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# PATRICK DREW MCDANIEL

Tsun-Ming Shih Professor of Computer Sciences

School of Computer, Data and Information Sciences ◊ University of Wisconsin-Madison

Office : Room 7387, 1210 W. Dayton St. ◊ Madison, WI 53706 ◊ (608) 263-1008

email: mcdaniel@cs.wisc.edu ◊ Homepage: <https://patrickmcdaniel.org/>

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## ACADEMIC AND RESEARCH APPOINTMENTS

<b>Tsun-Ming Shih Professor of Computer Sciences,</b> University of Wisconsin-Madison, Madison, WI	2022-Present
<b>William L. Weiss Professor of Information and Communications Technology</b> Computer Science and Engineering, Pennsylvania State University, University Park, PA	2017-2022
<b>Distinguished Professor</b> Computer Science and Engineering, Pennsylvania State University, University Park, PA	2016-2017
<b>Professor</b> Computer Science and Engineering, Pennsylvania State University, University Park, PA	2011-2015
<b>Associate Professor</b> Computer Science and Engineering, Pennsylvania State University, University Park, PA	2007-2011
<b>Hartz Family Career Development Assistant Professor</b> Computer Science and Engineering, Pennsylvania State University, University Park, PA	2004-2007
<b>Adjunct Professor</b> Stern School of Business, New York University, New York, NY	2003-2009
<b>Senior Research Staff Member</b> AT&T Labs - Research, Florham Park, NJ	2001-2004

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## RESEARCH LEADERSHIP APPOINTMENTS

<b>Director, National Science Foundation, Center for Trustworthy Machine Learning</b> Participants: Penn State, Stanford, UC Berkeley, UC San Diego, Univ. of Wisconsin, Univ. of Virginia	2018-present
<b>Director, Institute for Networking and Security Research</b> College of Engineering, Pennsylvania State University, University Park, Pennsylvania	2016-2022
<b>Program Manager, Cyber-Security Collaborative Research Alliance (CRA)</b> College of Engineering, Pennsylvania State University, University Park, Pennsylvania	2013-2018
<b>Co-Director, Systems and Internet Infrastructure Laboratory</b> College of Engineering, Pennsylvania State University, University Park, Pennsylvania	2004-2022

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## EDUCATION

Ph.D., Computer Science and Engineering, <b>University of Michigan</b> , Ann Arbor, MI	2001
M.S., Computer Science, <b>Ball State University</b> , Muncie, IN	1991
B.S., Computer Science <b>Ohio University</b> , Athens, OH	1989

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## AFFILIATIONS

Association for Computing Machinery (ACM), *Fellow*  
The Institute of Electrical and Electronics Engineers (IEEE), *Fellow*  
American Association for the Advancement of Science (AAAS), *Fellow*  
USENIX Advanced Computing Systems Association (USENIX)

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## STUDENTS

### Past PhD Students

- *Z. Berkay Celik*, Spring 2019, now **Assistant Professor**, Purdue University

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- *Nicolas Papernot*, Spring 2018, now **Assistant Professor**, University of Toronto
  - *Wenhui Hu*, Fall 2016, now **Senior Member of Technical Staff**, Oracle
  - *Devin Pohly*, Spring 2016, now **Assistant Professor**, Wheaton College
  - *Damien Oceau*, Summer 2014, now **Software Engineer in Security**, Google
  - *Steve McLaughlin*, Spring 2014, now **Senior Software Engineer**, Samsung Research America
  - *Thomas Moyer*, Summer 2011, now **Assistant Professor**, University of North Carolina-Charlotte
  - *William Enck*, Spring 2011, now **Professor**, North Carolina State University
  - *Kevin Butler*, Summer 2010, now **Professor**, University of Florida
  - *Machigar Ongtang*, Summer 2010, now **Assistant Professor**, Dhurakij Pundit University
  - *Patrick Traynor*, Spring 2008, now **John and Mary Lou Dasberg Preeminent Chair, Professor**, University of Florida, co-advisor
  - *Fr. Boniface Hicks*, Fall 2007, now **Assistant Professor**, St. Vincent College

### Current PhD Students

- *Jean-Charles Noirot Ferrand*, University of Wisconsin, Spring 2028
- *Kyle Domico*, University of Wisconsin, Spring 2028
- *Kunyang Li*, University of Wisconsin, Spring 2027
- *Rachel King*, University of Wisconsin, Spring 2026
- *Yohan Beugin*, University of Wisconsin, Spring 2026
- *Blaine Hoak*, University of Wisconsin, Spring 2026
- *Quinn Burke*, University of Wisconsin, Spring 2026
- *Eric Pauley*, University of Wisconsin, Spring 2025
- *Ryan Sheatsley*, University of Wisconsin, Fall 2023

### Past Masters Students

- *Blaine Hoak*, Pennsylvania State University, Summer 2022
- *Rachel King*, Pennsylvania State University, Summer 2022
- *Alban Heon*, Pennsylvania State University, Summer 2022
- *Yohan Beugin*, Pennsylvania State University, Spring 2021
- *Ahmed Abdou*, Pennsylvania State University, Spring 2021
- *Adrien Cosson*, Pennsylvania State University, Summer 2020
- *Bolor Zolbayar*, Pennsylvania State University, Summer 2020
- *Alejandro Andrade*, Pennsylvania State University, Summer 2020
- *Quinn Burke*, Pennsylvania State University, Spring 2020
- *Eric Pauley*, Pennsylvania State University, Spring 2020
- *Sushrut Shringarputal*, Pennsylvania State University, Fall 2019
- *Raquel Alvarez*, Pennsylvania State University, Spring 2019
- *Valentin Vie*, Pennsylvania State University, Spring 2019
- *Ryan Sheatsley*, Pennsylvania State University, Fall 2018
- *Eric Kilmer*, Pennsylvania State University, Spring 2016
- *Nathan Lagerman*, Pennsylvania State University, Spring 2016
- *Matthew Dering*, Pennsylvania State University, Spring 2014
- *Phil Koshy*, M.S. Pennsylvania State University, Fall 2013
- *Diana Koshy*, M.S. Pennsylvania State University, Fall 2013
- *Steve McLaughlin*, M.S. Pennsylvania State University, Spring 2011
- *Sergei Miadzvezhanka*, M.S. Pennsylvania State University, Spring 2011
- *Adam Delozier*, M.S. Pennsylvania State University, Spring 2011
- *Juliet Uhlott*, M.Eng. Pennsylvania State University, Fall 2010

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- *Damien Oceau*, M.S. Pennsylvania State University, Spring 2010
  - *Thomas Moyer*, M.S. Pennsylvania State University, Spring 2009
  - *Luke St. Clair*, M.S. Pennsylvania State University, Summer 2008
  - *Lisa Johansen*, M.S. Pennsylvania State University, Spring 2008
  - *Sunam Ryu*, M.S. Pennsylvania State University, Spring 2007
  - *Dhananjay Bapat*, M.S. Pennsylvania State University (Electrical Engineering), Fall 2006
  - *Jennifer Plasterr*, M.Eng. Pennsylvania State University, Summer 2006
  - *Adam Kerr*, M.Eng. Pennsylvania State University, Fall 2006
  - *William Enck*, M.S. Pennsylvania State University, Spring 2006
  - *Wesam Lootah*, M.S. Pennsylvania State University, Spring 2006
  - *Jon Hansford*, M.Eng. Pennsylvania State University, Fall 2005
  - *John van Bremer*, M.Eng. Pennsylvania State University, Spring 2005

#### **Past Post-Docs**

- *Vaibhav Rastogi*, graduated Northwestern University
- *Robert Walls*, graduated University of Massachusetts, Amherst

## **TEACHING**

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### **University of Wisconsin-Madison, College of Letters and Science**

- **Intro to Information Security** - Fall 2023

### **Pennsylvania State University, College of Engineering**

- **CMPSC311 - Introduction to Systems Programming** - Fall 2013, Fall 2014, Fall 2015, Fall 2016, Summer 2019, Spring 2020, Fall 2020, Fall 2021
- **CMPSC443 - Introduction to Computer and Network Security** - Spring 2006, Spring 2009, Fall 2017, Fall 2018
- **CSE543 - Computer and Network Security** - Fall 2004, Fall 2005, Fall 2008, Fall 2009, Fall 2011, Fall 2014
- **CSE544 - Advanced System Security** - Spring 2005, Spring 2007
- **CSE545 - Advanced Network Security** - Spring 2006, Spring 2008, Spring 2011
- **CSE597g - Principles, Analysis, and Applications of Computer Security** - Fall 2015
- **Security and Privacy of Machine Learning** - Fall 2016
- **Advanced Topics in the Security and Privacy of Machine Learning** - Spring 2017
- **CSE598 - Cell Phone Operating Systems** - Spring 2009
- **CSE598i - Web 2.0 Security** - Spring 2010
- **CSE598d - Topics in Applied Systems Security** - Fall 2010
- **CSE598e - Critical Infrastructure Security** - Fall 2011
- **CSE 597 – Emerging Trends in Computer Security** - Fall 2021
- **CMPSC297 – Introduction to C Programming in UNIX** - Fall 2021

### **New York University, Stern School of Business**

- **B20.3157 Computer and Network Security** - Spring 2003, Summer 2004, Summer 2005
- **B20.3156 - Online Privacy** - Spring 2003, Summer 2004

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## HONORS, AWARDS, AND KEYNOTE ADDRESSES

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**SIGSAC Outstanding Innovation Award**, for innovative research in mobile device security, trustworthiness of machine learning, and systems security, November 2021

**Penn State Engineering Society Premier Research Award**, Given to one faculty member per year, the Penn State Engineering Alumni Society Premier Research Award recognizes and rewards an individual whose contributions to scientific knowledge through research are exemplary and internationally acclaimed, April 2021

**AAAS Fellow**, for distinguished contributions to the field of computational security and privacy, particularly for advancing algorithms for the formal analysis of mobile devices and applications, November 2020

**SIGOPS Hall of Fame Award**, recognizing the paper "TaintDroid: an information-flow tracking system for realtime privacy monitoring on smartphones" (Will Enck first author), "which sparked an important research agenda on smartphone privacy that continues to this day", November 2020

**J. D. Williams student paper award, Nuclear Security and Physical Protection division**, recognizing the best student papers by area in Proceedings of the Institute of Nuclear Materials Management Annual Meeting (INMM), July 2019

**Penn State Engineering Society Outstanding Advising Award**, highly selective award by the Penn State Engineering Society given to faculty in the College of Engineering who have made significant contributions as advisor, October 2018

**Best Paper, 2017 EAI SECURECOMM 2018**, with Sayed M. Saghaian, Tom La Porta, Trent Jaeger and Z. Berkay Celik, August 2018

**Best Student Paper, 2017 ACM Symposium on SDN Research (SOSR)**, with Stefan Achleitner, Thomas La Porta and Trent Jaeger, April 2017

**IEEE Technical Committee on Security and Privacy Outstanding Community Service Award**, in recognition for leadership of the Technical Committee on Security and Privacy, May 2016

**ACM Fellow**, for contributions to computer and mobile systems security, December 2015

**Science of Security Index of Significant Research in Cyber Security**, acknowledging paper 'Toward a Science of Secure Environments', Science of Security Virtual Organization (SOS-VO), August 2015

**IEEE Fellow**, for contributions to the security of mobile communications, November 2014

**Best Artifact Award, 20th International Symposium on the Foundations of Software Engineering (FSE)**, with advisee Damien Ocateau and collaborator Somesh Jha, November 2012

**Best Paper, 25th Annual Computer Security Applications Conference**, with advisees Machigar Ongtang, Stephen McLaughlin, and William Enck, December 2009

**Faculty Marshal, College of Engineering**, selected by student marshals for contributions to undergraduate education, leads procession into graduation ceremony, May 2009

**Penn State Engineering Society Outstanding Research Award**, highly selective award by the Penn State Engineering Society given to faculty in the College of Engineering who have made significant contributions to knowledge in their field, March 2009

**Google Security and Product Safety Acknowledgement**, in recognition of efforts in improving the security of Google Android cellular phone operating system, 2008

**Commendation for Exceptional Leadership and Achievement**, in recognition of efforts as PI of the EVEREST study, from Ohio Secretary of State Jennifer Brunner, August 2008

**IEEE Technical Committee on Security and Privacy Outstanding Community Service Award**, in recognition for technical program management of the IEEE Security and Privacy symposia, August 2008

**National Science Foundation CAREER Award**, Faculty early career development grant, August 2007

**Penn State Computer Science and Engineering Outstanding Teaching Award**, Given to best teacher in the department as selected by students, March 2007

**ACM Certificate of Meritorious Service**, Certificate acknowledging exemplary service as associate editor of ACM Transactions on Internet Technologies, April 2007

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**Best Student Paper, 22nd Annual Computer Security Applications Conference, as advisor, with Boniface Hicks and Kiyun Ahmadizadeh, December 2006**

**Best Paper, Innovations and Commercial Applications of Distributed Sensor Networks Symposia, Awarded for best paper in conference, October 2005.**

**Hartz Family Career Development Professor, Endowed Professorship, Pennsylvania State University, Fall 2004-2007**

**Bang for the Buck Award, DARPA Dynamic Coalitions Program, Award for most feature-rich/useful software system, April 2002**

**National Aeronautics and Space Administration, Kennedy Space Center Fellowship, Research Fellowship, September 1997 - August 2000**

**Electrical Engineering and Computer Science Summer Fellowship Award, University of Michigan, June 1997**

**Dean's Citation for Perfect Academic Record, Ball State University, June 1991**

### **Keynote Addresses**

1. Security's Role in Achieving Sustainability, 29th ACM Conference on Computer and Communications Security (CCS), Los Angeles, CA, November, 2022.
2. Security, Game Theory, and Their Role in Achieving Sustainability, Conference on Decision and Game Theory for Security, Pittsburgh, PA, October, 2022.
3. Prognosticating the Future of IoT Security, 2022 IEEE SafeThings Workshop, San Francisco, CA, May 2022.
4. The Challenges of Machine Learning in Adversarial Settings. Triangle Area Privacy and Security Day, Durham, NC, October, 2019.
5. The Challenges of Machine Learning in Adversarial Settings. 2019 Subversion and Assurance of AI Workshop, US National Reconnaissance Office, Washington, DC, March, 2019.
6. Attacks, Defenses, and Impacts of Machine Learning in Adversarial Settings. 2017 Conference on Security and Privacy in Communication Networks (SecureComm), Niagara Falls, Canada, October, 2017.
7. Tracing the Arc of Smartphone Application Security. 2017 ACM on International Workshop on Security And Privacy Analytics. Scottsdale, AZ, March, 2017.
8. Tracing the Arc of Smartphone Application Security. 12th International Conference on Information Systems Security, Jaipur, India, December, 2016.
9. The 25th International Conference on Computer Communication and Networks (ICCCN 2016), August, 2016, Waikoloa, Hawaii.
10. Learning from Ourselves: Where are we and where can we go in mobile systems security?. Mobile Security Technologies (MOST) 2016 Workshop, IEEE Computer Society Security and Privacy Workshops, San Jose, CA, May, 2016.
11. Eight Years of Mobile Smartphone Security. Center for Secure and Dependable Systems (CSDS) Cybersecurity Symposium, Coeur d'Alene, April, 2016.
12. The Importance of Measurement and Decision Making to a Science of Security, 2015 IEEE Conference on Communications and Network Security (CNS), September 2015, Florence, Italy.
13. The Importance of Measurement and Decision Making to a Science of Security. 3rd International Symposium on Resilient Cyber Systems, Philadelphia, PA, August, 2015.
14. The Importance of Measurement and Decision Making to a Science of Security, 2015 Symposium And Bootcamp on the Science of Security (Hotsos), April 2015, University of Illinois at Urbana-Champaign

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