Vitae

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EDUCATION

PhD in Electrical Engineering, 2017-present
Stanford University.

MS in Electrical Engineering, 2017-2019
Stanford University.

BS *phi beta kappa* in Electrical Engineering & Computer Sciences, 2013-2017
University of California, Berkeley. GPA 3.98/4.0.

PAPERS

S. Barratt and S. Boyd (2020). Multi-Period Liability Clearing via Convex Optimal Control. Manuscript. [paper, code]

A. Agrawal, S. Barratt, S. Boyd, and B. Stellato* (2020). Learning Convex Optimization Control Policies. 2020 Conference on Learning for Decision and Control (L4DC). [paper, code]

M. Palan, S. Barratt*, A. McCauley, D. Sadigh, V. Sindhwani, and S. Boyd (2020). Fitting a Linear Control Policy to Demonstrations with a Kalman Constraint. 2020 Conference on Learning for Decision and Control (L4DC). [paper]

S. Barratt, J. Tuck, and S. Boyd (2020). Convex Optimization Over Risk-Neutral Probabilities. Manuscript. [paper, code]

S. Barratt, G. Angeris, and S. Boyd (2020). Minimizing a Sum of Clipped Convex Functions. Optimization Letters. [paper, code]

S. Barratt and S. Boyd (2020). Least Squares Auto-Tuning. Engineering Optimization. [paper, code]

S. Barratt, G. Angeris, and S. Boyd (2020). Automatic Repair of Convex Optimization Problems. Manuscript. [paper, code]

S. Barratt and S. Boyd (2020). Fitting a Kalman Smoother to Data. 2020 American Control Conference. [paper, code]

A. Agrawal, B. Amos, S. Barratt, S. Boyd, S. Diamond, and Z. Kolter* (2019). Differentiable Convex Optimization Layers. Neural Information Processing Systems (NeurIPS).

S. Barratt, M. Kochenderfer, and S. Boyd (2019). Learning Probabilistic Trajectory Models of Aircraft in Terminal Airspace from Position Data. IEEE Transactions on Intelligent Transportation Systems. [paper, code]

* equal contribution.

J. Tuck, S. Barratt, and S. Boyd (2019). A Distributed Method for Fitting Laplacian Regularized Stratified Models. Manuscript. [paper, code, talk]

A. Agrawal, S. Barratt, S. Boyd, E. Busseti, and W. Moursi* (2019). Differentiating Through a Cone Program. Journal of Applied and Numerical Optimization. [paper, code]

S. Barratt and S. Boyd (2018). Stochastic Control with Affine Dynamics and Extended Quadratic Costs. Submitted to IEEE Transactions on Automatic Control. [paper, code]

S. Barratt (2018). Direct Model Predictive Control. ICML / IJCAI / AAMAS 2018 Workshop on Planning and Learning (PAL-18). [paper]

S. Barratt and R. Sharma* (2018). A Note on the Inception Score. ICML 2018 Workshop on Theoretical Foundations and Applications of Deep Generative Models. [paper]

R. Sharma, S. Barratt, S. Ermon, and V. Pande (2018). Improved Training with Curriculum GANs. Manuscript. [paper]

C. de Vrieze, S. Barratt, D. Tsai, and A. Sahai (2018). Cooperative Multi-Agent Reinforcement Learning for Low-Level Wireless Communication. Manuscript. [paper]

S. Barratt (2017). InterpNET: Neural Introspection for Interpretable Deep Learning. Interpretable ML Symposium, Neural Information Processing Systems (NeurIPS). [paper, code]

A. Lee, M. Goldstein, S. Barratt, and P. Abbeel (2015). A Non-Rigid Point and Normal Registration Algorithm with Applications to Learning from Demonstrations. International Conference on Robotics and Automation (ICRA). [paper, videos]

RESEARCH EXPERIENCE

Stanford University Convex Optimization Group (Prof. Stephen Boyd), Department of Electrical Engineering, Stanford University, 2018-present.

Stanford Intelligent Systems Laboratory (Prof. Mykel Kochenderfer), Department of Aeronautics and Astronautics, Stanford University, 2017-2018.

Berkeley Wireless Research Center (Prof. Anant Sahai), Department of Electrical Engineering, University of California, Berkeley, 2016-2017.

Robot Learning Lab (Prof. Pieter Abbeel), Department of Computer Science, University of California, Berkeley, 2014.

INDUSTRY EXPERIENCE

Software Engineering Intern - Lyft Level 5 (self-driving division), Palo Alto, CA, 2019. Worked on motion planning algorithms.

Platform Engineering Intern - Software Robotics Corporation (SoRoCo), Cambridge, MA, 2016. Worked on U.S. Patent 20180113780 (Systems and methods for discovering automatable tasks).

Hardware Engineering Intern - Skybox Imaging, Google Inc., Mountain View, 2015. Worked on U.S. Patent 9509894 (Capturing images using controlled vibration).

Wireless Testing Intern - Qualcomm-Atheros, Sunnyvale, 2012.

TEACHING EXPERIENCE

Course Assistant - EE 364A, Convex Optimization, Department of Electrical Engineering, Stanford University, 2019.

Teaching Assistant - EE 16B, Designing Information Devices and Systems II, Department of Electrical Engineering, University of California, Berkeley, 2016.

Student Instructor - EE 98, IEEE Micromouse, Department of Electrical Engineering, University of California, Berkeley, 2015.

AWARDS AND HONORS

NSF Graduate Research Fellowships Program, 2017-present.

Phi Beta Kappa Society, 2017.

Regent's and Chancellor's Undergraduate Scholarship, 2013-2017.

Dean's Honors, 2013-2017.

Best Amazon Hack, CalHacks, 2015.

Best Berkeley Student Hack, CalHacks, 2015.

First Place, Capital One Engineering Summit Hackathon, 2015.

Kraft Award for Freshmen, 2013.