

Aman Sinha

CONTACT INFORMATION

Electrical Engineering Department
Stanford University
Stanford, CA 94305

Web: amansinha.org
Email: amans@stanford.edu

RESEARCH INTERESTS

Optimization, machine learning, control theory, data science, computational modeling & simulation

EDUCATION

Stanford University, Stanford, CA *Sept. 2014-Present*

Degree: PhD. in Electrical Engineering (expected in June 2019)

Fannie and John Hertz Foundation Fellowship, William R. Hewlett Stanford Graduate Fellowship
Relevant coursework: Machine learning, Mining massive datasets (Hadoop), Convex optimization, Information theory, Optimal control theory, Randomized algorithms

University of Cambridge, Cambridge, UK *Oct. 2013-Aug. 2014*

Degree: M.Phil. in Information Engineering

Churchill Scholarship

Princeton University, Princeton, NJ *Sept. 2009-June 2013*

Degree: B.S.E. in Mechanical and Aerospace Engineering

Certificates: Applications of Computing, Applied and Computational Mathematics

Valedictorian

Council Rock High School North, Newtown, PA *Aug. 2005-June 2009*

Valedictorian

RESEARCH AND WORK EXPERIENCE

Information Systems Lab, Stanford University *Sept. 2014-Present*

Researcher (Advisors: John Duchi, Nick Bambos)

- Researching theoretical and applied problems in optimization applied to machine learning contexts
- Projects include minimizing viral propagations in large networks, building nanoscale lenses, and efficient methods for distributionally robust optimization

Creasys, LLC *July 2013-Present*

Founder, President

- Startup develops mobile productivity apps
- TeXscribe (currently available for iOS) converts handwriting to LaTeX and lets users store their work in the cloud. More info available at www.texscribe.me

Toyota Research Institute, Cambridge, MA *June-Sept. 2017*

Researcher (Manager: Russ Tedrake)

- Applied distributionally robust optimization methods to system verification and behavior-planning algorithms for autonomous driving

Quantifind, Menlo Park, CA *June-Sept. 2016*

Data Scientist

- Startup offers explanatory analytics solutions targeted towards marketing
- Developed algorithms that discover language patterns in Twitter correlating with brand revenue

Control Group & Machine Learning Group, University of Cambridge *Oct. 2013-Aug. 2014*

Researcher (Advisors: Glenn Vinnicombe, Carl Rasmussen)

- Researched distributed machine learning over networks
- Developed techniques to characterize and improve the robustness and accuracy of Gaussian process regression in distributed systems

Dynamical Control Systems Laboratory, Princeton University *Oct. 2012-May 2013*

Undergraduate Researcher (Advisor: Naomi Leonard)

- Researched consensus dynamics in multi-agent systems
- Studied techniques by which local utility maximization by agents leads to global consensus in tracking a noisy reference signal

- Microsoft Online Services Division: adCenter**, Microsoft (Bellevue, WA) *June-Aug. 2012*
Software Development Engineering Intern (Manager: Dragos Barac)
 – Developed a device detection and identification feature to enable the intelligent delivery of ads to mobile and tablet devices in Bing search requests
- Complex Fluids Group**, Princeton University *Sept. 2011-Jan. 2012*
Undergraduate Researcher (Advisors: Howard Stone, Roseanna Zia)
 – Studied nonlinear fluctuations of a Brownian particle in a colloidal suspension in the presence of solvent-mediated, hydrodynamic interactions between particles
- Merck Research Labs: Imaging Dept.**, Merck & Co. (West Point, PA) *June-Aug. 2011*
Intern (Manager: Dinko Gonzalez Trotter)
 – Developed software for the automated segmentation and registration of medical images used in preclinical trials of drug development
- Gas Dynamics Laboratory**, Princeton University *June-Aug. 2010*
Intern (Advisor: Alexander Smits)
 – Researched the three-dimensional nature of large-scale motions in fully turbulent pipe flow

PAPERS

- Namkoong, H., Sinha, A., Yadlowsky, S., Duchi, J. Adaptive Sampling Probabilities for Non-Smooth Optimization. *ICML*, 2017.
- Norden, J., Smuck, M., Sinha, A., Hu, R., Tomkins-Lane, C. Objective measurement of free-living physical activity (performance) in lumbar spinal stenosis: are physical activity guidelines being met? *The Spine Journal*, 2017.
- Sinha, A., and Duchi, J. Learning kernels with random features. *NIPS*, 2016.
- Sinha, A., Duchi, J, and Bambos, N. Dynamic management of network risk from epidemic phenomena. *IEEE Conference on Decision and Control*, 2015.
- Sinha, A. Distributed gaussian process regression in networked systems. *University of Cambridge M.Phil. Thesis*. August 2014.
- Sinha, A. Distributed consensus protocols in adaptive multi-agent systems. *Princeton University Senior Thesis*. May 2013.
- Hellström, L., Sinha, A., and Smits, A. Visualizing the very-large-scale motions in turbulent pipe flow. *Physics of Fluids*, 23:011703, 2011.

TALKS

- Sinha, A. A numerical toolkit for automated segmentation and registration. *Presented at Merck Imaging Department*. August 2011.
- Sinha, A. Using riblets for airfoil drag reduction: a CFD analysis. *AAAS National Conference*. Chicago, Feb. 2009.

HONORS AND AWARDS

- Numerical Technologies Founders Prize (for top rank in PhD Qualifying Exam) *Feb. 2015*
- William R. Hewlett Stanford Graduate Fellowship *Nov. 2014*
- Elected as Valedictorian for Princeton’s Class of 2013 *Apr. 2013*
- Fannie and John Hertz Foundation Fellowship *Apr. 2013*
- Churchill Scholarship *Jan. 2013*
- Elected to the Phi Beta Kappa Society, Princeton Chapter *Sept. 2012*
- Class of 1939 Princeton Scholar Award for highest ranked senior *Sept. 2012*
- Barry M. Goldwater Scholarship *Mar. 2012*
- Elected to the Tau Beta Pi Engineering Honor Society, Princeton Chapter *Nov. 2011*
- National Merit Scholarship *Apr. 2009*
- 3-time Medalist at PA Junior Academy of Science State Competition *May 2007, 2008, 2009*

TECHNICAL SKILLS AND PROFICIENCY

Operating Systems and Frameworks: Mac OS X, Unix/Linux, Windows, Django, AWS
Languages: Java, C, C++, C#, Objective-C, Python, SQL, Assembly (IA-32), Fortran
Applications: MATLAB, Mathematica, Xcode, TecPlot, Pro/E, SolidWorks, Visual Studio