

<http://bamos.github.io>

INTERESTS	Compiler, mobile, or security research in a Linux environment.	
EDUCATION	Virginia Polytechnic Institute and State University	Blacksburg, Virginia
	<i>B.S. Computer Science</i>	August 2011 – May 2014
	<ul style="list-style-type: none">• 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)	
RESEARCH	Virginia Tech Computer Science Department	Blacksburg, Virginia
EXPERIENCE	<i>Undergraduate Research Assistant, Advisor - Dr. Layne Watson</i>	January 2013 – Present
	<ul style="list-style-type: none">• Implement quasi-Newton stochastic optimization algorithm in Fortran 95. Specific libraries used include BLAS and LAPACK.	
	Systems Software Research Group	Blacksburg, Virginia
	<i>Undergraduate Research Assistant, Advisor - Dr. Binoy Ravindran</i>	November 2012 – Present
	<ul style="list-style-type: none">• 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
	<i>Undergraduate Research Assistant, Advisor - Dr. Jules White</i>	May 2012 – Present
	<ul style="list-style-type: none">• Work supported with Northrup Grumman and ARO REU grants.• Android malware detection research 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 with Actors for scalability.• Developed VC# programs for a pilot study on manufacturing cyber-physical security.• 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.	
INDUSTRY	Qualcomm, Inc.	San Diego, California
EXPERIENCE	<i>Source Integrity Team Software Intern</i>	May 2013 – August 2013
	<ul style="list-style-type: none">• 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. 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
	<ul style="list-style-type: none">• Integrated a new licensing mode into CenterLink, a grid computing application, using FLEXlm and Java.• Fulfilled bug fixes and feature requests 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
	<ul style="list-style-type: none">• 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.	
TEACHING	Virginia Tech Computer Science Department	Blacksburg, Virginia
EXPERIENCE	<i>Undergraduate Teaching Assistant</i>	January 2013 – May 2013
	<ul style="list-style-type: none">• Assisted students in a software design and data structures class using Java and Android.	
PUBLICATIONS	<ul style="list-style-type: none">• “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.	

SKILLS	<ul style="list-style-type: none"> • Environments: Eclipse**, NetBeans*, vim/gdb***, Visual Studio** • Frameworks: Drupal*, .NET*, ZK* • Languages: Bash**, C/C++**, C#*, Fortran**, HTML/CSS*, L^AT_EX**, Java***, JavaScript**, Mathematica**, PHP*, Python***, R*, Scala** • Software: i3wm**, Make**, Ratpoison**, Samba**, Tomcat*, Zimbra* • Systems: Android**, Linux***, Windows* • Version Control/Review: Gerrit*, Git***, Subversion** <p>Exposure* – Minimal knowledge** – Adequate knowledge*** – Maximum knowledge****</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. • 24 posts across the following tags, listed by highest frequency. Python, Bash, LaTeX, Scala, Android, CUDA, C++, Fortran, Linux, Mathematica <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. • 18 original repositories. <ul style="list-style-type: none"> ◦ bamos.github.io, dotfiles, latex-templates, 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. ◦ cpp-expression-parser - Expression parsing in C++ with Dijkstra's Shunting-yard algorithm. ◦ ical-availability - Analyze your iCals (e.g. Google Calendar) and print your availability. ◦ 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. ◦ list-github-repos - Obtain a LaTeX list of all of a user's public Github repos and descriptions. ◦ 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. • 3 forked repositories. <ul style="list-style-type: none"> ◦ antimalware - Dynamic malware analysis for the Android platform ◦ gv-app - Google Voice command line client ◦ mirror-android-repo - Instructions and files to set up a server mirroring the entire Android project.
HONORS & AWARDS	<ul style="list-style-type: none"> • Qualstar Award, Qualcomm, 2013 • Benjamin F. Bock 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 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 <ul style="list-style-type: none"> ◦ 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 <ul style="list-style-type: none"> ◦ 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 <ul style="list-style-type: none"> ◦ Selected as an attendee of a summer academy at NASA Langley Research Center.
ACTIVITIES	<ul style="list-style-type: none"> • 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