

Virginia Smith

ECE Department
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Education

- 2012–2017 **MS & PhD, Computer Science**, *University of California, Berkeley*
Advisors: Michael I. Jordan and David Culler
Thesis: *System-Aware Optimization for Machine Learning at Scale*
- 2008–2012 **BA, Mathematics & BA, Computer Science, Highest Distinction**, *University of Virginia*

Experience

- 2018– **Assistant Professor**, *Carnegie Mellon University*
- 2017–2018 **Postdoctoral Researcher**, *Stanford University*
- 2012–2017 **Research Assistant**, *UC Berkeley*
- 2014 **Search Intern**, *Google*
- 2012 **Research Intern**, *UVA Center for Diabetes Technology*
- 2011–2012 **Distinguished Majors Program**, *UVA Computer Science Department*
- 2011 **Information Technology for Sustainability REU**, *University of California, Berkeley*
- 2010 **High Performance Computing REU**, *University of Maryland*

Awards

- 2018 Google Faculty Research Award
- 2017 Outstanding GSI Award
- 2016 Rising Stars in EECS, Invited Participant
- 2015 MLconf Industry Impact Student Research Award
- 2014–2017 National Science Foundation Graduate Research Fellowship
- 2014 National Defense Science and Engineering Graduate Fellowship
- 2014 Tong Leong Lim Pre-Doctoral Prize
- 2014 Google Anita Borg Memorial Scholarship
- 2012–2014 Chancellor’s Fellowship
- 2012 College of Engineering Fellowship
- 2012 Department of Electrical Engineering and Computer Sciences Excellence Award
- 2012 CRA Outstanding Undergraduate Research Award, Honorable Mention
- 2012 Rader Undergraduate Research Award (UVA Top Undergraduate CS Research)
- 2008–2012 Echols Scholar (UVA Honors Program)
- 2008–2012 College Science Scholar (UVA Research Program)
- 2008 J. L. Wang Memorial Mathematics Scholarship

Selected Publications

Preprints

T. Dao, A. Gu, A. Ratner, V. Smith, C. D. Sa, and C. Re, “A kernel theory of modern data augmentation,” <https://arxiv.org/abs/1803.06084>, 2018.

Refereed Conference or Journal

M. Kuchnik and V. Smith, “Efficient augmentation via data subsampling,” in *International Conference on Learning Representations (ICLR)*, 2019.

V. Smith, S. Forte, C. Ma, M. Takac, M. I. Jordan, and M. Jaggi, “CoCoA: A general framework for communication-efficient distributed optimization,” *Journal of Machine Learning Research*, 2018.

V. Smith, C.-K. Chiang, M. Sanjabi, and A. Talwalkar, “Federated multi-task learning,” in *Neural Information Processing Systems (NIPS)*, 2017.

C. Ma, J. Konecny, M. Jaggi, V. Smith, M. I. Jordan, P. Richtarik, and M. Takac, “Distributed optimization with arbitrary local solvers,” *Optimization Methods and Software*, 2017.

V. Smith, M. Connor, and I. Stanton, “Going in-depth: Finding longform on the web,” in *Conference on Knowledge Discovery and Data Mining (KDD)*, 2015.

C. Ma*, V. Smith*, M. Jaggi, M. I. Jordan, P. Richtarik, and M. Takac, “Adding vs. averaging in distributed primal-dual optimization,” in *International Conference on Machine Learning (ICML)*, 2015.

M. Jaggi*, V. Smith*, M. Takac, J. Terhorst, S. Krishnan, T. Hofmann, and M. I. Jordan, “Communication-efficient distributed dual coordinate ascent,” in *Neural Information Processing Systems (NIPS)*, 2014.

E. Sparks, A. Talwalkar, V. Smith, X. Pan, J. Gonzalez, T. Kraska, M. I. Jordan, and M. J. Franklin, “MLI: An API for user-friendly distributed machine learning,” in *International Conference on Data Mining (ICDM)*, 2013.

A. Aswani, N. Master, J. Taneja, V. Smith, A. Krioukov, D. Culler, and C. Tomlin, “Identifying models of HVAC systems using semiparametric regression,” in *American Control Conference (ACC)*, 2012.

Invited Talks

- 2018 Machine Learning on Consumer Devices Workshop at NIPS
- 2018 Microsoft Research Faculty Summit
- 2017 ML Systems Workshop at NIPS
- 2017 Google Seattle
- 2017 Carnegie Mellon University
- 2017 Massachusetts Institute of Technology
- 2017 University of Washington
- 2017 University of California, Los Angeles
- 2017 Harvey Mudd College
- 2017 Microsoft Research, New England
- 2017 Microsoft Research, NYC
- 2017 Microsoft Research and MSR-NExT, Seattle
- 2017 SIAM Conference on Optimization (SIOPT)
- 2016 The Machine Learning Conference (MLconf)
- 2016 ML Systems Workshop at ICML
- 2015 The Machine Learning Conference (MLconf)
- 2015 Modeling and Optimization: Theory and Applications Conference (MOPTA)
- 2015 SF Bay Area Machine Learning Meetup
- 2014 Distributed Machine Learning and Matrix Computations Workshop at NIPS
- 2014 Bay Area Machine Learning Symposium (BayLearn)

Service and Activities

- 2018–2019 **Program Chair**, *SysML: Systems and Machine Learning Conference*
- 2017–2018 **Co-Organizer**, *SysML: Systems and Machine Learning Conference*
- 2015–2017 **Co-Founder and Organizer**, *Women in Technology Leadership Round Table (wit.berkeley.edu)*
- 2014–2015 **Co-President**, *UC Berkeley Women in Computer Science and Engineering (WICSE)*
- 2012–2014 **Officer**, *UC Berkeley Women in Computer Science and Engineering (WICSE)*

Reviewing

Neural Information Processing Systems (Best Reviewer Award 2017), International Conference on Machine Learning (Outstanding Reviewer 2018), Journal of Machine Learning Research, Foundations and Trends in Machine Learning