James Shey, P.E.

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EDUCATION

Ph.D. in Electrical Engineering, University of Maryland Baltimore County, 2016-Present

- Ph.D. Candidate
- GPA: 3.90

M.S. in Electrical Engineering, University of Maryland College Park, 2007-2008

- Major Focus: Microelectronics
- Minor Focus: Computer Engineering

Master of Engineering Management, Old Dominion University, 2006-2008

B.S. in Electrical Engineering and Computer Science, U.S. Naval Academy, 1999-2003

- Dual Major in Electrical Engineering and Computer Science
- Graduated with Merit

PROFESSIONAL EXPERIENCE

Master Instructor — June 2015 – Present
U.S. Naval Academy, Annapolis, MD
Courses taught:

- SY488A: DIGITAL AND MOBILE COMMUNICATIONS
  - Developed Course
  - Course Coordinator
- SY310: Introduction to Networking & Wireless Communications
  - Course Coordinator overseeing multiple sections
- EC312: Applications of Cyber Security for Systems Majors
  - Course Coordinator overseeing multiple sections
- EC310: Applications of Cyber Engineering

Licensed Professional Engineer in Maryland — 2009 – Present

- License Number 29111

Senior Instructor — May 2008 – May 2010
U. S. Naval Academy, Annapolis, MD
Courses taught:

- EE334: Electrical Engineering and IT Systems
  - Course Coordinator
- EE331: Electrical Engineering II
- EE301: Electrical Fundamentals and Applications

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PUBLICATIONS

James Shey, Naghmeh Karimi, Ryan Robucci, Chintan Patel, "Implementation-based design fingerprinting for robust IC fraud detection," J. Hardw Syst Secur, vol. 3, no. 4, pp. 426–439, Dec 2019.

James Shey, Justin A. Blanco, Owens Walker, Thomas Tedesso, Hau Ngo, Ryan Rakvic, and Kevin D. Fairbanks, "Monitoring Device Current to Characterize Trim Operations of Solid-State Drives", in IEEE Transactions on Information Forensics and Security, vol. 14, no. 5, pp. 1296-1306, May 2019.

Zachary Johnson, Alex Varon, Justin Blanco, Ryan Rakvic, **James Shey**, Hau Ngo, Dane Brown, Owens Walker, "Classifying Solid State Drive Firmware Via Side-Channel Current Draw Analysis", IEEE International Conference on Big Data Intelligence and Computing (DataCom), Athens, Greece, 2018.

James Shey, Naghmeh Karimi, Ryan Robucci, Chintan Patel, "Design-Based Fignerprinting Using Side-Channel Power Analysis for Proctection Against IC Piracy", IEEE Annual Symposium on VLSI (ISVLSI), pp. 614-619, Hong Kong, 2018.

Jacob Melton, Ryan Rakvic, **James Shey**, Hau Ngo, Owens Walker, Kevin Fairbanks, Justin Blanco, Dane Brown and Rosemary Shumba, "Inferring File System of Solid State Drives based on Power Consumption", 7th Annual IEEE Int. Conf. on CYBER Technology in Automation, Control, and Intelligent Systems (IEEE-CYBER), Hawaii, 2017.

Jon Paul Canclini, James McMasters, **James Shey**, Owens Walker, Ryan Rakvic, Hau Ngo, Kevin D. Fairbanks, "Inferring Read and Write Operations of Solid-State Drives Based on Energy Consumption", *Ubiquitous Computing Electronics & Mobile Communication Conference (UEMCON) IEEE Annual*, pp. 1-6, 2016. ***– Received Best Paper in Track***

James Shey, Ryan Rakvic, Hau Ngo, Owens Walker, Thomas Tedesso, Justin Blanco, Kevin Fairbanks, "Inferring Activity of Solid-State Drives Based on Energy Consumption", *2016 IEEE International Instrumentation and Measurement Technology Conference Proceedings, Taipei, pp. 1-6, 2016.*

James Shey, Ryan Rakvic, Thomas Salem, Samara Firebaugh, "*Project Based Thematic Learning Though A Multicourse Multidisciplinary Robotics Project",* 2010 Annual Conference & Exposition, Louisville, Kentucky, 2010. https://peer.asee.org/15983

In submission
T. Owens Walkers III, Justin A. Blanco, Ryan Rakvic, Ann Vanleer, Dane Brown, **James Shey**, Gregory L. Sinsley, Hau T. Ngo, AND Robert W. Ives, "Classifying Proprietary Firmware on a Solid State Drive Using Idle State Current Draw Measurements"

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Dane Brown, T. Owens Walker III, Justin Blanco, Robert W. Ives, Hau T. Ngo, **James Shey**, and Ryan Rakvic, “Detecting Firmware Modification on Solid State Drives via Current Draw Analysis”

TECHNICAL SKILLS

- Proficient in C/C++/Java/Python/MATLAB/Verilog/VHDL including Parallel Programming
- Simulation in Synopsys development suite
- FPGA integration
- Microcontroller integration including: Mbed, Raspberry Pi

PROFESSIONAL ASSOCIATIONS

- Institute of Electrical and Electronics Engineers (IEEE), 2003-Present

VOLUNTEER POSITIONS

- Boy Scouts of America, Various Postitions 2016-Present