

<http://bamos.github.io>

INTERESTS	<b>Compiler, mobile, or security</b> research or development in <b>Linux</b> . Seeking a PhD fellowship starting May 2014 or internship from May–August 2014.
EDUCATION	<b>Virginia Polytechnic Institute and State University</b> Blacksburg, Virginia <i>B.S. Computer Science, in Honors. Mathematics minor.</i> <b>August 2011 – May 2014</b> • <b>Overall GPA:</b> 3.98/4.00 <b>Major GPA:</b> 4.00/4.00 • <b>Thesis:</b> Evaluating machine learning approaches to runtime mobile malware detection techniques.
RESEARCH EXPERIENCE	<b>Virginia Tech Computer Science Department</b> Blacksburg, Virginia <i>Undergraduate Research Assistant, Advisor - Dr. Layne Watson</i> <b>January 2013 – Present</b> • Optimization algorithm in <b>Fortran 95</b> resulting in primary authorship on a conference publication.  <b>Systems Software Research Group</b> Blacksburg, Virginia <i>Undergraduate Research Assistant, Advisor - Dr. Binoy Ravindran</i> <b>November 2012 – Present</b> • Work supported with NSF and NEEC REU grants. • Automatic <b>OpenMP</b> to <b>CUDA</b> translation using <b>C++</b> and the <b>ROSE</b> compiler framework. • <b>Scala</b> and <b>Bash</b> development in <b>Linux</b> .  <b>Magnum Research Group</b> Blacksburg, Virginia <i>Undergraduate Research Assistant, Advisor - Dr. Jules White</i> <b>May 2012 – Present</b> • Work supported with ARO REU grant. • Android <b>malware detection research</b> resulting in primary authorship on a conference publication. • Created a distributed <b>Actor</b> system using <b>Scala</b> for <b>machine learning</b> classification of APKs. • Developed <b>VC#</b> programs for a pilot study on manufacturing cyber-physical security. • Assisted <b>C++</b> and <b>Make</b> development in <b>Linux</b> for a deployment optimization framework. Specific libraries used include <b>TCLAP</b> and <b>rapidxml</b> . • Modified the <b>Android source</b> to provide non-standard logging information for dynamic malware analysis.
INDUSTRY EXPERIENCE	<b>Qualcomm, Inc.</b> San Diego, California <i>Source Integrity Team Software Intern</i> <b>May 2013 – August 2013</b> • Developed a <b>web application</b> to modify an XML-based grammar for fuzz vector generation. Implemented with client-side <b>HTML</b> and <b>js</b> , using <b>D3</b> for graphics and <b>Handlebars</b> for templating. • Developed an XML-based grammar translator in <b>C++</b> with the <b>Xerces</b> XML parser in <b>Linux</b> . Reimplemented in <b>Python</b> using the <b>ElementTree</b> XML API for better analysis and tree transformation.  <b>Phoenix Integration, Inc.</b> Blacksburg, Virginia <i>Software Engineer Intern</i> <b>May 2012 – August 2012</b> • Integrated a new licensing mode into CenterLink, a grid computing application, using <b>FLEXlm</b> and <b>Java</b> . • Assisted development of industry software in <b>VC++</b> , <b>VC#</b> , <b>Java</b> , and <b>Tomcat</b> . • Improved the testing ( <b>JUnit</b> and <b>NUnit</b> ) and installation ( <b>Ant</b> , <b>InstallShield</b> , and <b>Make</b> ) frameworks.  <b>Sunapsys, Inc.</b> Vinton, Virginia <i>Network Administrator Intern</i> <b>January 2011 – August 2011</b> • <b>Linux</b> server configuration and <b>Bash</b> development.
TEACHING EXPERIENCE	<b>Virginia Tech Computer Science Department</b> Blacksburg, Virginia <i>Undergraduate Teaching Assistant</i> <b>January 2013 – May 2013</b> • Assisted students in a software design and data structures class using <b>Java</b> and <b>Android</b> .
CONFERENCE PUBLICATIONS	• “Applying machine learning classifiers to dynamic Android malware detection at scale.” <b>Brandon Amos</b> , 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.” <b>Brandon Amos</b> , 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, <b>Brandon Amos</b> , Jules White, Jaime Camelio, Chris Williams, Robert Parker. <i>Submitted</i> .

SKILLS	<p><b>Environments:</b> Eclipse**, NetBeans*, vim/gdb***, Visual Studio**</p> <p><b>Frameworks:</b> Drupal*, .NET*, ZK*</p> <p><b>Languages:</b> Bash**, C/C++**, C#*, Fortran**, HTML/CSS*, L<sup>A</sup>T<sub>E</sub>X**, Java**, JavaScript**, <i>Mathematica</i>**, PHP*, Python***, R*, Scala**</p> <p><b>Software:</b> i3wm**, Make**, Ratpoison**, Samba**, Tomcat*, Zimbra*</p> <p><b>Systems:</b> Android**, Linux***</p> <p><b>Version Control/Review:</b> Gerrit*, Git***, Subversion**</p> <p><b>Rankings:</b> 1/10* – 3/10** – 5/10*** – 7/10****</p>
PROJECTS	<p><b>Personal Blog and Website</b> – <a href="http://bamos.github.io">http://bamos.github.io</a> <b>July 2012 – Present</b></p> <ul style="list-style-type: none"> <li>• Hosted on GitHub Pages. Uses <b>Markdown</b> for posts and <b>Jekyll</b> for static HTML generation.</li> <li>• <b>27 posts</b> across the following tags, listed by highest frequency. Python, Bash, LaTeX, Scala, Linux, Android, CUDA, Fortran, C++, Mathematica</li> </ul> <p><b>GitHub Portfolio</b> – <a href="http://github.com/bamos">http://github.com/bamos</a> <b>April 2011 – Present</b></p> <ul style="list-style-type: none"> <li>• Hosts code samples, original source code, and patches for open source projects.</li> <li>• 18 original repositories. <ul style="list-style-type: none"> <li>◦ 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</li> <li>◦ <b>AES</b> - 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.</li> <li>◦ <b>c++-expression-parser</b> - Expression parsing in C++ with Dijkstra's Shunting-yard algorithm.</li> <li>◦ <b>latex-resume-cv</b> - My LaTeX resume and CV. Uses Make and produces PDFs and (rough) text versions of my resume and CV from the same LaTeX files.</li> <li>◦ <b>mbox-convos</b> - Export all emails in an mbox mailbox to or from somebody to a PDF.</li> <li>◦ <b>mutt-mass-mailer</b> - M3 parses a flat file and uses mutt to email many people different messages.</li> <li>◦ <b>safegit</b> - Wraps git to detect sensitive data before commits by using fuzzy Rabin fingerprints.</li> </ul> </li> <li>• 6 forked repositories. <ul style="list-style-type: none"> <li>◦ <b>antimalware</b> - Dynamic malware analysis for the Android platform</li> <li>◦ <b>BigOCheatSheet</b> - Space and time complexities of popular algorithms and data structures.</li> <li>◦ <b>gv-app</b> - Google Voice command line client</li> <li>◦ <b>mirror-android-repo</b> - Instructions and files to set up a server mirroring the entire Android project.</li> <li>◦ <b>olesenm.github.io</b> - github user page for olesenm</li> <li>◦ <b>schale</b> - A subprocess interface for Scala</li> </ul> </li> </ul>
HONORS & AWARDS	<ul style="list-style-type: none"> <li>• Nominated, CRA Outstanding Undergraduate Researchers Award, 2013</li> <li>• Qualstar Award, Qualcomm, 2013</li> <li>• Benjamin F. Bock Scholarship, Virginia Tech Engineering, 2013</li> <li>• Sophomore Scholar Award, Virginia Tech Computer Science, 2013 <ul style="list-style-type: none"> <li>◦ Given to the sophomore in Computer Science with the most outstanding academic record.</li> </ul> </li> <li>• University Honors, Virginia Tech, 2012–2013</li> <li>• Intelligence Community Center of Academic Excellence Scholar, Virginia Tech, 2012–2013 <ul style="list-style-type: none"> <li>◦ Merit-based scholarship that provides a security-based research fellowship.</li> </ul> </li> <li>• Dean's List with Distinction, Virginia Tech, 2011–2013</li> <li>• Engineering Scholarship, Roanoke County Public Schools Education Foundation, 2011 <ul style="list-style-type: none"> <li>◦ Merit-based scholarship presented annually to one student in the graduating Engineering class.</li> </ul> </li> <li>• Papa John's Scholarship, 2011</li> <li>• Gay B. Shober Memorial Scholarship, Roanoke County Federal Credit Union, 2011</li> <li>• Pamplin Leader Scholarship, Virginia Polytechnic Institute and State University, 2011 <ul style="list-style-type: none"> <li>◦ Merit-based scholarship presented to one student from each public high school in Virginia.</li> </ul> </li> <li>• I. Luck Gravett Memorial Scholarship, Scottish Rite of Freemasonry, 2011</li> <li>• Salem–Roanoke County Chamber of Commerce Scholarship, 2011</li> <li>• Virginia Aerospace Science and Technology Scholar, National Space Grant Foundation, 2010 <ul style="list-style-type: none"> <li>◦ Selected as an attendee of a summer academy at NASA Langley Research Center.</li> </ul> </li> </ul>

- 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