brandon amos.

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INTERESTS	**Security**, **compilers**, **systems**, **parallel computing**, **mobile computing**, and **networking**.

EDUCATION

Virginia Polytechnic Institute and State University   Blacksburg, Virginia
B.S. Computer Science   **August 2011 – May 2014**
- **Overall GPA:** 3.98/4.00   **Major GPA:** 4.00/4.00
- **Courses:** Software Design, Data Structures, Numerical Methods, Cryptography, Computer Organization
- **Course Projects:** AES-128 (**Java**), MIPS assembler (**C**), PR Quadtree (**Java**)

EXPERIENCE

Qualcomm, Inc.   San Diego, California
Source Integrity Team Intern   **May 2013 – August 2013**
- Developed an XML translator in **C++** with the **Xerces** library.

Virginia Tech Computer Science Department   Blacksburg, Virginia
Undergraduate Research Assistant   **January 2013 – Present**
- Implement quasi-Newton stochastic optimization algorithm in **Fortran 95**.
  Specific libraries used include **BLAS** and **LAPACK**.

Systems Software Research Group   Blacksburg, Virginia
Undergraduate Research Assistant   **November 2012 – Present**
- Work supported with NSF and NEEC REU grants.
- Source-to-source compiler research on OpenMP to CUDA translation. Specifically, developed a compiler in **C++** with the **ROSE** compiler framework for automatic OpenMP to CUDA translation.
- Assisted development with runtime execution prediction. Created **Scala** scripts to parse raw data for feature vectors to be used by **WEKA**'s machine learning algorithms.
- Developed **Bash** scripts to automate benchmarking on heterogeneous hardware.

Magnum Research Group   Blacksburg, Virginia
Undergraduate Research Assistant   **May 2012 – Present**
- Work supported with Northrup Grumman REU grant.
- Dynamic malware research on the Android platform, resulting in primary authorship on a conference publication.
- Implemented a framework with **Bash** scripts to dynamically profile APKs and analyze popular machine learning algorithms with **WEKA**. Reimplemented framework in **Scala**.
- Assisted **C++** and **Make** development for a deployment optimization framework.
  Specific libraries used include **TCLAP** and **rapidxml**.
- Corresponded with another research group and modified the **Android source** to provide non-standard logging information for dynamic malware analysis.
- Configured a Gerrit server to host code review for the custom Android source.

Virginia Tech Computer Science Department   Blacksburg, Virginia
Undergraduate Teaching Assistant   **January 2013 – May 2013**
- Assisted students in a software design and data structures class using **Java** and **Android**.

Phoenix Integration, Inc.   Blacksburg, Virginia
Software Engineer   **May 2012 – August 2012**
- Migrated the web server of CenterLink, a grid computing application, from Tomcat 5 to Tomcat 7.
- Integrated a new licensing mode into CenterLink via **FLEXlm** and **Java**.
- Improved the testing (**JUnit** and **NUnit**) and installation (**Ant**, **InstallShield**, and **Make**) frameworks.
- Fulfilled bug fixes and feature requests in **VC++**, **VC#**, and **Java**.

Sunapsys, Inc.   Vinton, Virginia
Network Administrator   **January 2011 – August 2011**
- Configured virtualized DHCP, DNS, and PDC servers in Linux to replace existing Windows servers.
- Created **Bash** scripts to back up data incrementally and monitor the status of the servers.

Precision Steel Manufacturing Corp.   Roanoke, Virginia
Drafter   **June 2010 – August 2011**
- Drafted 2d flattened diagrams of 3d parts to be laser cut in SolidWorks.

SKILLS
- **Environments**: Eclipse**, NetBeans*, vim/gdb***, Visual Studio**
- **Frameworks**: Drupal*, .NET*, ZK*
- **Languages**: Bash**, C/C++**, C#*, Fortran*, HTML/CSS*, LaTeX**, Java***, JavaScript*, *Mathematica***, PHP*, Python**, R*, Scala*
- **Software**: BIND9*, i3**, Make**, Ratpoison**, Samba**, Tomcat*, Zimbra*
- **Systems**: Android**, Linux***, Windows**
- **Version Control/Review**: Gerrit*, Git**, Subversion**

Exposure* – Minimal knowledge** – Adequate knowledge*** – Maximum knowledge****

PUBLICATIONS
- "Applying machine learning classifiers to dynamic Android malware detection at scale."
  Brandon Amos, Hamilton Turner, Jules White.
  IWCMC'13 Security, Trust, and Privacy Symposium. Cagliari, Italy, July 2013.

PROJECTS

Personal Blog and Website – http://bamos.github.io   **July 2012 – Present**
- Hosted on GitHub Pages. Uses Markdown for posts and Jekyll for static HTML generation.

GitHub Portfolio – http://github.com/bamos   **April 2011 – Present**
- Hosts code samples, original source code, and patches for open source projects.

HONORS &
AWARDS
- Benjamin F. Bock Scholarship, Virginia Tech Engineering, 2013
- Sophomore Scholar Award, Virginia Tech Computer Science, 2013
  - Given to the sophomore in Computer Science with the most outstanding academic record.
- University Honors, Virginia Tech, 2012–2013
- Intelligence Community Center of Academic Excellence Scholar, Virginia Tech, 2012–2013
  - Merit-based scholarship that provides a security-based research fellowship.
- Dean's List with Distinction, Virginia Tech, 2011–2013
- Engineering Scholarship, Roanoke County Public Schools Education Foundation, 2011
  - Merit-based scholarship presented annually to one student in the graduating Engineering class.
- Papa John's Scholarship, 2011
- Gay B. Shober Memorial Scholarship, Roanoke County Federal Credit Union, 2011
- Pamplin Leader Scholarship, Virginia Polytechnic Institute and State University, 2011
  - Merit-based scholarship presented to one student from each public high school in Virginia.
- I. Luck Gravett Memorial Scholarship, Scottish Rite of Freemasonry, 2011
- Salem–Roanoke County Chamber of Commerce Scholarship, 2011
- Virginia Aerospace Science and Technology Scholar, National Space Grant Foundation, 2010
  - Selected as an attendee of a summer academy at NASA Langley Research Center.

ACTIVITIES
- Honors Residential College, Virginia Tech, 2013
- Hokies Pep Band, Virginia Tech, 2012–2013
- Computer Science Community Service, Virginia Tech, 2012
- Symphony Band, Virginia Tech, 2011–2012
- Linux and Unix Users Group, Virginia Tech, 2011–2012
- Galileo Living–Learning Community, Virginia Tech, 2011–2012
- Trumpet Section Leader, Marching Band, Northside High School, 2010–2011
- Tennis Team, Northside High School, 2008–2011