

# Brandon Amos

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## Research Interests

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Machine learning, mobile computing, and distributed systems.

## Education

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- Ph.D. Student, Computer Science, Carnegie Mellon University, Aug 2014–Present
- B.S., Computer Science, Virginia Tech, May 2014 (3.99/4.00)

## Research Experience

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- Research Assistant, Carnegie Mellon University Aug 2014–Present
  - **Advisor:** Dr. Mahadev Satyanarayanan
  - **Area:** Machine learning, mobile computing, and distributed systems.
- Undergraduate Research Assistant, Magnum Research Group May 2012–May 2014
  - **Advisor:** Dr. Jules White
  - **Area:** Mobile computing, cyber-physical systems, and security.
- Undergraduate Research Assistant, Virginia Tech Jan 2013–May 2014
  - **Advisor:** Dr. Layne Watson
  - **Area:** Scientific computing, global/stochastic optimization, and bioinformatics.
- Undergraduate Research Assistant, Systems Software Research Group Nov 2012–Mar 2014
  - **Advisor:** Dr. Binoy Ravindran
  - **Area:** Heterogeneous compilers.

## Teaching Experience

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- Software Design and Data Structures (CS 2114), Undergraduate TA VT S2013

## Publications

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### Conference Proceedings

- [C1] Z. Chen, L. Jiang, W. Hu, K. Ha, **B. Amos**, P. Pillai, A. Hauptmann, M. Satyanarayanan, "Early implementation experience with wearable cognitive assistance applications," in *WearSys 2015*, 2015. [Online]. Available: <http://www.cs.cmu.edu/~satya/docdir/chen-wearsys2015.pdf>.
- [C2] W. Hu, **B. Amos**, Z. Chen, K. Ha, W. Richter, P. Pillai, B. Gilbert, J. Harkes, M. Satyanarayanan, "The Case for Offload Shaping," in *HotMobile 2015*, 2015. [Online]. Available: <http://www.cs.cmu.edu/~satya/docdir/hu-hotmobile2015.pdf>.
- [C3] **B. Amos** and D. Tompkins, "Performance study of Spindle, a web analytics query engine implemented in Spark," in *(Short Paper) Proceedings of the 2014 IEEE International Conference on Cloud Computing Technology and Science (CloudCom)*, 2014.
- [C4] T. Andrew, **B. Amos**, D. Easterling, C. Oguz, W. Baumann, J. Tyson, L. Watson, "Global Parameter Estimation for a Eukaryotic Cell Cycle Model in Systems Biology," in *2014 Summer*

*Simulation Multiconference, Society for Modeling and Simulation International*, 2014. [Online]. Available: <http://dl.acm.org/citation.cfm?id=2685662>.

- [C5] **B. Amos**, D. Easterling, L. Watson, B. Castle, M. Trosset, W. Thacker, "Fortran 95 implementation of QNSTOP for global and stochastic optimization," in *2014 Spring Simulation Multiconference, 22nd High Performance Computer Symposium, Society for Modeling and Simulation International*, 2014. [Online]. Available: <http://dl.acm.org/citation.cfm?id=2663525>.
- [C6] **B. Amos**, H. Turner, J. White, "Applying machine learning classifiers to dynamic Android malware detection at scale," in *IWCMC'13 Security, Trust and Privacy Symposium*, 2013. [Online]. Available: <http://bamos.github.io/data/papers/amos-iwcmc2013.pdf>.

#### Journal Articles.....

- [J1] **B. Amos**, D. Easterling, L. Watson, W. Thacker, B. Castle, M. Trosset, "QNSTOP-QuasiNewton Algorithm for Stochastic Optimization," submitted, pre-print available as a tech report. [Online]. Available: <https://vtechworks.lib.vt.edu/bitstream/handle/10919/49672/qnTOMS14.pdf>.

#### Magazine Articles.....

- [M1] M. Satyanarayanan, P. Simoens, Y. Xiao, P. Pillai, Z. Chen, K. Ha, W. Hu, **B. Amos**, "Edge Analytics in the Internet of Things," *IEEE Pervasive Computing*, to appear. [Online]. Available: <http://www.cs.cmu.edu/~satya/docdir/satya-edge2015.pdf>.
- [M2] H. Turner, J. White, **B. Amos**, J. Camelio, C. Williams, R. Parker, "Bad Parts: Are Our Manufacturing Systems At Risk of Silent Cyber-attacks?" *IEEE Security and Privacy Magazine*, to appear.

### Industry Experience

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|---|-------------------|
| ○ Data Scientist Intern, Adobe Research         | May 2014–Aug 2014 |
| ○ Software Engineer Intern, Snowplow Analytics  | Dec 2013–Jan 2014 |
| ○ Software Engineer Intern, Qualcomm            | May 2013–Aug 2013 |
| ○ Software Engineer Intern, Phoenix Integration | May 2012–Aug 2012 |
| ○ Network Administrator Intern, Sunapsys        | Jan 2011–Aug 2011 |

### Graduate Coursework

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| ○ Semantics of Programming Languages (15-812), A. Platzner                    | CMU S2015 |
| ○ Optimizing Compilers for Modern Architecture (15-745), T. Mowry             | CMU S2015 |
| ○ Advanced Operating Systems and Distributed Systems (15-712), D. Andersen    | CMU F2014 |
| ○ Mobile and Pervasive Computing (15-812), M. Satyanarayanan and D. Siewiorek | CMU F2014 |

### Skills

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- Most Experience: Fortran, Linux, Python, Scala
- Some Experience: Akka, Android, Bash, C/C++, Haskell,  $\text{\LaTeX}$ , Make, *Mathematica*, R

### Honors & Awards

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| ○ 1st Place Undergraduate Senior Capstone Award, Virginia Tech Computer Science        | 2014 |
| ○ David Heilman Research Award, Virginia Tech Computer Science                         | 2014 |
| - Given to the Computer Science student with the most outstanding research experience. |      |

- Senior Scholar Award, Virginia Tech Computer Science 2014
  - Given to the senior in Computer Science with the most outstanding academic record.
- Honorable Mention, CRA Outstanding Undergraduate Researcher Award 2014
- Awarded eight undergraduate merit scholarships 2011–2014