

brandon amos. vitæ.

<http://bamos.io>

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## Interests

Compiler, mobile, or security research or development in Linux.

Seeking a PhD fellowship starting May 2014 or internship from May–August 2014.

## Education

Virginia Tech

B.S. Computer Science, Honors Scholar. Mathematics minor.

Major GPA: 4.00/4.00, Overall GPA: 3.98/4.00

Blacksburg, Virginia

August 2011–May 2014

## Research Experience

Virginia Tech Computer Science

Undergraduate Research Assistant, Advisor: Dr. Layne Watson

- Optimization algorithm in **Fortran 95** resulting in primary authorship on a conference publication.

Blacksburg, Virginia

January 2013–Present

Systems Software Research Group

Undergraduate Research Assistant, Advisor: Dr. Binoy Ravindran

- Work supported with NSF and NEEC REU grants.
- Automatic **OpenMP** to **CUDA** translation using **C++** and the **ROSE** compiler framework.
- **Scala** and **Bash** development in **Linux**.

Blacksburg, Virginia

November 2012–Present

Magnum Research Group

Undergraduate Research Assistant, Advisor: Dr. Jules White

- Work supported with ARO REU grant.
- Android **malware detection research** resulting in primary authorship on a conference publication.
- Created a distributed **Actor** system using **Scala** for **machine learning** classification of APKs.
- Developed **VC#** programs for a pilot study on manufacturing cyber-physical security.
- Assisted **C++** and **Make** development in **Linux** for a deployment optimization framework.
- Modified the **Android source** to provide non-standard logging information for dynamic malware analysis.

Blacksburg, Virginia

May 2012–Present

## Teaching Experience

Virginia Tech Computer Science Department

Undergraduate Teaching Assistant

- Assisted students in a software design and data structures class using **Java** and **Android**.

Blacksburg, Virginia

January 2013–May 2013

## Publications

### Magazine

1. “Bad Parts: Are Our Manufacturing Systems At Risk of Silent Cyber-attacks?” Hamilton Turner, **Brandon Amos**, Jules White, Jaime Camelio, Chris Williams, Robert Parker. Submitted.

### Conference

1. “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.
2. “Fortran 95 implementation of QNSTOP for global and stochastic optimization.” **Brandon Amos**, David Easterling, Layne Watson, Brent Castle, Michael Trosset, William Thacker. Submitted.

## Industry Experience

Qualcomm, Inc.

Source Integrity Team Software Intern

San Diego, California

May 2013–August 2013

- Developed a **web application** to modify an XML-based grammar for fuzz vector generation. Implemented with client-side **HTML** and **js**, using **D3** for graphics and **Handlebars** for templating.
- Developed an XML-based grammar translator in **C++** with the **Xerces** XML parser in **Linux**. Reimplemented in **Python** using the **ElementTree** XML API for better analysis and tree transformation.

Phoenix Integration, Inc.

Software Engineer Intern

Blacksburg, Virginia

May 2012–August 2012

- Integrated a new licensing mode into CenterLink, a grid computing application, using **FLEXlm** and **Java**.
- Assisted development of industry software in **VC++**, **VC#**, **Java**, and **Tomcat**.
- Improved the testing (**JUnit** and **NUnit**) and installation (**Ant**, **InstallShield**, and **Make**) frameworks.

Sunapsys, Inc.

Network Administrator Intern

Vinton, Virginia

January 2011–August 2011

- **Linux** server configuration and **Bash** development.

## Skills

**Preferred Environments:** Linux<sup>\*\*\*</sup>, vim/gdb<sup>\*\*\*</sup>, git<sup>\*\*\*</sup>, Make<sup>\*\*</sup>

**Languages:** Bash<sup>\*\*</sup>, C/C++<sup>\*\*</sup>, C#<sup>\*</sup>, Fortran<sup>\*\*</sup>, HTML/CSS<sup>\*</sup>, L<sup>A</sup>T<sub>E</sub>X<sup>\*\*</sup>, Java<sup>\*\*</sup>, JavaScript<sup>\*\*</sup>,  
*Mathematica*<sup>\*\*</sup>, PHP<sup>\*</sup>, Python<sup>\*\*\*</sup>, R<sup>\*</sup>, Scala<sup>\*\*</sup> **Systems:** Android<sup>\*\*</sup>, Linux<sup>\*\*\*</sup>

**Version Control/Review:** Gerrit<sup>\*</sup>, Git<sup>\*\*\*</sup>, Subversion<sup>\*\*</sup>

**Rankings:** 1/10<sup>\*</sup> – 3/10<sup>\*\*</sup> – 5/10<sup>\*\*\*</sup> – 7/10<sup>\*\*\*\*</sup>

## Honors & Awards

- Honorable Mention, CRA Outstanding Undergraduate Researcher Award, 2014
  - 1 of 15 North American males awarded honorable mention for exemplary computer science research.
- Qualstar Award, Qualcomm, 2013
- Benjamin F. Bock Merit 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 providing a cyber-security research fellowship.
- Dean's List with Distinction, Virginia Tech, 2011–2013
- Engineering Merit Scholarship, Roanoke County Public Schools Education Foundation, 2011
  - Merit-based scholarship presented annually to one student in the graduating Engineering class.
- Papa John's Merit Scholarship, 2011
- Gay B. Shoher Memorial Merit Scholarship, Roanoke County Federal Credit Union, 2011
- Pamplin Leader Scholarship, Virginia Tech, 2011
  - Merit-based scholarship presented to one student from each public high school in Virginia.
- I. Luck Gravett Memorial Merit Scholarship, Scottish Rite of Freemasonry, 2011
- Salem–Roanoke County Chamber of Commerce Merit Scholarship, 2011

## Projects

**GitHub Portfolio** – <http://github.com/bamos>

- Hosts code samples, original source code, and patches for open source projects.
- 20 original repositories, 6 forked repositories.

**Personal Blog and Website** – <http://bamos.io>

- Hosted on GitHub Pages. Uses **Markdown** for posts and **Jekyll** for static HTML generation.
- **27 posts** across the following tags, listed by highest frequency.
- Python, Bash, LaTeX, Linux, Scala, Android, Mathematica, C++, Fortran, CUDA'

## 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