PITT CYBER

University of Pittsburgh
Institute for Cyber Law, Policy, and Security

ANNUAL REPORT 2017

We write with tremendous gratitude for your support in 2017 and enthusiasm for what 2018 and beyond holds for Pitt Cyber. We are excited by all that we have accomplished and energized by our ambitions for the future.

Pitt Cyber was launched to build on and support the tremendous wealth of cyber research and efforts already ongoing at Pitt. The Institute also looks to make the conversations on cyber issues bigger and bolder—and ensure that how we address these issues has resonance and impact well beyond our campus.

We are explicitly about all things cyber. This remit is intentionally broad: networks, data, algorithms, and systems. But few cyber problems and fewer still cyber opportunities can be addressed by purely technical solutions. We have an explicitly trans-disciplinary view of the field. Pitt Cyber works in the vital space at the intersection of technology, law, and policy and we do so with all of those who have an expertise to contribute.

In our first year, we took on two critical themes: election security and workforce development.

We launched the Institute with a symposium on Russian Hacking of the US 2016 Election. The risks that the threat of cyber-attacks pose to the election security of democracies and citizen faith therein will be an ongoing theme of Pitt Cyber's work. We initiated a program of policy-targeted research on Pennsylvania's election architecture vulnerabilities this fall that will be continuing through 2020.

A second major area of work for Pitt Cyber is workforce development and education. The cyber talent pipeline is at risk because of failures to define talent inclusively and to develop thought leaders. Pitt Cyber hosted its first annual Air Force Association Cyber Patriot Camp for high school students in July and will be hosting the camp again in 2018. This signature event forms the backbone of our efforts to address workforce development both at the grassroots and policy levels.

In addition to launching key areas of work, much of the first year of any strong organization is necessarily taken up by organizational development. The most important of these is people. I am thrilled by my exceptional new colleagues and honored by the affiliate scholars who have joined us. I have no doubt that with them on board, Pitt Cyber will be a source of positive disruption here at Pitt—and beyond.

Cyber issues are sure to play a critical role in 2018 from the economy to national security to everyday life. Whether it is the potential regulation of big tech, the coming reality of automation, the threat of cyber warfare, or failures to protect consumer privacy and security, there are few cases where the growing gaps between new technologies and law and policy won't be at issue.

We therefore hope that Pitt Cyber will take on these challenges and opportunities wherever we can be most impactful. We will look to be boundary-breaking in the best sense, driving collaboration across the campus, and among researchers, policymakers, and industry to take on these gaps. In our second year, in addition to continued work on election security and workforce development, we are excited to work further on critical infrastructure protection, including with respect to the energy grid and the financial sector.

We hope you will take a moment to read about all we have accomplished in our first year and a glimpse at what is to come. I look forward to your continued ideas, insight, and partnership.

Thank you,

DAVID HICKTON
FOUNDING DIRECTOR

Pitt Cyber provides a unique transdisciplinary environment for tackling cyber challenges. We bring the breadth of one of the world's leading public research universities to bear on the critical questions of networks, data, and algorithms, with a focus on the ever-changing gaps among law, policy, and technology. Our collective of legal, policy, and technical researchers engages with policymakers and industry to create both actionable proposals to address current demands and fundamental insights to understand the future as it arrives.

Pitt Cyber launched in January 2017 as an experiment: can existing approaches to cyber at Pitt and beyond be transformed to drive better global outcomes?

Our research, education, and public engagement integrates cutting-edge research and teaching across the full breadth of the University of Pittsburgh to produce cyber-related results that promote the development and use of networks, data, and algorithms globally, productively, safely, securely, and equitably.

EVENTS

Pitt Cyber kicked off the Institute's launch in February with a symposium on the US 2016 elections titled, Russian Hacking: What Do We Know and How Is This Different?.

Over 300 people joined us live at Barco Law School and the resulting video has taken on a life of its own, with over 1,200 views. In addition to David Hickton, who moderated the event, the panel included Ellen Nakashima, national security reporter, *The Washington Post;* J. Keith Mularski, supervisory special agent, Federal Bureau of Investigation; Andrei Soldatov, Russian investigative journalist and security services expert; and Luke Dembosky (Law '94), Partner, Debevoise and Plimpton LLP. The discussion was opened by Chancellor Patrick Gallagher and Provost and Senior Chancellor Patricia Beeson, and closed by Law School Dean William Carter.

Pitt Cyber launched its DC presence in October at an event at the New America Foundation, co-hosted with the American Bar Association and New America. The event, titled, Old Laws and New Technology: How Can We Keep Up?, included a keynote by Hickton and a panel discussion with Paul Cohen, founding dean and professor, School of Computing and Information; Harvey Rishikof, chair, advisory committee, ABA Standing Committee on Law and National Security; Ian Wallace, co-director, New America's Cybersecurity Initiative and senior fellow, International Security Program; and was moderated by Kiersten Todt, Pitt Cyber's resident scholar.

RUSSIAN HACKING:
What Do We Know and How Is This Different?

Thursday, February 2, 2017
1:30–4:30 p.m.
University of Pittsburgh School of Law
Teplitz Memorial Moot Courtroom
Barco Law Building, 3900 Forbes Avenue

During and after the U.S. presidential election, the subject of Russian hacking has dominated the news. What is the extent of Russian activities in cyberspace? What is the historical context behind these activities? What differences exist between U.S. and Russian views on the use of cyber tools? How should the U.S. and other countries respond? Join a panel of experts, led by former U.S. attorney David J. Hickton, head of the University of Pittsburgh Institute for Cyber Law, Policy and Security, for a dynamic discussion of these issues.

WELCOME AND INTRODUCTION:
Patricia E. Beeson, Senior Vice Chancellor and Provost
Patrick Gallagher, Chancellor University of Pittsburgh

MODERATOR:
David J. Hickton, Director, University of Pittsburgh Institute for Cyber Law, Policy and Security, and former U.S. Attorney for the Western District of Pennsylvania

PANELISTS:
Andrei Soldatov, Russian investigative journalist and security services expert, coauthor of *The Red Web: The Struggle Between Russia's Digital Dictators and the New Online Revolutionaries,* cofounder and editor of Agentura.ru. Ellen Nakashima, national security reporter, *The Washington Post.* Luke Dembosky (JD '94), partner, Debevoise & Plimpton LLP, Cybersecurity & Data Privacy practice and White Collar & Regulatory Defense Group; former Deputy Assistant Attorney General for National Security; and former U.S. Department of Justice representative at the U.S. Embassy in Moscow, Russia. Keith Mularski, Supervisory Special Agent, Federal Bureau of Investigation (Pittsburgh Division), and lead investigator of numerous high-profile cybercrime cases. To learn more about the panelists, visit: http://pitt.edu/cyber-institute.

Pitt Cyber will be hosting and supporting events in the coming year, including public lectures, private roundtables, and interactive events on campus and otherwise.

Please join us for a lecture and discussion with *New York Times* Reporter David Sanger on February 21 on The Cyber Threat: The New Way Nations Struggle for Power and Influence.

PROGRAMS

WORKFORCE DEVELOPMENT AND YOUTH EDUCATION

Pitt Cyber hosted 200 high school students for a week-long training as part of the Air Force Association's CyberPatriot program. The curriculum focused on cyber ethics and systems security and culminated with a cyber-defense competition. The camp was the largest of its kind and made tuition free to all students.

Workforce Development and Youth Education
Pitt Cyber will host its second annual camp from July 23-27, 2018.

Technology Thought Leadership
Pitt Cyber is launching a salon discussion series in 2018. We look forward to lively discussions of experts on urgent topics in the cyber arena, and widely sharing the resulting white papers with the public and decisionmakers.

Election Security
Pitt Cyber is honored to have received a grant from The Heinz Endowments to pilot a program on Pennsylvania's election system vulnerabilities.

RESEARCH AND PUBLICATIONS

BOOKS

Artificial Intelligence and Legal Analytics: New Tools for Law Practice in the Digital Age by Kevin Ashley, Cambridge University Press

Coding Literacy: How Computer Programming is Changing Writing by Annette Vee, MIT Press

Governing Medical Knowledge Commons by Katherine J. Strandburg, Brett M. Frischmann, Michael J. Madison, Cambridge University Press

CONGRESSIONAL TESTIMONY

"Promoting Security in Wireless Technology," Kiersten Todt, House Energy and Commerce Committee.

SELECTED PUBLICATIONS

"Zenith: Utility-Aware Resource Allocation for Edge Computing," J. Xu, B. Palanisamy, H. Ludwig, and Q. Wang, *Proceedings - 2017 IEEE 1st International Conference on Edge Computing, EDGE 2017*

"Risk and Decision Analysis of Dynamic Spectrum Access," Liu Cuia, Martin B.H. Weiss, Benoit Morel, David Tipper *Telecommunications Policy*

"SeSAMe: Software Defined Smart Home Alert Management System for Smart Communities," Rohit Abhishek, Shuai Zhao, David Tipper, Deep Medhi, *IEEE Workshop on Local and Metropolitan Area Networks*

"Data Credence in IoR: Vision and Challenges," Vladimir Zadorozhny, Prashant Krishnamurthy, Mai Abdelhakim, Konstantinos Pelechrinis, Jiawei Xu, *Open Journal of Internet Of Things*

A LOOK AHEAD

Join us on February 6 for a reception to honor the release of Ashley, Vee, and Madison's books and learn more about their work.

We also look forward to an announcement in 2018 about our grants program to seed multidisciplinary collaborative cyber scholarship across campus.
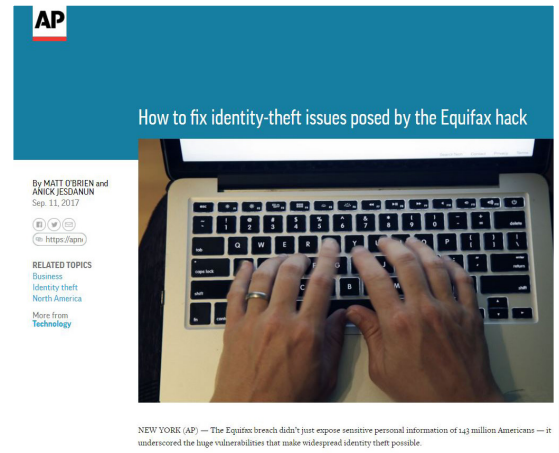
MEDIA

Led by David Hickton, Pitt Cyber's media presence has been robust. Hickton, Todt, and Madison have been quoted by a range of media outlets on topics ranging from cybercrime to the Trump administration's cybersecurity efforts to consumer privacy to human trafficking to artificial intelligence.

SELECTED OUTLETS INCLUDE:

Associated Press	The New York Times
The Christian Science Monitor	Security Magazine
CyberScoop	Pittsburgh Post-Gazette
Foreign Policy	Vice News
Fox News	TechVibe Radio
MSNBC	Washington Post
Inside CyberSecurity	WESA
KDKA TV	WIRED
	WPXI TV

#THE BEAT
DAVID HICKTON | FORMER U.S. ATTORNEY WESTERN DISTRICT OF PENNSYLVANIA
NEWS EMAIL TEXT BREAKING TO 66866

How to fix identity-theft issues posed by the Equifax hack

By MATT O'BRIEN and ANICK JESDANUN
Sep. 11, 2017

RELATED TOPICS
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NEW YORK (AP) — The Equifax breach didn't just expose sensitive personal information of 143 million Americans — it underscored the huge vulnerabilities that make widespread identity theft possible.

Pittsburgh Post-Gazette

Zero by Zero edges out the Cupcakes in Pitt cyber camp competition

The competition was the culmination of CyberCamp, a week of classes and practice on cyber security hosted by the University of Pittsburgh's Institute for Cyber Law, Policy and Security (Pitt Cyber). The camp was part of the Air Force Association's CyberPatriot Program, an educational initiative that runs camps around the country as well as a national competition that Friday's contest mirrored.

The 186 students attending the Pitt camp had spent the week learning the basics of cyber security and ethics, as well as the Windows and Ubuntu operating systems.

"They're getting a really good curriculum that is pretty similar to the kind of curriculum you would study if you were trying to become a cyber security professional," said David J. Hickton, founding director of Pitt Cyber and former U.S. attorney.

BREACH OF TRUST
EQUIFAX ADMITS SECOND DATA INCURSION THIS YEAR
SPECIAL REPORT

SPEAKING ENGAGEMENTS

Pitt Cyber seeks an active presence on campus and beyond. Here are just a few of our speaking engagements throughout the year:

KINBERCON 2017 Annual Conference: David Hickton, *closing keynote*

National Center for Defense Manufacturing and Machining 2017 Summit, David Hickton, *speaker*

2017 CyBurgh, David Hickton, *speaker*

"Cybersecurity Threats: How Vulnerable is the United States?," Malcom and Carolyn Wiener Annual Lecture, Council on Foreign Relations, Kiersten Todt, *speaker*

"Cyber Endeavour 2017 - Deterrence in and through Cyberspace 2022," Carnegie Mellon University, Software Engineering Institute, David Hickton, *panelist*

"The New Cybersecurity Playbook: Innovating and Protecting the Digital Frontier," Thrival Innovation 2017, Michael Madison, *panelist*

"Cybersecurity and Privacy," Pitt Science 2017, Beth Schwanke, *moderator* and Michael Madison, *presenter*

2017 Polytechnic Inaugural Career Awareness Event, Ray Winstead, *panelist*

"Cybersecurity in the Media," Newseum, Washington, DC, David Hickton, *panelist*

"Confronting the Cyber Threat," National Defense University, David Hickton, *speaker*

"Cybersecurity: Obstacles and Optimism in US-China Relations," National Committee on US-China Relations, 2017 China Town Hall at Pitt Greensburg, Beth Schwanke, *keynote speaker*

"The Next Generation of Cyber Laws and Regulations: Balancing Innovation and Security in the Digital Economy," SINET Showcase, David Hickton, *panelist*

"Communication Strategies that Deliver Measurable Metrics between the CISO and the Board," SINET Showcase, Kiersten Todt, *panelist*

Cowen Cybersecurity Summit, Kiersten Todt, *panelist*

"Fraud without a Face," Pittsburgh Association for Financial Professionals, Beth Schwanke, *panelist*

"Fireside Chat with General Keith Alexander on Cybersecurity," The Paley Center for the Media, Kiersten Todt, *moderator*

SELECTED HONORS AND AWARDS

INSTITUTE STAFF

David Hickton was appointed to the Air Force Association's CyberPatriot Board of Advisors.

Kiersten Todt was selected as one of the "Most Influential People in Security 2017" by Security Magazine.

AFFILIATE SCHOLARS

Professor James Joshi from the School of Computing and Information was recognized by the Association for Computing Machinery as a 2017 Distinguished Member.

Adam Lee and John Lange, from the School of Computing and Information were awarded an NSF grant for their research titled, "Scalable Dynamic Access Control for Untrusted Cloud Environments."

Balaji Palanisamy, James Joshi, David Tipper, Prashant Krishnamurthy, David Thaw, and other colleagues from the School of Computing and Information were awarded an NSF grant for their research titled, "Security-Assured Data Science Workforce Development in Pennsylvania."

PEOPLE

We are building Pitt Cyber's core operations to support its big and bold mission.

Pitt Cyber built its in-house team in its first year. David Hickton recruited key staff:

Kiersten Todt, *Resident Scholar in Washington, DC*

Michael Madison, *Senior Scholar and Academic Director, Pitt Cyber and Faculty Director, Innovation Practice Institute and Professor of Law*

Beth Schwanke, *Executive Director*

Ray Winstead, *Technology Director* (thanks to the generosity of CSSD)

Sarah Barca, *Administrative Director*

Pitt Cyber was honored to announce its first cohort of Affiliate Scholars. Supporting Pitt's cyber researchers is a key element to Pitt Cyber's future success. These researchers are engaged in fascinating research and scholarship of their own design and we hope to incentivize and support future cross-disciplinary cyber-related work.

Kevin Ashley, *Professor, School of Law*

Elaina Baylis, *Professor, School of Law*

Ronald Brand, *Academic Director, CILE Chancellor Mark A. Nordenberg University Professor and John E. Murray Faculty Scholar*

Paul Cohen, *Founding Dean and Professor, School of Computing and Information*

Michael Colaresi, *William S. Dietrich II Chair of Political Science, Department of Political Science*

Mary Crossley, *Professor, School of Law*

David Harris, *John E. Murray Faculty Scholar, Professor of Law, School of Law*

James Joshi, *Professor, School of Computing and Information*

Michael Kenney, *Associate Professor, Graduate School of Public and International Affairs*

Prashant Krishnamurthy, *Professor, School of Computing and Information*

John R. Lange, *Assistant Professor, School of Computing and Information*

Adam J. Lee, *Associate Dean, Associate Professor, School of Computing and Information*

Sera Linardi, *Assistant Professor, Graduate School of Public and International Affairs*

Michael J. Madison, *Faculty Director of Innovation Practice Institute, Professor of Law, School of Law*

Lisa S. Nelson, *Associate Professor, Graduate School of Public and International Affairs*

Balaji Palanisamy, *Professor, School of Computing and Information*

Michael Poznansky, *Assistant Professor, Graduate School of Public and International Affairs*

Julia M. Santucci, *Senior Lecturer and Director, Graduate School of Public and International Affairs*

Jonathan Silverstein, *Chief Research Informatics Officer, Department of Biomedical Informatics; Visiting Professor, Biomedical Informatics*

David Thaw, *Assistant Professor of Law and Informations Sciences, School of Law*

David Tipper, *Professor, School of Computing and Information*

Annette Vee, *Assistant Professor, Department of English*

Martin B.H. Weiss, *Chair, Department of Informatics and Networked Systems; Professor, School of Computing and Information*

Phil Williams, *Professor, Graduate School of Public and International Affairs*

Taieb Znati, *Chair, Department of Computer Science; Professor, School of Computing and Information*

A LOOK AHEAD

We are recruiting additional Affiliate Scholars across campus, as well as beyond and anticipate sharing research outputs, and events, to further drive Pitt Cyber's mission. Working with these scholars is a critical part of Pitt Cyber's 2018 efforts.

We will also be launching a Policy Affiliates effort to build engagement with policymakers, industry, and others engaged in cyber.

FUNDRAISING

We are grateful for Chancellor Pat Gallagher's vision and tremendous support for Pitt Cyber, without which the Institute would not exist.

We are also very grateful for generous in-kind contributions and support within Pitt, including office space from the Office of University Counsel and institutional support from the Law School and Computing Services and Systems Development.

Pitt Cyber took strides toward securing steady-state funding, in conjunction with University Institutional Advancement and others. We are pleased to have secured a grant from The Heinz Endowments to research Pennsylvania's election security vulnerabilities.

A LOOK AHEAD

Pitt Cyber is making strides to be a self-sustaining organization with robust funding. Our fundraising strategy will include securing research grants and partnerships, foundation grants, corporate partnerships, and individual gifts.

COMMUNICATIONS

We launched Pitt Cyber's website, cyber.pitt.edu. The website is a vital portal for communicating our mission and sharing ongoing work. It is becoming a resource for the campus, including by curating cyber-related events at Pitt and around Pittsburgh, as well as cyber-related programs of study and courses.

We also launched a social media presence on Twitter. Both our institutional (@PittCyber) and individual accounts are gathering new followers.

A LOOK AHEAD

We will continue to develop our communications efforts and see a strong potential for impact through growing and expanding these existing efforts.

WITH GRATITUDE

Pitt Cyber is truly a University-wide effort. In addition to support from the Chancellor and Provost's offices, we also benefit from support and wise counsel and collaborations from across the University.

We look forward to supporting and amplifying all of the existing cyber-related work at the University, and propelling future work.