

Work Experience

- **Senior Security Researcher** Grand Rapids, MI
GRIMM Oct 2015 - Present
 - Hardware hacking and reverse engineering on embedded systems, including consumer devices, ICS and Automotive
 - Designed and built a mobile vehicle test lab and tools
 - Security analysis of mobile applications and their backends
 - Lead small teams on individual projects
- **Embedded Software Development Engineer** Zeeland, MI
Gentex, Inc Sep 2012 - Oct 2015
 - Design, implement and test embedded C software in the automotive industry.
 - Redesigned vehicle to home wireless communication system (HomeLink[®]) to allow easier adaptation to new systems.
 - Worked on full-display mirror product, using a camera and display rather than a mirror to show rear view from vehicle.
 - Development of adaptive high-beam system involving machine vision and analysis to identify object on the road.
- **Senior Software Engineer** Grand Rapids, MI
Belcan Engineering Group, Inc Apr 2011 - Sep 2012
 - Developed drivers and a VxWorks 653 v2.3 BSP for an embedded PowerPC aerospace project
 - Wrote i2c and RS-232 serial drivers for embedded vehicle management system
- **Software Engineer** Grand Rapids, MI
DornerWorks Ltd. Jan 2009 - April 2011
 - Developed drivers and a VxWorks 653 v2.3 BSP for an embedded PowerPC aerospace project
 - Provided verification that the compiler produced correct machine code for critical processes
- **Adjunct Instructor** Wyoming, MI
ITT Technical Institute Mar 2009 - April 2011
 - Taught Linux administration and security, intro to programming

Education

- **University of Kentucky** Lexington, KY
Masters of Science in Computer Science, Dec 2008. GPA: 4.0
- **Calvin College** Grand Rapids, MI
B.C.S. May 2007. GPA: 3.3. In-Major: 3.8.

Skills

- **Languages:** Most familiar with C, Python, and I pick up assembly languages on an as-needed basis including ARM and PowerPC. I have past experience with C++, Perl, SQL, HTML, CSS, JavaScript, \LaTeX and Java. A little experience with Ada.
- **Miscellaneous:** Embedded device security. Trusted Platform Modules, TCP/IP networking, High-Performance computing and clusters. Parallel programming with threads and MPI, DO-178B, ARINC 653, embedded development on a range of platforms, MISRA, CAN bus.

Academic Activities and Experience

- **Teaching Assistant/Graduate Student** Lansing, MI
Michigan State University Computer Science Department August 2011 - April 2012
 - Teaching CSE251 "Programming in C," a C programming course for Electrical Engineering students
 - Performing bioinformatics research, focusing on methods to handle large data sets generated by next-generation shotgun sequencing techniques.
- **Research Assistant** Lexington, KY
University of Kentucky Computer Science Department August 2007 - December 2008
 - Ported FDK-type Computed Tomography reconstruction algorithm to a Graphics Processing unit. Achieved 70x speedup over commodity x86 CPU.
 - Optimized the parallel (MPI) program for converting the output from a CT scan into a voxel set. Nearly halved the runtime of this program.
- **Abstraction** Grand Rapids, MI
Computer Science Club September 2004 - May 2007
 - *President* (2006-2007) - Ran meetings, developed agendas, organized colloquia.
 - *Vice-President* (2005-2006)

Publications and Talks

- IOT: The S Stands for Security, presented at Big Data Ignite, Grand Rapids, Sep. 2018
- When CAN CANT, Presented at Shmoocon, DefCon, and the SANS Auto Summit in 2018
- On-site Scanning of 3D Manuscripts
Timothy H. Brom, James Griffioen, W. Brent Seales
Presented at Digital Humanities 2009
- Microwulf: a beowulf cluster for every desk
Joel C. Adams and Timothy H. Brom
SIGCSE '08: Proceedings of the 39th SIGCSE technical symposium on Computer science education