

## Work Experience

- **Security Researcher** Grand Rapids, MI  
GRIMM Oct 2015 - Present
  - Hardware hacking and reverse engineering on embedded systems, from consumer devices to ICS
  - Designed and built a mobile vehicle test lab and tools
  - Security analysis of mobile applications and their backends
- **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<sup>®</sup>) 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 (Desktop and Server), Linux security, intro to programming and client-side web scripting

## 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 recent work has been in C, but have past experience with C++, Perl, SQL, HTML, CSS, JavaScript, L<sup>A</sup>T<sub>E</sub>X. C#, Java, PHP and Python. Some experience with Ruby, ADA and PowerPC assembly.
- **Applications:** Dimensions, Telelogic DOORS, Microsoft office applications.
- **Miscellaneous:** TCP/IP networking, High-Performance computing and clusters. Parallel programming with threads and MPI, DO-178B, ARINC 653, image processing algorithms, Hadoop Map/Reduce, embedded development on a range of platforms, Genetic algorithms, MISRA, OSEK, CAN, LIN.

## 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.
  - Used heuristic algorithms to optimize packing items into boxes for a large shipping company
- **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

- 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