Travis W. Peters | Ph.D. Candidate, Computer Science, Dartmouth College, Hanover, NH

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Research Interests

Computer and Network Security; mHealth and IoT security; Trusted Computing; Mobile and Wireless Systems

Education

Ph.D., Computer Science *2013 - Present (Expected: June 2019)*
Dartmouth College, Hanover, NH

B.S., Mathematics & Computer Science *2008 - 2012*
Western Washington University (WWU), Bellingham, WA

Industry & Research Experience

Research Assistant, *Dartmouth College* *2014 - Present*

- Collaborate with multidisciplinary teams to research security and privacy threats in mobile health (mHealth).
- Achieve security through the design and experimental validation of hardware and software architectures.
- Currently investigating how to detect malicious or errant devices in networks of personal devices by developing models based on network traffic data and conducting comparative analysis for anomaly detection.

Security Research Intern, *Intel Labs* *2015, 2016*

- Conducted a survey on security and privacy threats in the Internet of Things (IoT). Presented findings to researchers and product groups; aided team in developing a larger IoT security research agenda.
- Designed and implemented a security architecture to enhance Bluetooth security on Intel platforms.
- Published and presented our work in *HASP'18* and filed a related patent.

DevOps Engineer, *Attachmate Corporation* *January 2013 - August 2013*

- Designed and built an automated virtual machine (VM) template management infrastructure using Chef and VMware's vCloud Director. The infrastructure automated how VMs running various operating systems (Windows, Red Hat Linux, SUSE) are deployed and maintained (patched & updated).
- Developed automation routines in Ruby, Bash, and Batch (install software, configure machine settings, etc.).
- Wrote and maintained design specifications and unit tests.

Software Engineer Intern, *Attachmate Corporation* *August 2012 - December 2012*

- Extended Luminet (enterprise fraud management system) to integrate with various Security Information & Event Management (SIEM) systems. Our extensions introduced a customizable XML configuration file to enable network operators to configure Luminet to log to various SIEMs.
- Demonstrated correctness of code through implementation of unit tests & automated testing methods.
- Presented project results and live demo to the Luminet product team.

Mobile Developer & Intern Team Lead, *Emergency Reporting* *January 2012 - June 2012*

- Designed and implemented a mobile application to aid Fire/Rescue and EMS responders.
- Led team of four interns to implement compatible mobile application on iOS and Android platforms.
- Implemented data security (at-rest and in-transit), database access, and integration with Google Maps.

Selected Projects *(For an overview of more of my projects, see: https://traviswp.github.io/projects.html.)*

BASTION-SGX (2015-2018). Trusted I/O prototype for Bluetooth data built on Intel's SGX (ISA extensions for security). Published paper in HASP'18 and filed related patent. Technologies: *C; Linux, BlueZ, proprietary firmware.*

Amulet (2014-2016). Custom mobile health device built for security and low-power operation. Published paper in SenSys'16 and open-sourced our system (Amulet on GitHub). Technologies: *C, Java; custom OS built on QP RTOS.*

Technical Skills

Programming Languages: Python, Java, C, Javascript, Matlab, x86 assembly, Bash, Ruby, SQL, LaTeX, HTML/CSS. ***Software Development & Prototyping:*** Linux, Android, OSX, iOS; Linux and Android Bluetooth stacks; Raspberry Pi, Arduinos, and other custom platforms (e.g., Amulet); Git, SVN, Perforce; Vagrant, Docker, Chef. ***System & Software Inspection & Diagnostics:*** software inspection, e.g., GDB, dtrace, strace, ptrace, perf; physical inspection, e.g., oscilloscopes, spectrum analyzers. ***Data Collection & Analysis:*** Wireshark, GNU Radio, Jupyter, MATLAB. ***Wireless and Software Defined Radios (SDRs):*** Ubertooth; USRP, LimeSDR; GNU Radio. ***Databases & Web Frameworks:*** MySQL, MongoDB; Node.js.

Awards, Leadership, and Volunteer Experience

Volunteer Assistant Coach (Couch-to-5k, High School Track), Hanover, NH *2016 - present*
Teaching Award, Dartmouth College *2013, 2014, 2015*
Vice President of Business & Operations, Associated Students of WWU *2011 - 2012*
Outstanding Winner, Frank Giordano Award, Contest in Mathematical Modeling *2012*