Alessandro Checco

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Education

- Ph.D. in Computer Science, Carnegie Mellon University — Aug 2014 – Present
- M.S. in Computer Science, Carnegie Mellon University — Aug 2014 – May 2016
- B.S. in Computer Science, Virginia Tech (3.99/4.00) — Aug 2011 – May 2014
- Northside High School (Roanoke, Virginia) — May 2011

Research Experience

- Carnegie Mellon University, Prof. Zico Kolter — Apr 2016 – Present
  - Machine learning and optimization
- Carnegie Mellon University, Prof. Mahadev Satyanarayanan — Aug 2014 – Apr 2016
  - Applied machine learning and mobile systems
- Virginia Tech, Prof. Jules White — May 2012 – May 2014
  - Mobile systems, cyber-physical systems, and security
- Virginia Tech, Prof. Layne Watson — Jan 2013 – May 2014
  - Scientific computing, global/stochastic optimization, and bioinformatics
- Virginia Tech, Prof. Binoy Ravindran — Nov 2012 – Mar 2014
  - Heterogeneous compilers

Selected Publications

Google Scholar ID: CZwrwHAAAAAJ

[1] B. Amos, L. Xu, J. Z. Kolter, "Input convex neural networks," *ArXiv preprint arXiv:1609.07152*, 2016. [Online]. Available: http://arxiv.org/abs/1609.07152.

[2] H. Zhao, T. Adel, G. Gordon, B. Amos, "Collapsed Variational Inference for Sum-Product Networks," in *ICML*, 2016. [Online]. Available: http://www.cs.cmu.edu/~hzhao1/papers/ICML2016/BL-SPN-main.pdf.

[3] B. Amos, B. Ludwiczuk, M. Satyanarayanan, "Openface: A general-purpose face recognition library with mobile applications," Technical Report CMU-CS-16-118, CMU School of Computer Science, Tech. Rep., 2016. [Online]. Available: http://reports-archive.adm.cs.cmu.edu/anon/anon/2016/CMU-CS-16-118.pdf.

[4] B. Amos, D. Easterling, L. Watson, W. Thacker, B. Castle, M. Trosset, "QNSTOP-QuasiNewton Algorithm for Stochastic Optimization," 2014. [Online]. Available: https://vtechworks.lib.vt.edu/bitstream/handle/10919/49672/qnTOMS14.pdf.

Teaching Experience

- Graduate AI (CMU 15-780), TA — S2017
- Distributed Systems (CMU 15-440/640), TA — S2016
- Software Design and Data Structures (VT CS 2114), TA — S2013

Industry Experience

- Data Scientist Intern, Adobe Research — May 2014 – Aug 2014
  - I built a web analytics processing engine using **Scala**, **Spark**, **Spray**, **Parquet**, and **HDFS**.
- Software Engineer Intern, Snowplow Analytics — Dec 2013 – Jan 2014
  - Open-source **Scala** development with a startup on the Snowplow analytics platform. My commits are online at https://github.com/snowplow/snowplow/commits?author=bamos.
  - Developed a new server using **Spray** and **Actors** to store **Thrift** events on **Amazon Kinesis**.
- Software Engineer Intern, Qualcomm — May 2013 – Aug 2013
  - I created a specification format language translator for fuzz testing with Python.
- Software Engineer Intern, Phoenix Integration — May 2012 – Aug 2012
  - I developed industry software for software integration and design process optimization in **VC++**, **VC#**, and **Java**.
- Network Administrator Intern, Sunapsys — Jan 2011 – Aug 2011
  - Internship in high school to replace Windows domain, mail, DHCP, and DNS servers with virtual **Linux** servers using **KVM** and **virsh**.

CMU Graduate Coursework

- Statistical Machine Learning (10-702, Au), L. Wasserman — S2017
- Deep Reinforcement Learning (10-703), R. Salakhutdinov and A. Fragkiadaki — S2017
- Intermediate Statistics (10-705, Au), L. Wasserman — F2016
- Topics in Deep Learning (10-807), R. Salakhutdinov — F2016
- Convex Optimization (10-725), R. J. Tibshirani — F2015
- Algorithms in the Real World (15-853), G. Blelloch and A. Gupta — F2015
- Semantics of Programming Languages (15-812), A. Platzer — S2015
- Optimizing Compilers for Modern Architecture (15-745), T. Mowry — S2015
- Advanced Operating and Distributed Systems (15-712), D. Andersen — F2014
- Mobile and Pervasive Computing (15-812), M. Satyanarayanan and D. Siewiorek — F2014

Honors & Awards

- NSF Graduate Research Fellowship — 2016 – 2019
- 1st Place Undergraduate Senior Capstone Award, Virginia Tech Computer Science — 2014
- David Heilman Research Award, Virginia Tech Computer Science — 2014
- Senior Scholar Award, Virginia Tech Computer Science — 2014
- Honorable Mention, CRA Outstanding Undergraduate Researcher Award — 2014
- Awarded eight undergraduate merit scholarships — 2011 – 2014

Skills

Languages	Bash, C, C++, CSS, Fortran, Haskell, HTML, Java, JavaScript, LaTeX, Lua, Make, *Mathematica*, Python, R, Scala
Frameworks	Akka, Android SDK/NDK, Caffe, Node.js, NumPy, TensorFlow, Torch7, Pandas, SciPy, scikit-learn, Spark, Spray
Systems	Linux, OSX

All Publications

Google Scholar ID: CZwrwHAAAAAJ

Conference Proceedings

[C1] H. Zhao, T. Adel, G. Gordon, B. Amos, "Collapsed Variational Inference for Sum-Product Networks," in *ICML*, 2016. [Online]. Available: http://www.cs.cmu.edu/~hzhao1/papers/ICML2016/BL-SPN-main.pdf.

[C2] B. Amos, H. Turner, J. White, "Applying machine learning classifiers to dynamic Android malware detection at scale," in *IWCMC Security, Trust and Privacy Symposium*, 2013. [Online]. Available: http://bamos.github.io/data/papers/amos-iwcmc2013.pdf.

Workshop, Symposium, and Short Papers

[W1] N. A. J. Davies, N. Taft, M. Satyanarayanan, S. Clinch, B. Amos, "Privacy mediators: helping iot cross the chasm," in *HotMobile*, 2016. [Online]. Available: http://eprints.lancs.ac.uk/78255/1/44691.pdf.

[W2] 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. [Online]. Available: http://www.cs.cmu.edu/~satya/docdir/chen-wearsys2015.pdf.

[W3] 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. [Online]. Available: http://www.cs.cmu.edu/~satya/docdir/hu-hotmobile2015.pdf.

[W4] B. Amos and D. Tompkins, "Performance study of Spindle, a web analytics query engine implemented in Spark," in *IEEE CloudCom*, 2014. [Online]. Available: http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7037709.

[W5] 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 *Summer Simulation Multiconference, Society for Modeling and Simulation International*, 2014. [Online]. Available: http://dl.acm.org/citation.cfm?id=2685662.

[W6] B. Amos, D. Easterling, L. Watson, B. Castle, M. Trosset, W. Thacker, "Fortran 95 implementation of QNSTOP for global and stochastic optimization," in *Spring Simulation Multiconference, High Performance Computer Symposium, Society for Modeling and Simulation International*, 2014. [Online]. Available: http://dl.acm.org/citation.cfm?id=2663525.

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*, no. 2, pp. 24–31, 2015. [Online]. Available: https://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. [Online]. Available: http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7118094.

Tech Reports

[T1] B. Amos, B. Ludwiczuk, M. Satyanarayanan, "Openface: A general-purpose face recognition library with mobile applications," Technical Report CMU-CS-16-118, CMU School of Computer Science, Tech. Rep., 2016. [Online]. Available: http://reports-archive.adm.cs.cmu.edu/anon/anon/2016/CMU-CS-16-118.pdf.

[T2] Y. Gao, W. Hu, K. Ha, B. Amos, P. Pillai, M. Satyanarayanan, "Are cloudlets necessary?" Technical Report CMU-CS-15-139, CMU School of Computer Science, Tech. Rep., 2015. [Online]. Available: http://reports-archive.adm.cs.cmu.edu/anon/anon/2015/CMU-CS-15-139.pdf.

[T3] K. Ha, Y. Abe, Z. Chen, W. Hu, B. Amos, P. Pillai, M. Satyanarayanan, "Adaptive vm handoff across cloudlets," Technical Report CMU-CS-15-113, CMU School of Computer Science, Tech. Rep., 2015. [Online]. Available: http://ra.adm.cs.cmu.edu/anon/2015/CMU-CS-15-113.pdf.

[T4] B. Amos, D. Easterling, L. Watson, W. Thacker, B. Castle, M. Trosset, "QNSTOP-QuasiNewton Algorithm for Stochastic Optimization," 2014. [Online]. Available: https://vtechworks.lib.vt.edu/bitstream/handle/10919/49672/qnTOMS14.pdf.

Posters

[P1] B. Amos and J. Z. Kolter, "Input-convex deep networks," in *ICLR Workshop*, 2016. [Online]. Available: http://bamos.github.io/data/posters/2016-iclr-icnn.pdf.

[P2] B. Amos and M. Satyanarayanan, "Face Recognition for Context Sensitive IoT Systems," in *HotMobile*, 2016. [Online]. Available: http://bamos.github.io/data/posters/2016-hotmobile-facerec.pdf.