Rajiv Sambharya

rajivs@princeton.edu
https://rajivsambharya.github.io/
https://github.com/rajivsambharya
https://www.linkedin.com/in/rajiv-sambharya
11 Lawrence Drive, Apt 402, Princeton NJ, 08540
2158967403

Education

- **Ph.D., Princeton University** 2019-2024
  Operations Research and Financial Engineering
  Thesis: Learning to Accelerate Optimizers
  Supervision: Bartolomeo Stellato
- **M.Sc. University of California - Berkeley** 2017-2018
  Electrical Engineering and Computer Science
  Supervision: Laurent El Ghaoui
- **B.Sc. University of California - Berkeley** 2013-2017
  Electrical Engineering and Computer Science

Publications

Journal Articles

J1 R. Sambharya, G. Hall, B. Amos, and B. Stellato, "Learning to Warm-Start Fixed-Point Optimization Algorithms," *arXiv e-prints: 2309.07835*, 2023, (accepted conditioned on minor revision: *Journal of Machine Learning Research*).

Conference Proceedings

C1 R. Sambharya, G. Hall, B. Amos, and B. Stellato, "End-to-End Learning to Warm-Start for Real-Time Quadratic Optimization," in *Proceedings of The 5th Annual Learning for Dynamics and Control Conference*, ser. Proceedings of Machine Learning Research, vol. 211, PMLR, 2023, pp. 220–234.

Preprints

P1 A. Askari, G. Negiar, R. Sambharya, and L. E. Ghaoui, "Lifted Neural Networks," 2018.

Working Papers

W1 R. Sambharya and B. Stellato, *Practical Performance Guarantees for Classical and Learned Optimizers*.

W2 R. Sambharya and B. Stellato, *Accelerating Non-Convex Optimization via Learned Sequential Convexifications*.

W3 R. Sambharya and B. Stellato, *Learning Algorithm Steps for Fast Convex Optimization*.

Honors and Awards

- **Princeton Excellence in Teaching Award**: Top award winner in engineering 2021
- **Princeton McGraw Teaching Fellow**: Led orientation for new teaching assistants 2022-2023
- **Princeton SEAS Travel Grant Award**: (INFORMS) 2023

Talks

Practical Performance Guarantees for Classical and Learned Optimizers

- INFORMS Optimization Society — Rice University, March 2024
- Conference on Information Sciences and Systems — Princeton University, March 2024

Learning to Warm-Start Fixed-Point Optimization Algorithms

- Yale Robotics Seminar — Yale University, December 2023
- INFORMS — Phoenix, AZ, October 2023
- MOPTA — Lehigh University, August 2023

End-to-End Learning to Warm-Start for Real-Time Quadratic Optimization

- Learning for Dynamics and Control (Poster) — University of Pennsylvania, June 2023
- NYC Operations day (Poster) — Columbia University, May 2023
- INFORMS — Indianapolis, IN, October 2022

Accelerating Non-Convex Optimization via Learned Sequential Convexifications

- ICCOPT (old version) — Lehigh University, July 2022

Learning for Real-Time Semidefinite Optimization

- INFORMS — Anaheim, CA (hybrid), October 2021

Teaching

- ORF499: Senior Thesis — Spring 2024
- ORF498: Senior Thesis — Fall 2023
- ORF363: Computing and Optimization for the Physical and Social Sciences — Spring 2023
- ORF387: Networks — Fall 2022
- ORF522: Linear and Nonlinear Optimization (Graduate-level) — Fall 2021
- ORF307: Optimization — Spring 2021 (Head TA), 2022
- ORF455: Energy and Commodities Markets — Fall 2020

Software

- Learning to Warm-Start Fixed-Point Optimization Algorithms
  https://github.com/stellatogrp/l2ws
- End-to-End Learning to Warm-Start for Real-Time Quadratic Optimization
  https://github.com/stellatogrp/l2ws_qp

Industry Experience

- Machine Learning Engineer at Linc Global — Sunnyvale, CA, July 2018 - July 2019
- Software Engineering Intern at Amazon — Seattle, WA, June 2016 - August 2016

Service

- Princeton Optimization Seminar Organizer — 2022-2023
- INFORMS Optimization Society Session Organizer — 2024

Peer Review

- Learning for Dynamics and Control
- Integer Programming and Combinatorial Optimization

Technical Skills

- **Programming languages**: Python, Matlab, Julia, R, C, Java, SQL, HTML
- **Tools**: Git, LaTeX, Slurm, GPU, JAX, PyTorch, Tensorflow