are dealing with network neutrality. The grant work will focus on the future of the Internet and further understanding of the growing importance of the digital economy and future trends in Internet regulation.





FCC Roundtable on the Open Internet

In 2014, the Federal Communications Commission (FCC) began the process of closing the gap created by the *Verizon Communications, Inc. v. FCC* decision, which left no legally enforceable rules for the Commission to prevent broadband providers from acting to limit Internet openness. The 2014 Open Internet Notice of Proposed Rule Making (NPRM) sought broad public comment on how the Commission should ensure that the Internet remains open, and proposed new rules and enhancements to current rules.

To further develop the public's understanding of Internet openness, the FCC hosted a series of Open Internet Roundtable Discussions. The roundtable discussions focused on public policy considerations and how they should be addressed to protect and promote Internet openness in both the fixed and mobile markets; the technological considerations involved in protecting the open Internet; how the competitive landscape and the economics of providing broadband and online services affects Internet openness; how the Commission can effectively enforce the current and proposed open Internet requirements; and the various legal theories underlying possible Commission actions in this area.

Professor Christopher Yoo was invited to participate in this event. He contributed as a panelist to the first two events in the Open Internet Roundtable Series: "Policy Approaches to Ensure an Open Internet" and "Mobile Broadband and the Open Internet." Specifically, he participated in a roundtable that considered the proper scope of new open Internet rules, with a focus on the definition of reasonable network management, treatment of specialized services, and whether new rules should extend to the point of interconnection between last-mile Internet service providers (ISPs) and other networks and services (i.e., Internet traffic exchange).



Detkin Intellectual Property and Technology Legal Clinic

Penn Law's Detkin Intellectual Property and Technology Legal Clinic completed its second full academic year under the direction of CTIC's Cynthia Dahl in 2014–15. Designed as an upper-level IP course, the Detkin Clinic is part seminar and part IP law firm, where students take primary responsibility for helping their clients commercialize innovation.

The Detkin Clinic is unique in that it consciously introduces law students to the types of professionals they will meet in practice, especially business, technology, science and the arts. According to Dahl, changes from its first year include the volume of students and clients involved. One other change of note is that students have to now apply to be accepted. Dahl said about 30 students applied for the 10 student spots allowed per semester.

From the client side, there are 17 clients per semester that the team of 10 is managing, and the majority of clients are from University of Pennsylvania's commercialization venture called the Penn Center for Innovation (PCI). As they did last year, clinic students counsel several Penn laboratories with early stage discoveries, helping them to analyze their legal and business options and choose their best path to commercialization.

Another addition to the Clinic is its first adjunct professor Michael Dunham. Dunham is currently a partner at Baker Hostetler and has nearly 30 years of experience in intellectual property law.

Since 1986, Dunham has focused on drafting and prosecuting patent applications before the U.S. Patent and Trademark Office (USPTO). He has extensive experience in the preparation of opinions, licenses, and technology development agreements. In recent years, Michael has worked with universities and early stage technology

companies to develop intellectual property strategies and to conduct due diligence in support of investment and growth efforts. He is best known for his work in the area of computer software and electronic commerce, imaging technologies, and medical devices. Michael has drafted hundreds of patent applications and has personally procured well north of 1,000 patents for U.S. and foreign corporations. He uses his extensive experience with, and relationships within, the USPTO to troubleshoot difficult applications to secure allowance.

Michael's work primarily focuses on electronics, computer software, the Internet, business methods, telephony, video, lasers, and medical electronics, such as magnetic resonance imaging technology.



Cynthia Dahl



Jeffrey Vagle, Lecturer in Law and CTIC's Executive Director

Law and Engineering Joint Degree Programs

CTIC Announces New Technology Master in Law Program

For technologists who want a deeper understanding of technology law, but do not want to become practicing attorneys, CTIC is excited to launch its one-year Master in Law degree in Spring 2016. This program gives students a basic familiarity with legal thought and explores the relation of law to technology with a rigorous curriculum and grounding in legal studies.

A Master in Law degree from Penn Law will provide graduates with a strong background in the legal issues that intersect with their professional field and academic interests. Students enrolled in the program's specialized curriculum will gain a solid understanding of how the U.S. legal system functions in general as well as specific knowledge of the law in their areas of interest.

Vagle will be teaching "Intro to Technology Law and Ethics"—one of the Technology Master in Law program's core courses—in Spring 2016 for the first time and the interest is promising, according to Vagle and Yoo.

New Law and Technology Scholarship

Penn Law and CTIC are pleased to announce the creation of the CTIC Scholars Program, a competitive scholarship to be awarded to JD students pursuing a joint degree in law and technology.

Up to three students per year will receive the scholarship, which provides up to \$40,000 to help offset tuition expenses for the additional year of study at the University of Pennsylvania School of Engineering and Applied Science. Students pursuing a joint degree typically spend their first year at the Law School and their second at Penn Engineering. During their third and fourth years, they take classes at both schools.

Current 1L and 2L students who intend to pursue the JD/MSE (Master of Science in Engineering) or the JD/MCIT (Master of Computer and Information Technology) are eligible to apply for the CTIC Scholars Program.

The JD/MSE is intended for students with a strong undergraduate background in engineering or computer science; the JD/MCIT requires no prior engineering or computer science background and is ideal for those interested in the practice of law and information technology.

Students who are selected for the program will also have the opportunity to work closely with Professor Christopher Yoo, John H. Chestnut Professor of Law, Communication, and Computer & Information Science and CTIC Founding Director, and Jeffrey Vagle, Lecturer in Law and CTIC's Executive Director.





Bryan Choi



Camilla Hrdy

CTIC Faculty Fellows

CTIC Faculty Fellow Bryan Choi

CTIC welcomes its new Faculty Fellow, Bryan Choi. He joins CTIC from New York Law School (NYLS) where he was a Visiting Associate Professor, teaching Internet Law, Intellectual Property, and Property. Choi received his J.D. from Harvard Law School and his B.A. in Computer Science from Harvard College. Prior to NYLS, Choi was Director of Law and Media at the Information Society Project at Yale Law School.

Choi's scholarship will be supported by a National Science Foundation (NSF) grant to develop security and privacy-aware cyber-physical systems. These are systems, such as self-driving cars, medical implants, and the "Internet of Things," that involve tight integrations between distributed computer networks, human users, and the physical world. Choi will be investigating the novel legal issues that emerge as large-scale cyber-physical systems are deployed throughout everyday society. Choi added, "Christopher [Yoo] and I have been in communication for several years. When this opportunity came up, we both agreed it would be a perfect fit. I'm very excited to be here with CTIC and Penn Law."

His previous work also focuses on technology law issues relating to the Internet. Choi has written extensively on the necessary tradeoffs to be made between privacy, innovation, and enforcement in a digital, decentralized environment. Recent publications include "For Whom the Data Tolls," "A Prospect Theory of Privacy," and "The Anonymous Internet."



Student Achievements

CTIC Faculty Fellow Camilla Hrdy

Camilla Hrdy is in the second and final year of her fellowship with CTIC. She joined CTIC from the Information Society Project (ISP) at Yale Law School (YLS). While at Yale, she led YLS's patent law reading group and co-organized the ISP's Innovation Law Beyond IP conference.

In reflecting on her first year as a fellow, Hrdy said that what makes CTIC fellowship's unique is the opportunity to teach at Penn Law, while continuing her scholarly pursuits. She was looking forward to teaching alongside Polk Wagner in Spring 2016.

"To be engaged in teaching, to be a member of this faculty with such deep knowledge, is so rewarding," Hrdy said. She continued, "Fall 2015 also brought more fellows on board across different Centers and it's a fantastic opportunity to share ideas between ourselves."

Hrdy said the experience continues to help her hone her teaching skills when she's working amongst so many bright, hard working long time faculty members.

"My work (research and publication) has improved since being here as well," Hrdy added, "Faculty are very open to discussing my work and their feedback is immensely helpful. I've been able to get new ideas grounded in what's been done before. This is a faculty that truly serves its colleagues well."

Camilla is currently in the marketplace for full time professorship and CTIC involvement has been in a great assist with making connections and landing interviews.

Camilla holds a J.D. from Berkeley Law, a B.A. from Harvard University, and an M. Phil. in the History & Philosophy of Science (HPS) from the University of Cambridge. She has received various awards for her writing, including Harvard's Hoopes prize and HPS's Redhead Prize. From 2010-2011, she clerked for U.S. District Judge Janis Graham Jack in the Southern District of Texas.

Penn Law students take top spots at AIPLA Giles S. Rich Moot Court Competition March 2015

Teams from Penn Law took both first and second place at the Western Regional Competition of the American Intellectual Property Law Association (AIPLA) Giles Sutherland Rich Memorial Moot Court Competition in Palo Alto, CA on March 13–15, 2015.

Greg Manas L'15 and Brian Springer L'15 won the event overall and also won best Appellee Brief and top oral argument. Jake Hartman L'15 and Jenny Liu L'15 took second place overall and won best Appellant Brief.

Both teams headed to Washington, D.C., in April 2015 for the National Championship round, which was held at the United States Court of Appeals for the Federal Circuit.

It is rare for two teams from the same school to be sent to the national finals. Over the last decade, teams from Penn Law have regularly won the western regional moot court competition.

Students Springer and Manas earned the first place prize of \$2,000 in the American Intellectual Property Law Association's 42nd annual Giles S. Rich Memorial Moot Court Competition.

After regional competitions of nearly 80 law schools, students from ten law schools earned the opportunity to argue at the U.S. Court of Appeals for the Federal Circuit in the competition's national final rounds, which took place on April 15-17 in Washington, D.C. AIPLA was honored to have Judge Alan D. Lourie, Judge Timothy B. Dyk, and Judge Raymond T. Chen of the Federal Circuit preside over the final round of the competition.



Center for Technology, Innovation and Competition



CTIC Faculty

The Center for Technology, Innovation and Competition is privileged to draw on cross-disciplinary expertise from across the University of Pennsylvania. In addition to the Law School, CTIC brings together faculty from the top-ranked Wharton School, the University's School of Engineering and Applied Science, the Cinema Studies Program, and the Annenberg School for Communication.



CTIC Primary Faculty



David Abrams

Professor of Law, Business Economics, and Public Policy

David Abrams is one of the leading young scholars working in empirical law and economics. His work strives to understand and measure how individuals respond to incentives in various legal contexts. In his work on intellectual property law, he has investigated the expected impact of the America Invents Act, examined the effect of patent duration on innovation, and is using natural language processing to establish more reliable measures of patent value. In his latest empirical work he shows that long-held views on patent value and citations do not hold and introduces a new model of innovation to account for the findings. He has also done substantial work in criminal justice, including investigating whether longer sentences deter crime, how a defendant's race impacts judicial decisions, to what extent attorney skill affects case outcomes, and how much individuals value freedom. His interests also include law and health economics, labor economics, and corporate finance. His work has appeared in top peer-reviewed journals and law reviews including the *Stanford Law Review*, *University of Chicago Law Review*, *University of Pennsylvania Law Review*, *American Economic Journal: Applied Economics*, and *Journal of Legal Studies*.



Shyamkrishna Balganesh

Professor of Law

Shyam Balganesh's scholarship focuses on understanding how intellectual property and innovation policy can benefit from the use of ideas, concepts, and structures from different areas of the common law. His most recent work examines the possible role that third party funders may play in copyright litigation and the related phenomenon of "copyright trolling." He is currently editing a collection of scholarly essays on the topic of intellectual property and the common law, published by the Cambridge University Press in 2013.



Bryan Choi

CTIC Faculty Fellow

CTIC welcomes its new Faculty Fellow, Bryan Choi. He joins CTIC from New York Law School (NYLS) where he was a Visiting Associate Professor, teaching Internet Law, Intellectual Property, and Property. Choi received his J.D. from Harvard Law School and his B.A. in Computer Science from Harvard College. Prior to NYLS, Choi was Director of Law and Media at the Information Society Project at Yale Law School. His previous work also focuses on technology law issues relating to the Internet. Choi has written extensively on the necessary tradeoffs to be made between privacy, innovation, and enforcement in a digital, decentralized environment. Recent publications include "For Whom the Data Tolls," "A Prospect Theory of Privacy," and "The Anonymous Internet."



Cynthia Dahl

Practice Associate Professor and Inaugural Director of the Detkin Intellectual Property and Technology Legal Clinic

An accomplished intellectual property lawyer and leader with experience as both corporate counsel and law firm litigator, Cynthia Dahl is the inaugural Director of the University of Pennsylvania Law School's new Detkin Intellectual Property and Technology Legal Clinic. Dahl comes to Penn Law with broad experience in every aspect of intellectual property and technology law and its business applications. After graduating from Stanford Law in 1998, she litigated patent and trademark cases at Pennie and Edmonds in New York and at Holland and Hart in Denver, Colorado. In 2001, Dahl became a Corporate Counsel at TruePosition, Inc., a technology-driven international wireless location company based in Berwyn, Pennsylvania, where she grew the patent portfolio from 20 to more than 125 patents worldwide and developed the IP portfolio of TruePosition's three spin-off entrepreneurial subsidiaries. She was promoted to Senior Counsel in 2005 and won company leadership awards in 2007 and 2010.



Camilla Hrdy

CTIC Faculty Fellow

Camilla Hrdy is CTIC's third faculty fellow. Her work focuses on patent law, innovation policy, and the intersection between research, technology, and economic development. She holds degrees from Berkeley Law, Harvard University, and the University of Cambridge. She is also a Visiting Fellow at the Information Society Project at Yale Law School and was a Thomas Edison Innovation Fellow at George Mason University School of Law.



Jeffrey Vagle

Lecturer in Law and CTIC Executive Director

Jeffrey Vagle is the inaugural Executive Director of the Center for Technology, Innovation and Competition at the University of Pennsylvania Law School. His research interests include cryptography, cybersecurity, electronic privacy, the mechanisms and societal effects of surveillance, Internet architecture, and networked economies and societies. Mr. Vagle most recently served as an associate in Pepper Hamilton's Privacy, Security and Data Protection Group. He earned his JD from Temple University School of Law, where he was Editor-in-Chief of the *Temple International and Comparative Law Journal*. Mr. Vagle writes and speaks regularly on privacy, data security, surveillance, and other cyberlaw-related topics, and is the author of several law review and technical articles, including, most recently, "Furtive Encryption: Power, Trust, and the Constitutional Cost of Collective Surveillance," forthcoming in the *Indiana Law Journal*.



Gideon Parchomovsky

Robert G. Fuller, Jr. Professor of Law

Gideon Parchomovsky specializes in intellectual property law, property law, and cyberlaw. He has already made significant contributions to the field through his wide-ranging scholarship, having written numerous articles for major law reviews on property and liability rules, insider trading, trademarks, domain names, and patents. Most recently, he has been advocating the need for a comprehensive property theory and the need to introduce a value-oriented theory. Parchomovsky has received the A. Leo Levin Award presented to the best teacher of a first-year course.



R. Polk Wagner

Professor of Law

Polk Wagner focuses his research and teaching on intellectual property law and policy, with a special interest in patent law. He has written over twenty articles on topics ranging from an empirical analysis of judicial decision-making in patent law to the First Amendment status of software programs. He is the co-author of *Patent Law (Concepts and Insights)* (Foundation 2008) (with Craig Allen Nard). He is a frequent lecturer on intellectual property topics worldwide. Prior to joining the Penn Law faculty in 2000, Wagner served as a clerk to Judge Raymond C. Clevenger III of the U.S. Court of Appeals for the Federal Circuit.



Tess Wilkinson-Ryan

Professor of Law and Psychology

Tess Wilkinson-Ryan studies the psychology of legal decision-making. Her research addresses the role of moral judgment in legal decision making, with a particular focus on private contracts and negotiations. She uses experimental methods from psychology and behavioral economics to ask how people draw on their moral intuitions to motivate or inform legal choices. Recent research topics include mortgage borrowing and default, retirement planning, contract precautions, and the cognitive and emotional response to breach of contract. In 2012 she was awarded the A. Leo Levin Award for Excellence in an Introductory Course.



Christopher Yoo

John H. Chestnut Professor of Law, Communication, and Computer and Information Science

Christopher Yoo has emerged as one of the nation's leading authorities on law and technology. His research focuses on understanding how technology and economic theories of imperfect competition shed new light on the regulation of electronic communications. He has been a leading voice in the network neutrality debate that has dominated Internet policy over the past several years. He is also pursuing research on copyright theory, standard essential patents, Internet governance, and cyberwar. He is the author of four books, including *The Dynamic Internet: How Technology, Users, and Businesses Are Transforming the Network* (AEI 2012), as well as over seventy articles and book chapters. Yoo testifies frequently before Congress, the Federal Communications Commission, and the Federal Trade Commission. Before entering law teaching, Yoo clerked for Justice Anthony M. Kennedy of the Supreme Court of the United States and Judge A. Raymond Randolph L'69 of the U.S. Court of Appeals for the D.C. Circuit..

CTIC Secondary Faculty



Anita L. Allen

Vice Provost for Faculty and Henry R. Silverman Professor of Law and Professor of Philosophy

Anita Allen is an expert on privacy law, bioethics, and contemporary values. She is a member of the Presidential Commission for the Study of Bioethical Issues. Her books include *Unpopular Privacy* (Oxford 2011); *Privacy Law and Society* (Thomson/West 2011); *The New Ethics: A Guided Tour of the 21st Century Moral Landscape* (Miramax/Hyperion 2004); *Why Privacy Isn't Everything: Feminist Reflections on Personal Accountability* (Rowman and Littlefield 2003); and *Uneasy Access: Privacy for Women in a Free Society* (Rowman and Littlefield 1988). She co-edited *Debating Democracy's Discontent* (Oxford 1999 with Milton Regan). Allen has written more than one hundred scholarly articles and has also written for popular magazines and blogs. She has frequently appeared on nationally broadcast television and radio programs. In June 2014, Allen was presented with a Lifetime Achievement Award by EPIC, the Electronic Information Privacy Center in Washington, D.C.



Cary Coglianese

Edward B. Shils Professor of Law, Professor of Political Science, and Director of the Penn Program on Regulation
Cary Coglianese specializes in the study of regulatory policy and processes, with a particular emphasis on the empirical evaluation of alternative regulatory strategies and on the role of conflict and cooperation in business-government relations. He teaches administrative law, regulatory policy, and environmental regulation and is the founding director of the university-wide Penn Program on Regulation. He is also the founder and current advisor to *RegBlog.org* and has served as Penn Law's Deputy Dean for Academic Affairs. He founded the Law & Society Association's international Collaborative Research Network on Regulatory Governance, served as a founding editor of the peer-reviewed journal *Regulation & Governance*, and currently co-chairs the



Seth Kreimer

Kenneth W. Gemmill Professor of Law

Seth Kreimer's first article, *Allocational Sanctions: The Problem of Negative Rights in a Positive State*, set the terms for a generation of discussion of unconstitutional government manipulation of public benefits. His subsequent work has shaped analysis of governmental control of private information, abortion regulation, assisted suicide, and gay marriage. He has explored the implications of DNA testing in criminal justice, free speech on the Internet, and the dangers of abuse in the "war on terror." Kreimer has represented plaintiffs in a wide array of litigation. He served as co-counsel in *Ferguson v. City of Charleston* (U.S. 2001), establishing the right of obstetrical patients to refuse non-consensual drug testing; *In re R.B.F.* (Pa. 2002), securing the right of gay and lesbian parents to establish families by second parent adoption; *Nixon v. Commonwealth* (Pa. 2003), successfully challenging the constitutionality of lifetime disqualification of sex-offenders from employment; and *Buck v. Stankovic* (M.D. Pa. 2007), enjoining denial of a marriage license to a citizen who wished to marry an undocumented non-citizen. Prior to joining the Penn Law faculty, Kreimer clerked for Judge Arlin M. Adams L'47 of the U.S. Court of Appeals for the Third Circuit.



CTIC Affiliated Faculty



Matthew Blaze

Associate Professor of Computer and Information Science,
School of Engineering and Applied Science

Matthew Blaze focuses his research on the architecture and design of secure systems based on cryptographic techniques, analysis of secure systems against practical attack models, and finding new cryptographic primitives and techniques. He is especially interested in the use of encryption to protect insecure systems such as the Internet. He was a designer of swIPe, a predecessor of the now standard IPSec protocol for protecting Internet traffic. Another project, CFS, investigated and demonstrated the feasibility of including encryption as a file system service. Recently, he has applied cryptologic techniques to other areas, including the analysis of physical security systems. This work yielded a powerful and practical attack against virtually all commonly used master-keyed mechanical locks.



Gerald R. Faulhaber

Professor Emeritus of Business and Public Policy,
Wharton School

Gerry Faulhaber served as Chief Economist at the Federal Communications Commission from July 1, 2000 to June 30, 2001, where he worked on many telecommunications and Internet issues, including the AOL-Time Warner merger. His current research focuses on public policy and broadband infrastructure and the political economy of regulation. He has published widely in professional journals and is the author of several books, including *European Economic Integration: Technological Perspectives* (Springer 1991) and *Telecommunications in Turmoil: Technology and Public Policy* (Harper 1988). He has served on numerous scholarly boards and review committees and was Vice-President of the Board of Directors of the Telecommunications Policy Research Conference in Washington, D.C. He was an Associate Editor of the *Journal of Industrial Economics* and serves on the Board of Editors of *Information Economics and Policy*. Prior to his academic career, Faulhaber was Director of Strategic Planning and Financial Management at AT&T, after holding the position of Head, Economics Research at Bell Laboratories.



Peter Decherney

Professor of Cinema Studies and English,
School of Arts and Sciences;

Peter Decherney is Professor of Cinema Studies and English at the University of Pennsylvania, with a secondary appointment at the Annenberg School for Communication. He is the author of *Hollywood's Copyright Wars: From Edison to the Internet* and *Hollywood and the Culture Elite: How the Movies Became American*, as well as the co-editor of the journal *Critical Studies in Media Communication* and co-editor of the forthcoming book *Iranian Cinema in a Global Context*. He has testified before the Copyright Office of the United States and filed amicus briefs in several cases, including the Supreme Court Case of *Golan v. Holder*. Decherney has been an Academy of Motion Picture Arts and Sciences Scholar, a fellow of the American Council of Learned Societies, and a U.S. State Department Arts Envoy to Myanmar. He has won multiple teaching awards at Penn, and he is a *Forbes.com* contributor.



Michael Kearns

National Center Professor of Management and Technology, School of Engineering and Applied Science; Professor of Operations and Information Management and Statistics, Wharton School

Since 2002, Michael Kearns has been on the faculty of the Computer and Information Science Department at the University of Pennsylvania, where he holds the National Center Chair. He also holds secondary appointments in the Operations and Information Management (OPIM) and Statistics departments of the Wharton School. He is the Founding Director of the Warren Center for Network and Data Sciences and the Faculty Founder of Penn Engineering's Networked and Social Systems Engineering (NETS) Program. He has worked extensively

with quantitative trading groups on Wall Street and is actively involved in a number of technology startup companies. He has also served as a consultant and expert witness on a number of technology and regulatory matters.



Monroe E. Price

Director of the Center for Global Communication Studies, Annenberg School for Communication

Monroe Price is director of the University of Pennsylvania's Center for Global Communication Studies (CGCS) at the Annenberg School for Communication, where he works with a wide transnational network of regulators, scholars, and practitioners in Europe, Africa, Latin America, and Asia, as well as in the United States. Price also founded the Programme in Comparative Media Law and Policy at Oxford University and remains a research fellow there. He chairs the Center for Media and Communications Studies at Central European University, a project instituted and encouraged by CGCS. Price has served on the President's Task Force on Telecommunications Policy and the Sloan Commission on Cable Communications (both in the 1970s) and on the Carter-Sagalaev Commission on Radio and Television Policy (in the 1990s). He was a long-time member of the International Broadcasting Institute (now the International Communications Institute). He is the author and editor of numerous publications including *Media and Sovereignty: The Global Information Revolution and its Challenge to State Power* (MIT 2002); *Owning the Olympics: Narratives of the New China* (Michigan 2008), and the *Routledge Handbook of Media Law* (Routledge 2012).



Katja Seim

Assistant Professor of Business and Public Policy, Wharton School

Katja Seim specializes in applied microeconomics and industrial organization. Her research focuses on two areas. First, she studies how firms make product placement and entry decisions, how they assess the competitive implications of different market entry strategies, and how their decisions are affected by public policies and regulatory interventions. Second, she analyzes firm and consumer behavior in information and communications industries. Specific topics she has worked on in this area include consumer adoption of online services; consumer choice among the commonly offered nonlinear pricing plans for such services; and the effect of entry on the characteristics of such sophisticated pricing strategies. Her research has been published in leading journals such as *American Economic Review*, *American Economic Journal: Microeconomics*, *Marketing Science*, *Quantitative Marketing and Economics*, and the *RAND Journal of Economics*.



Jonathan M. Smith

Olga and Alberico Pompa Professor of Engineering and Applied Science, School of Engineering and Applied Science

Jonathan Smith is currently the Olga and Alberico Pompa Professor of Engineering and Applied Science and a Professor of Computer and Information Science at the University of Pennsylvania. He was previously at Bell Laboratories and Bell Communications Research, joining Penn in 1989. He served as a Program Manager at the Defense Advanced Research Projects Agency (DARPA) from 2004-2006 and was awarded the Office of the Secretary of Defense Medal for Exceptional Public Service in 2006. Among the research programs he managed was the "Quantum Information Science and Technology" (QulST) program. He is an IEEE Fellow.



Joseph Turow

Robert Lewis Shayon Professor of Communication, Annenberg School for Communication

Joe Turow is a recipient of the National Communication Association's Distinguished Scholar Award and is an elected Fellow of the International Communication Association. In 2012, the TrustE Internet privacy-management organization designated him a "privacy pioneer" for his research and writing on marketing and digital privacy. He has authored nine books, edited five, and written more than 150 articles on mass media industries. His most recent books are *Media Today: Mass Communication in a Converging World* (Routledge, 2014) and *The Daily You: How the New Advertising Industry Is Defining Your Identity and Your Worth* (Yale 2012). Joe's continuing national surveys of the American public on issues relating to marketing, new media, and society have received a great deal of attention in both the popular press and the research community. He was

awarded a Lady Astor Lectureship by Oxford University and has received several conference paper and book awards. He also has lectured widely, including being invited to give the McGovern Lecture at the University of Texas College of Communication, the Pockrass Distinguished lecture at Penn State University and the Chancellor's Distinguished Lecture at LSU. Turow currently serves on the editorial boards of the *Journal of Broadcasting and Electronic Media*, *Poetics*, and *Media Industries*.



Kevin Werbach

Associate Professor of Legal Studies and Business Ethics, Wharton School

Kevin Werbach is a leading expert on the business, policy, and social implications of emerging Internet and communications technologies. While serving as Counsel for New Technology Policy at the FCC during the Clinton Administration, Werbach was named by *Wired* magazine as "one of the few policy wonks who really got it." He is the founder of the Supernova Group, a technology analysis and conference firm. He co-led the review of the Federal Communications Commission (FCC) for the Obama-Biden Transition Project and subsequently served as an advisor to the FCC and the National Telecommunications and Information Administration. Werbach is also a pioneer in the emerging field of gamification and developed one of the first and most successful Massive Open Online Courses (MOOCs). He was named the Wharton School's first "Iron Prof" in 2010.

Adjunct Faculty



Thomas Fetzer

Professor of Law, University of Mannheim;
Lecturer in Law

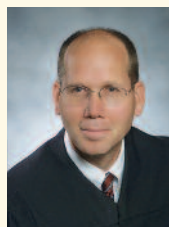
Thomas Fetzer is Professor of Law at the University of Mannheim Law School, Germany, where he holds a Chair of Public Economic Law, Regulation and Taxation. Furthermore, he is academic director of the Mannheim Centre for Competition and Innovation (MaCCI). Before taking up his current position, he was Professor of Law at the TU Dresden Law School, Germany. He has been a guest lecturer at the Vanderbilt Law School, the University of Freiburg, and the University of Jena. He is also an Adjunct Professor at the Mannheim Business School. His fields of expertise include telecommunications law, media law, and privacy/data protection law. He has also published several articles on tax law and European community law and co-authored books on Internet law, telecommunications law, and public economics law.



Osagie Imasogie L'85

Senior Managing Partner, Phoenix IP Ventures;
Adjunct Professor of Law

Osagie Imasogie has over thirty years of experience in the fields of law, finance, business management, healthcare and the pharmaceutical industry. Prior to co-founding Phoenix IP Ventures, an IP-based Merchant Bank, Imasogie conceptualized and established GlaxoSmithKline Ventures and was its founding VP. He led GSK Ventures in investing over thirty GSK R&D non-progressed assets into existing companies and/or as the basis of starting new companies. Osagie has been the founder and Chairman of several biotech and pharmaceutical companies such as Ception Therapeutics, Trigenesis, iCeutica, and Iroko Pharmaceuticals. Imasogie holds post-graduate degrees from the London School of Economics and the University of Pennsylvania Law School. In addition, he is a member of the Board of Overseers of the University of Pennsylvania Law School and a member of the Board of Trustees of the University of Pennsylvania.



The Honorable Kent A. Jordan

Judge, U.S. Court of Appeals for the Third Circuit;
Adjunct Professor of Law

Kent Jordan was appointed in 2006 to serve as a Judge on the United States Court of Appeals for the Third Circuit. Prior to that appointment, Judge Jordan held appointments as a United States District Judge for the District of Delaware from 2002 to 2006 and as an Assistant United States Attorney for the District of Delaware, serving as Civil Chief for that office in 1991 and 1992. He has also been an officer and member of the boards of directors of privately held businesses and was a partner in a law firm in Wilmington, Delaware, where his practice focused on intellectual property, corporate, and commercial litigation.



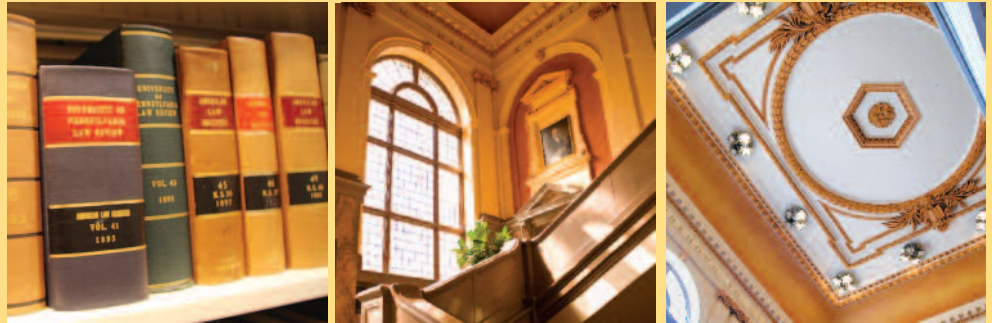
Matthew Pearson L'05

Partner, Akin Gump Strauss Hauer & Feld LLP;
Lecturer in Law

Matthew Pearson concentrates on patent litigation. He received a J.D. in 2005 from the University of Pennsylvania Law School. As a Ph.D. student at Cornell University and a postdoctoral fellow at the National Institutes of Health, he studied the three-dimensional molecular structures of proteins using x-ray crystallography. He served for two years as a law clerk to the Honorable Kent A. Jordan of the U.S. District Court for the District of Delaware and the U.S. Court of Appeals for the Third Circuit.



Center for Technology, Innovation and Competition



CTIC Research

Research output is a core function of the Center for Technology, Innovation and Competition. By providing a forum where faculty can engage with one another across multiple disciplines, the Center seeks to encourage informed, high-quality research that will advance the understanding of technology and innovation policy.

Listed in the next several pages is a sampling of recently published papers related to technology, innovation, and competition by CTIC faculty members. All primary, secondary, and adjunct faculty appointments are in the University of Pennsylvania Law School unless otherwise noted. All affiliated faculty appointments are in the University of Pennsylvania.



Primary Faculty

David Abrams

Professor of Law, Business, Economics, and Public Policy

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Shyamkrishna Balganesh

Assistant Professor of Law

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Bryan Choi

CTIC Faculty Fellow

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Cynthia Dahl

Practice Associate Professor of Law

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Camilla Hrdy

CTIC Faculty Fellow

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Gideon Parchomovsky

Robert G. Fuller, Jr. Professor of Law

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Jeffrey Vagle

CTIC Executive Director

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Polk Wagner

Professor of Law

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Tess Wilkinson-Ryan

Professor of Law and Psychology

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Christopher Yoo

John H. Chestnut Professor of Law, Professor of Communication, and Professor of Computer and Information Science

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Secondary Faculty

Cary Coglianese

Edward B. Shils Professor of Law, Professor of Political Science, and Director of the Penn Program on Regulation

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Seth Kreimer

Kenneth W. Gemmill Professor of Law

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Affiliated Faculty

Matthew Blaze

Associate Professor of Computer and Information Science, School of Engineering and Applied Science

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Peter Decherney

Professor of Cinema Studies and English, School of Arts and Sciences

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Gerald R. Faulhaber

Professor Emeritus of Business and Public Policy, Wharton School

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Ali Jadbabaie

Alfred Fittler Moore Professor of Network Science, School of Engineering and Applied Science

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Michael Kearns

National Center Professor of Management and Technology, School of Engineering and Applied Science

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Monroe E. Price

Director of the Center for Global Communication Studies, Annenberg School for Communication

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Jonathan M. Smith

Olga and Alberico Pompa Professor of Engineering and Applied Science, School of Engineering and Applied Science

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Joseph Turow

Robert Lewis Shayon Professor of Communication, Annenberg School for Communication

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Kevin Werbach

Associate Professor of Legal Studies and Business Ethics, Wharton School

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Adjunct Faculty

Thomas Fetzner

Professor of Law, University of Mannheim;
Lecturer in Law

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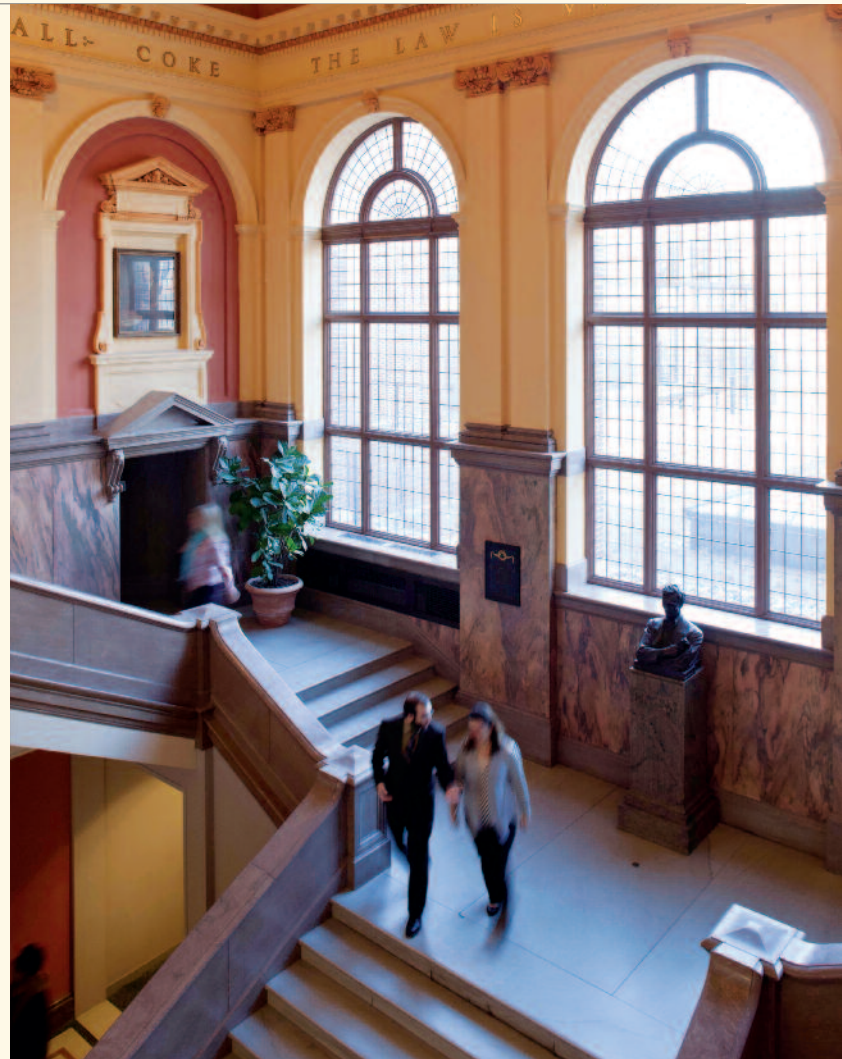
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Osagie Imasogie L'85

Senior Managing Partner, Phoenix IP
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