MichaelBartling

Graduate student in machine learning and security

contact

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programming

Python, C++, C++11
Julia, Matlab, Verilog
C, Embedded C, R,
SystemC

OS

Debian, RHEL6-7,
Windows, Android,
μC/OS-II

Interests

professional: optimization methods, theoretical security, machine learning, software architectures, data visualization
personal: cooking, 3D CG art (Blender), guitar, animation

Education

2014–December 2016 **M.S. + Ph.D** Computer Engineering — The University of Texas at Austin
Advisor: Mohit Tiwari
Context-aware sensing, Dynamic malware analysis, Machine Learning.
GPA: 3.8

2011–2014 **Bachelor of Science** , Summa Cum Laude — Texas A & M University, College Station
Electrical Engineering
Specialized in Computer Engineering
Sub-specialized in Signal Processing and Image Processing.
GPA: 3.9

2009–2011 **Advanced High School Diploma** — Texas Academy of Mathematics and Science
UNT, Denton, Texas
Graduated high school 2 years early to attend accelerated TAMS program.
GPA: 3.89

Experience

Full Time and Internships

2014–Now **University of Texas** — Austin, Texas
Graduate Research Assistant

- Dynamic analysis of Windows malware on networks. Designed large scale malware analysis engine and virtual machine management system using AWS and MongoDB. Wrote low-overhead system call interceptor for Windows platforms. Developed robust anomaly detection pipeline for Windows malware.
- Dynamic analysis of mobile malware on networks. Built user trace record and replay system for Android applications, injected key malware categories into common applications, designed intelligent anomaly detectors for Android system calls.
- Context aware sensing. Automatic classification of user motion into activities based on smart phone accelerometers. Dynamically *learned* privacy preserving user motion models. Automatic fall prediction and detection. Inferring information across untrusted contextual boundaries.

2014–2015 **University of Texas** — Austin, Texas
Graduate Teaching Assistant
Introduction to Computing

2012–2014 **Texas Instruments, EP Labs** Dallas, Texas
Summer and Winter Intern
Under Srinath Hosur and Ariton Xhafa

- Digital pre-distortion design
- RFSDK Software development + designed end-to-end experiment manager for software-hardware interfacing.
- Designed intelligent LTE frame modeling and generation scripts.
- Wireless Backhaul Project
  - Designed and optimized Line of Sight channel estimation drivers.
  - Designed and optimized Line of Sight 2x2 and 4x4 MIMO channel equalizer drivers. Conducted precision study on fixed point versus floating point implementations.
  - Helped formulate non line-of-sight transmitter chain on C6614 EVM
  - Designed and optimized Reed Solomon processing chain for TI C6614 EVM
- Ported Contiki OS to TI FRAM line microcontrollers.

Noteworthy Projects

2013–2014 **Senior Design** Texas A& M
Honors Project under Dr. Gregory Huff and Dr. Jean-Francois Chamberland
Autonomous Mission Planning of RF Landscapes
Designed robust map reconstruction algorithms (Extended block coordinate descent, Gaussian Mixture Models, and conic polynomial reconstruction) and application communication layer for autonomous quadcopter.

2013-2014 **FrogSAT** Texas A& M
Under Dr. Sunil Khatri
Attempted to solve Boolean Satisfiability problem heuristically via Hadoop Map Reduce.

Awards

2015 **Dell Innovation Award: Hack TX** Austin TX
Distinguishing style and content in images: The ability to create any Instagram filter.

2015 **2nd Place MDP Hackathon** Athena Health, Austin TX
Accurate fall prediction and motion state regression using cellphone accelerometer information.

2014-Present **Departmental Fellowship** Computer Architecture and Embedded Processing, The University of Texas

2014 **Summa Cum Laude** Texas A& M University, Electrical and Computer Engineering

2011-2014 **President's Endowed Scholar** Texas A& M University, Electrical and Computer Engineering

2011-2014 **Boltzman Scholar** Texas A& M University, Electrical and Computer Engineering

2008 **Eagle Scout** Boy Scouts of America

Courses

- Convex Optimization

- Large Scale Machine Learning
- Real Time Operating Systems
- Security: Hardware Software Interfaces
- Engineering Programming Languages
- Computer Graphics
- Computer Architecture
- Digital Signal Processing
- Image Processing
- Microprocessor Design
- Advanced Logic Design
- Ultrasound Imaging
- VLSI I