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