

# Huahong Tu (Raymond)

Assistant Clinical Professor  
Capital One Machine Learning First-Year Research Program  
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## RESEARCH AREAS

- Cybersecurity and Systems Engineering
- Networking and Telecommunications
- Data and Information Sciences

## ACADEMIC EXPERIENCE

Assistant Clinical Professor Jan 2018 – Present

- Capital One Machine Learning FIRE Research Program, University of Maryland, College Park
  - Educating computer science practices of machine learning, data analytics, and cybersecurity
  - Supervisors: Dr. Patrick Killion and Dr. Ian Page

Graduate Research Assistant May 2014 – Dec 2017

- SEFCOM Laboratory, Center for Cybersecurity and Digital Forensics, Arizona State University
  - Advanced cybersecurity and systems engineering research in telecommunications network
  - Advisors: Dr. Adam Doupé and Dr. Gail-Joon Ahn

Lab Instructor

- School of Computing, Informatics, and Decision Systems Engineering, Arizona State University
  - Introduction to Programming Languages Fall 2014
  - Principles of Programming in Java Fall 2013

Teaching Assistant

- School of Computing, Informatics, and Decision Systems Engineering, Arizona State University
  - Distributed Software Development Fall 2014
  - Database Management System Implementation Spring 2014
  - Software Integration Spring 2014
  - Information Assurance Fall 2013
  - Information Assurance and Security Spring 2013
  - Computer Networks Fall 2012
  - Computer Science Capstone Project Spring 2012

## INDUSTRY EXPERIENCE

Software Engineer (Intern) Jun 2013 – Sep 2013

- Mobile Development Division, Eventbrite
  - Developed Eventbrite mobile app and implemented QA automation
  - Supervisor: Mr. Sean Coady

Product Manager Sep 2010 – May 2011

- Software Development Division, GRG Banking
  - Developed ATM software, recruited international talents, and analyzed industry product trends
  - Supervisor: Mr. Yingbin Han

## EDUCATION

Doctor of Philosophy (Ph.D.) in Computer Science Dec 2017

- School of Computing, Informatics, and Decision Systems Engineering, Arizona State University
  - Dissertation: From Understanding Telephone Scams to Implementing Authenticated Caller ID Transmission
  - Notable Courses:
    - Computer Network Security
    - Applied Cryptography
    - Advanced Computer Network Security
    - Information Assurance and Security
    - Software Security
    - Software Integration and Engineering
    - Distributed Software Development
    - Artificial Intelligence
    - Statistical Learning and Pattern Recognition
    - Statistical Machine Learning
    - Data Mining
    - Social Media Mining
    - Web and Multimedia Databases
    - Database Management System Implementation

Bachelor of Science (B.S.) with Honors in Computer Science Jul 2010

- School of Computer Science, University of Nottingham
  - First Class Honors (GPA 4.0 equivalent)
  - Dissertation: A Machine Learning Scheme to Model and Predict Currency Foreign Exchange Rates

## PUBLICATIONS

### Journal Papers

- Huahong Tu, Adam Doupé, Ziming Zhao and Gail-Joon Ahn, “Toward Standardization of Authenticated Caller ID Transmission,” in IEEE Communications Standards Magazine, IEEE Communications Society, Sep 2017

### Conference Papers with Proceedings

- Huahong Tu, Adam Doupé, Ziming Zhao and Gail-Joon Ahn, “Toward Authenticated Caller ID Transmission: The Need for a Standardized Authentication Scheme in Q.731.3 Calling Line Identification Presentation,” in Proceedings of the ITU Kaleidoscope 2016 - ICTs for a Sustainable World (ITU K-2016), ITU Telecommunication Standardization Sector (ITU-T), Bangkok, Thailand, Nov 2016 (**Best Paper Award**)
- Huahong Tu, Adam Doupé, Ziming Zhao and Gail-Joon Ahn, “SoK: Everyone Hates Robocalls: A Survey of Techniques against Telephony Spam,” in Proceedings of the 37th IEEE Symposium on Security and Privacy (SP), IEEE Computer Society, San Jose, California, USA, May 2016 (**#1 in cybersecurity conferences, 13.3% acceptance rate**)

## PATENT APPLICATIONS

Huahong Tu, Adam Doupé, Gail-Joon Ahn and Ziming Zhao, “Systems and methods for authenticating caller identity and call request header information for outbound telephony communications,” filed for Non-Provisional patent, USPTO application number 62/308,105, Arizona Technology Enterprises (AzTE), Mar 2016

## AWARDS & HONORS

- University Graduate Fellowship, Arizona State University Mar 2016
- For excellent research progress and strong academic work.
- Winners Award, Money20/20 Hackathon 2015 Oct 2015
- 625+ of the world’s most skilled developers
  - For creating BridgePay: Using Visa Direct to send money to anyone
- Golden Award, Codility Boron Challenge 2013 Oct 2013
- 7200+ challengers around the world
  - For delivering a flawless solution to one of Codility’s programming challenges

## SERVICE & OUTREACH

### Standards Contribution

- “Propose to initiate a new work item on architecture and signalling requirement of calling identification authentication” joint contribution with China Telecom, at ITU-T Study Group 11, ITU Telecommunication Standardization Sector (ITU-T), Oct 2017

### Professional Talk

- “Toward Authenticated Caller ID Transmission” at ITU-T Study Group 11, ITU Telecommunication Standardization Sector (ITU-T), Feb 2017
- “Everyone hates Robocalls: Why is it so hard to stop?” at Open Web Application Security Project (OWASP) Phoenix Chapter, Oct 2016

### Television

- “How you can stop those annoying robocalls” news and TV broadcast by Steve Sbraccia, CBS WNCN, Aug 2017
- “ASU team tests ‘green padlock’ solution to scam phone calls” news and TV broadcast by Derek Staahl, 3TV KTVK and CBS 5 KPHO, Jun 2017
- “Robocall ringing your cellphone? Here’s what not to do” news and TV broadcast by Ian Schwartz, 3TV KTVK and CBS 5 KPHO, Mar 2017

### Radio

- “How the FCC, the telecom industry and computer programmers are working to fight robocalls” on AirTalk hosted by Larry Mantle, 89.3 KPCC (Southern California NPR), Oct 2016

### Print

- “The FCC Robocall Proceeding: International Insularity” by Anthony Rutkowski, CircleID, Oct 2017
- “Junk call nightmare flooded woman with hundreds of bizarre phone calls a day” by Jon Bronkin, Ars Technica, Aug 2017
- “Fed up with rising robocalls, millions say ‘Do Not Call’ list doesn’t work and want relief” by Lily Leung, The Orange County Register, Oct 2016

## REFERENCES

Dr. Patrick J Killion  
Relationship: Supervisor  
Director of First-Year Research Programs  
Office of the Senior Vice President and Provost  
University of Maryland  
pkillion@umd.edu  
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Dr. Ian Page  
Relationship: Supervisor  
Assistant Director of FIRE & Research Educator of Sustainability Analytics  
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Dr. Adam Doupe  
Relationship: PhD Mentor  
Assistant Professor of Computer Science  
Associate Director of the Center for Cybersecurity and Digital Forensics  
Co-Director of the Laboratory of Security Engineering for Future Computing  
Arizona State University  
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Dr. Gail-Joon Ahn  
Relationship: PhD Advisor  
Professor of Computer Science  
Director of the Center for Cybersecurity and Digital Forensics  
Co-Director of the Laboratory of Security Engineering for Future Computing  
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Dr. Ziming Zhao  
Relationship: PhD Advisor  
Assistant Research Professor  
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