

<http://bamos.github.io>

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 Polytechnic Institute and State University Blacksburg, Virginia <i>B.S. Computer Science, in Honors. Mathematics minor.</i> August 2011 – May 2014 • Overall GPA: 3.98/4.00 Major GPA: 4.00/4.00 • Thesis: Evaluating machine learning approaches to runtime mobile malware detection techniques.
RESEARCH EXPERIENCE	Virginia Tech Computer Science Department Blacksburg, Virginia <i>Undergraduate Research Assistant, Advisor - Dr. Layne Watson</i> January 2013 – Present • Optimization algorithm in Fortran 95 resulting in primary authorship on a conference publication. Systems Software Research Group Blacksburg, Virginia <i>Undergraduate Research Assistant, Advisor - Dr. Binoy Ravindran</i> November 2012 – Present • 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 . Magnum Research Group Blacksburg, Virginia <i>Undergraduate Research Assistant, Advisor - Dr. Jules White</i> May 2012 – Present • 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. Specific libraries used include TCLAP and rapidxml . • Modified the Android source to provide non-standard logging information for dynamic malware analysis.
INDUSTRY EXPERIENCE	Qualcomm, Inc. San Diego, California <i>Source Integrity Team Software Intern</i> 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. Blacksburg, Virginia <i>Software Engineer Intern</i> 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. Vinton, Virginia <i>Network Administrator Intern</i> January 2011 – August 2011 • Linux server configuration and Bash development.
TEACHING EXPERIENCE	Virginia Tech Computer Science Department Blacksburg, Virginia <i>Undergraduate Teaching Assistant</i> January 2013 – May 2013 • Assisted students in a software design and data structures class using Java and Android .
CONFERENCE PUBLICATIONS	• “Applying machine learning classifiers to dynamic Android malware detection at scale.” Brandon Amos , Hamilton Turner, Jules White. <i>IWCMC’13 Security, Trust, and Privacy Symposium</i> . Cagliari, Italy, July 2013. • “Fortran 95 implementation of QNSTOP for global and stochastic optimization.” Brandon Amos , David Easterling, Layne Watson, Brent Castle, Michael Trosset, William Thacker. <i>Submitted</i> .
MAGAZINE PUBLICATIONS	• “Bad Parts: Are Our Manufacturing Systems At Risk of Silent Cyber-attacks?” Hamilton Turner, Brandon Amos , Jules White, Jaime Camelio, Chris Williams, Robert Parker. <i>Submitted</i> .

SKILLS	<p>Environments: Eclipse**, NetBeans*, vim/gdb***, Visual Studio**</p> <p>Frameworks: Drupal*, .NET*, ZK*</p> <p>Languages: Bash**, C/C++**, C#*, Fortran**, HTML/CSS*, L^AT_EX**, Java**, JavaScript**, <i>Mathematica</i>**, PHP*, Python***, R*, Scala**</p> <p>Software: i3wm**, Make**, Ratpoison**, Samba**, Tomcat*, Zimbra*</p> <p>Systems: Android**, Linux***</p> <p>Version Control/Review: Gerrit*, Git***, Subversion**</p> <p>Rankings: 1/10* – 3/10** – 5/10*** – 7/10****</p>
PROJECTS	<p>Personal Blog and Website – http://bamos.github.io July 2012 – Present</p> <ul style="list-style-type: none"> • 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 <p>GitHub Portfolio – http://github.com/bamos April 2011 – Present</p> <ul style="list-style-type: none"> • Hosts code samples, original source code, and patches for open source projects. • 19 original repositories. <ul style="list-style-type: none"> ◦ bamos.github.io, dotfiles, ical-availability, latex-templates, list-github-repos, mew, parsec-benchmark, reading-list, scala-sorting, simple-fortran-routines, simple-python-scripts, simple-shell-scripts ◦ AES - An educational Java implementation of AES-128. Includes polynomial inverses in AES' Galois finite field via Euler's extended GCD algorithm and prints the state after each step. ◦ BigOCheatSheetParser - Parse the most recent version of the BigO Cheat Sheet to produce json, LaTeX, and a PDF. ◦ cpp-expression-parser - Expression parsing in C++ with Dijkstra's Shunting-yard algorithm. ◦ latex-resume-cv - My LaTeX resume and CV. Uses Make and produces PDFs and (rough) text versions of my resume and CV from the same LaTeX files. ◦ mbox-convos - Export all emails in an mbox mailbox to or from somebody to a PDF. ◦ mutt-mass-mailer - M3 parses a flat file and uses mutt to email many people different messages. ◦ safegit - Wraps git to detect sensitive data before commits by using fuzzy Rabin fingerprints. • 5 forked repositories. <ul style="list-style-type: none"> ◦ antimalware - Dynamic malware analysis for the Android platform ◦ BigOCheatSheet - Space and time complexities of popular algorithms and data structures. ◦ gv-app - Google Voice command line client ◦ mirror-android-repo - Instructions and files to set up a server mirroring the entire Android project. ◦ schale - A subprocess interface for Scala
HONORS & AWARDS	<ul style="list-style-type: none"> • Honorable Mention, CRA Outstanding Undergraduate Researcher Award, 2013 <ul style="list-style-type: none"> ◦ North American award 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 <ul style="list-style-type: none"> ◦ 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 <ul style="list-style-type: none"> ◦ Merit-based scholarship providing a security-based research fellowship. • Dean's List with Distinction, Virginia Tech, 2011–2013 • Engineering Merit Scholarship, Roanoke County Public Schools Education Foundation, 2011 <ul style="list-style-type: none"> ◦ Merit-based scholarship presented annually to one student in the graduating Engineering class. • Papa John's Merit Scholarship, 2011 • Gay B. Shober Memorial Merit Scholarship, Roanoke County Federal Credit Union, 2011 • Pamplin Leader Scholarship, Virginia Polytechnic Institute and State University, 2011 <ul style="list-style-type: none"> ◦ 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 • Virginia Aerospace Science and Technology Scholar, National Space Grant Foundation, 2010 <ul style="list-style-type: none"> ◦ 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