

# Benjamin Bergman

---

*A passionate developer who has honed skills in a variety of professional and personal projects ranging from web, desktop, and embedded software to custom designed and assembled electronics. Seeking a position that enables meaningful contributions to make the world a better place.*

## Experience: Vocational

2013–present **Research Engineer, Compliance - Team Lead**, *Tenable Network Security*, Remote.

- Expanded compliance auditing plugin functionality for the Nessus Vulnerability Scanner
  - Created new modular framework based on test driven development for use in future plugins, which has drastically accelerated plugin reliability and development speed for the whole team
  - Provided developer support for legacy plugins, adding automated tests where able and cleaning up code in the area
  - Added plugins for several different compliance scans. This process involves researching and experimenting with different technologies and developing software for interacting with with these systems. New plugins include:
    - F5 iControlREST configurations
    - Microsoft Office 365 file content and configurations
    - Amazon Web Services (AWS) Identity and Access Management (IAM), Elastic Compute Cloud (EC2), Trusted Advisor, and other configurations
    - Unix file content - Linux, BSD, OS X, Solaris, AIX, and HP UX supported
    - Various network infrastructure devices such as HP ProCurve, FireEye, and Fortigate
    - Mobile device management configurations
- Developed and maintained process automations
  - Migrated team from CVS to Git, introducing scripts to replicate revision numbering and other features found in the old system
  - Developed unit- and integration-test suites run automatically by Bamboo, a continuous integration server
    - All tests are run on all branches
    - Failing tests prevent branches from being merged back to the master branch
  - Automated product build process
    - New process includes generating build numbers to aid in identifying release and development versions of plugins
  - Assisted other teams as they migrated their testing process and source control to more useable systems
- Introduced peer review and pair programming to the team which has helped improve code quality and spread knowledge through the team

2011–2013 **Test Engineer, Iders Inc., Oakbank.**

- Designed test bench applications to assist manufacturing with quality control
  - Created a cohesive graphical user interface that is easy to use, which has since been used as a framework by others in the company for additional applications
  - Helped resolve issues with the product screening process
  - Product sales exceeded our initial estimates, and the production test software was able to meet the high level of demand, only allowing products of high quality out the door
- Developed test scripts to validate that production software met design requirements
  - Scripts that were developed required the creation of a flexible testing framework
- Wrote test software using various languages and frameworks, including C, C++, Qt, Bash, and Expect
  - Expect scripting allowed rapid development of flexible control of networked devices
- Applications written interacted with numerous hardware devices over SSH, Telnet, USB, RS232, SNMP, and raw TCP
  - Devices used include Agilent power supplies, signal generators, and data acquisition units, Mini-Circuits RF switches, and Tidal Engineering environmental chamber controllers, as well as custom in house devices
- Performed rigorous validation testing on production software and ensured all applicable requirements were met
- Worked closely with a team of engineers, but was solely responsible for the applications that I developed
- Initiated and assisted with source control migration from CVS to Git
- Planned and led several Git training sessions
- Initiated mentoring program for new test engineers
  - Advised new hires with design decisions that would lead to high quality, maintainable applications
  - Used peer code review to ensure high quality code was written as well as to spread domain knowledge

May–August 2009 **Summer Engineering Student, StandardAero, Winnipeg.**

- Created training animations for technicians as a troubleshooting and maintenance aid
- Patched various web tools using JavaScript and SVG
- Tasks performed were consistently of high quality and completed well within the time budgets allotted

May–December 2008 **Technical Document Technician, MacDon Industries, Winnipeg.**

- Scripted, filmed, and edited training videos for operators as a learning aid for the machinery's controls
- Modified schematics for use in various publications as well as other documentation work

---

## Open Source Contributions

- Code cleanup for the Rust based physics engine, nphysics 🌟
- Added  $n^{\text{th}}$  order chain support to the Rust markov crate 🌟
- Rewrote the graph view of tig, a text-mode interface for git 🌟
- Restructuring and publishing of NASL filetype plugin for vim 🌟
- Cleanup and publishing of Python library for communicating with Nessus 🌟
- Addition of rendering styles to gEDA PCB's photo-realistic image exporter 🌟

---

## Other Projects

- Propaganda Llama - art and level design for a timing based puzzle game (in progress) 🌐
- Games Explained - videography for an educational YouTube channel about board games 🌐
- GraphTax - a website designed to make income related taxes visual and intuitive 🌐
- Dome of lights and buttons - an interactive art piece 🌐
- Gnucash automation scripts used for membership management tasks at the local hackerspace 🌐
- uJoypad - the world's smallest fully functional NES controller at 1" by 0.5" 🌐

---

## Skills and Knowledge

Languages	Javascript, Rust, C, C++, Bash, Python, NASL, Expect, MATLAB, Verilog, Java, L <sup>A</sup> T <sub>E</sub> X
Development Tools	Vim, Git, Make, Angular, D3, Cargo, Jira, CppUTest, Test Anything Protocol, GDB, Valgrind, CVS, Qt, Visual Studio, Wireshark, regular expressions, and others
Operating Systems	Experienced with Windows, Linux, Android, and Mac OS X
Office Suites	Google Drive, Microsoft Office, Open/Libre Office, iWork
Electronics CAD	Familiar with gEDA, KiCAD, MultiSIM, PSpice, and other ECAD software
Code Craftsmanship	Experience using techniques like abstraction, modularity, test driven development, and others to achieve highly maintainable code
Adaptable	Able to learn new software, hardware, and development languages quickly

---

## Professional Development

- BSlides Winnipeg 2013 (attendee) and 2015 (presented on Rust's ownership model 🌐)
- Software Development and Evolution Conference 2012, 2014, and 2015
- Global Code Retreat 2012, 2013, and 2014
- Winnipeg Code Camp 2011 and 2012

---

## Experience: Other

2013–2017	<b>Director (Volunteer)</b> , <i>SkullSpace</i> , Winnipeg. <ul style="list-style-type: none"><li>○ Manage finances and book keeping</li><li>○ Administrative tasks and decision making associated with running the community organization</li><li>○ SkullSpace is a hackerspace; a community group for individuals interested in any form of technology, providing tools and a place to meet and work on projects</li></ul>	
2010–2011	<b>Formula Hybrid Team Member (Volunteer)</b> , <i>University of Manitoba SAE Formula Hybrid Race Team</i> , Winnipeg. <ul style="list-style-type: none"><li>○ Designed CAN bus control system electronics and software</li></ul>	
Summer 2010	Explore Program "Animator"	<i>University of Manitoba – Extended Education</i>
Summer 2007	I/O Coordinator - File transfer mediator	<i>Frantic Films</i>
Fall 2006	Gaffer and Director of Photography 2nd Assistant	<i>Firegate Films</i>
Summer 2006	Technical Support Representative	<i>Convergys</i>

---

## Education

2006–2011 **B.Sc. Computer Engineering**, *University of Manitoba, Winnipeg.*

- Specialization in Embedded Systems
- Computer Science minor
- Activities and Societies:
  - University of Manitoba SAE Formula Hybrid team
  - University of Manitoba IEEE
  - University of Manitoba Engineering Society student council

January–May 2010 **Student Exchange and Group Design Project**, *Budapesti Műszaki és Gazdaságtudományi Egyetem, Budapest, Hungary.*

- Completed University of Manitoba Final Year Group Design Project, developing high-level strategies for teams of soccer-playing robots
- Participated in the "Control and Coordination of Multi-Agent Robotics Systems" EU exchange program

---

## Awards

- Winner of 2010 University of Manitoba Engineering Competition
- Recipient of the 2009 Dr. Kwan Chi Kao Scholarship in Computer Engineering
- Dean's Honour List 2006, 2009, 2010

---

## Interests

- Personal finance
- Open source software and hardware
- Ultimate Frisbee
- Board games
- Cycling
- Videography
- Geocaching