MichaelBartling

Graduate Applications Engineer, Arm

contact

12500 Scates Ct
Austin, TX 78732
USA

+1 (214) 707-2808

michael.bartling15
@gmail.com
minionhut.com
github.com/mbartling

programming

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

OS

Arch, Debian,
Windows, mbed OS,

Interests

professional: C++11 development, embedded software, optimization methods, theoretical security, machine learning, data visualization
personal: cooking, 3D CG art (Blender), auto restoration, animation

Experience

Full Time and Internships

Arm — **Research Engineer: IoT Services Research** — 2018–Now
Austin, Texas

- **Developed new software architectures for vastly improving IoT deployments** Ongoing
  - Pioneering "Just in Time" decompression of software modules
  - Exploring novel methods for granular over-the-air firmware updates on LPWAN
  - Attempting to make basic notions of security zero-touch for developers
- **Zero-touch Device Provisioning** Ongoing
  - Proposing new solutions to fundamental problems in massive IoT deployments
  - Working closely with several third party research organizations, silicon manufacturers, and network operators to drive technology towards industry standards.
- **uTensor**. Designed lightweight machine inference capabilities for Cortex M devices. `https://github.com/utensor`.
  - Recently announced tech merger with Googles Tensorflow Lite: `https://twitter.com/JeffDean/status/1126229604224487425`
  - First instance of Machine learning (inference) on the tiniest devices
- **Secure Remote Debugging in Constrained Systems**
- **Lightweight Compression Engines for Constrained Devices**
  - Developed novel compression techniques with bounded predictable performance.
  - Technology transfered into several major ongoing projects
  - Principal inventor on 2 in-flight patents

Arm — **Applications Engineer: Developer Experience (DevX)** — 2017–2018
Austin, Texas

- **uTensor**. Designed lightweight machine inference capabilities for Cortex M devices. `https://github.com/utensor`.
- **Iterative model learning on edge devices**(*In Progress*).
- **SpamBlaster**. Designed domain language specific spam classifier for Mbed ecosystem which significantly outperformed previous system.
- **TheFAQ**. Semi-automatic ontology generator for better search within Arm.
- **Mbed Greenlight** Front end accessibility testing for `os.mbed.com`
- **Device Health project**.

University of Texas

Graduate Research Assistant 2014–2017
Austin, Texas

- **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. This software is basis for **one of the largest dynamic malware analysis ever conducted in academia**, collecting approximately 3400 hours of malicious system call traces.
- **Dynamic analysis of mobile malware on networks**. Built state-of-the-art 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. Inferring information across untrusted contextual boundaries.

Texas Instruments

Software Development Intern Summer 2014
Dallas, Texas

- RFSDK Software development
- Designed end-to-end experiment manager for software-hardware interfacing.
- Designed intelligent LTE frame modeling and generation scripts significantly reducing software/hardware testing times while allowing for dynamic end-user capacity simulations.
- Digital pre-distortion design

Education

2014–
Dec. 2016 **M.S.** 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

Courses

- Convex Optimization
- Large Scale Machine Learning
- Multicore programming

- Parallelism and locality
- 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