

CURRICULUM VITAE — GAUTAM GOEL

Address: Computing and Mathematical Sciences (CMS) Department
California Institute of Technology
Pasadena, California

Website: www.gautamcgoel.com

Email: ggoel@caltech.edu

Research Interests: machine learning, optimization, signal processing, and control.

Academic Qualifications:

2022 (expected) PhD. in Computing and Mathematical Sciences
Advisor: Babak Hassibi
California Institute of Technology

2015 BSc. in Applied Mathematics
Georgia Institute of Technology

Awards:

2021 Named a Rising Star in Data Science by the University of Chicago

2021 Qualcomm Innovation Fellowship Finalist

2018 Amazon AI4Science Fellowship

2018 Linde Fellowship

2015 National Science Foundation Graduate Research Fellowship

2014 Commendation by Georgia State Legislature (SR-902, 2013-2014 session)

2014 Georgia Tech School of Mathematics Outstanding Junior Award

2013 Goldwater Scholarship

Preprints:

- P2. **Gautam Goel** and Babak Hassibi: *Online estimation and control with optimal pathlength regret*. Available at <https://arxiv.org/abs/2110.12544>.
- P1. **Gautam Goel** and Babak Hassibi: *The Power of Linear Controllers in LQR Control*. Available at <https://arxiv.org/abs/2002.02574>.

Publications in Peer-Reviewed Journals:

- J3. **Gautam Goel** and Babak Hassibi: *Competitive Control*. Under consideration at IEEE Transactions on Automatic Control.
- J2. **Gautam Goel** and Babak Hassibi: *Regret-optimal Estimation and Control*. Under consideration at IEEE Transactions on Automatic Control, Special Issue on Learning and Control.
- J1. Oron Sabag, **Gautam Goel**, Sahin Lale, and Babak Hassibi: *Regret-optimal Full-Information Control*. Under consideration at IEEE Transactions on Automatic Control.

Publications in Peer-Reviewed Conference Proceedings:

- C7 Oron Sabag, Sahin Lale, **Gautam Goel** and Babak Hassibi. *Regret-optimal full-information control*. American Control Conference (ACC) 2021.
- C6 **Gautam Goel** and Babak Hassibi. *Regret-optimal measurement-feedback control*. Learning for Dynamics and Control (L4DC) 2021.
- C5 Yiheng Lin, **Gautam Goel**, and Adam Wierman. *Online Optimization with Predictions and Non-convex Losses*. Sigmetrics 2020.
- C4 **Gautam Goel***, Yiheng Lin*, Haoyuan Sun*, and Adam Wierman. *Beyond Online Balanced Descent: An Optimal Algorithm for Smoothed Online Optimization*. Neural Information Processing Systems (NeurIPS) 2019. Selected for Spotlight Presentation (top 2.4% of submissions). *Equal contribution.
- C3 **Gautam Goel** and Adam Wierman. *An Online Algorithm for Smoothed Regression and LQR Control*. International Conference on Artificial Intelligence and Statistics (AISTATS) 2019. Extended abstract appeared at Real-world Sequential Decision Making Workshop, ICML 2019, and Mathematical Aspects of Performance Modelling (MAMA) Workshop, Sigmetrics 2019.
- C2 Niangjun Chen*, **Gautam Goel*** and Adam Wierman. *Smoothed Online Convex Optimization in High Dimensions*. Conference on Learning Theory (COLT) 2018. *Equal contribution. Extended abstract appeared at Mathematical Aspects of Performance Modelling (MAMA) Workshop, Sigmetrics 2018.
- C1 **Gautam Goel**, Niangjun Chen and Adam Wierman. *Thinking Fast and Slow: Optimization Decomposition Across Timescales*. Conference on Decision and Control (CDC) 2017. Extended abstract appeared at Mathematical Aspects of Performance Modelling (MAMA) Workshop, Sigmetrics 2017.

Invited talks:

- 2021 Na Li's group in Harvard SEAS department
- 2021 Princeton ALG-ML Seminar. Hosted by Elad Hazan
- 2021 Madeleine Udell's group in Cornell University ORIE department
- 2021 Statistical Machine Learning Seminar, UC Santa Barbara. Hosted by Yu-Xiang Wang.
- 2021 Google DeepMind/University of Alberta. Hosted by Csaba Szepesvári.
- 2019 Conference on Information Sciences and Systems (CISS) at Johns Hopkins University.
- 2018 Applied Probability Society (APS) at Northwestern University. Session on Smart Grid.

Undergraduate Mentoring:

- 2018–2019 Yiheng Lin (Tsinghua University → Caltech)
- 2018–2019 Haoyuan Sun (Caltech → MIT)

Teaching:

- 2021 Mathematics of Signal Processing (EE 170)
- 2020 Adaptive Signal Processing (EE 164)
- 2018 Foundations of Machine Learning and Statistical Inference (CS 165)
- 2017 Applied Linear Algebra (ACM 104)

Departmental Service:

- 2021–2022 CMS Grad Advisory Council
- 2017–2018 Keller Colloquium Committee

Professional Service:

- Journal reviewer IEEE Trans. on Information Theory (IEEE T-IT), IEEE Trans. on Automatic Control (IEEE TAC), IEEE Trans. on Networking (IEEE TNET)
- Conference reviewer Neural Information Processing Systems (NeurIPS), International Conference on Artificial Intelligence and Statistics (AISTATS)