Brandon Amos

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Research Interests

Machine learning, mobile computing, and distributed systems.

Education

- 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

- 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

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

Publications

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, J. A. Camelio, C. Williams, **B. Amos**, R. Parker, "Bad parts: Are our manufacturing systems at risk of silent cyberattacks?" *Security & Privacy, IEEE*, vol. 13, no. 3, pp. 40–47, 2015.

Industry Experience

- 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

- Semantics of Programming Languages (15-812), A. Platzer — 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

- Most Experience: Linux, Python, Scala
- Some Experience: Akka, Android, Bash, C/C++, Haskell, LaTeX, Make, *Mathematica*, R

Honors & Awards

- 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