

Aviv Adler

✉ adlera@berkeley.edu 🏛 UC Berkeley, Berkeley CA 94704

Current Position

- | | |
|--------------|---|
| 2023–Present | Postdoctoral Scholar, University of California, Berkeley <ul style="list-style-type: none">• AUTOLAB, Electrical Engineering and Computer Science (EECS)• Advisor: Ken Goldberg |
|--------------|---|

Education

- | | |
|----------|--|
| Feb 2023 | Massachusetts Institute of Technology , Cambridge, MA
Ph.D in Electrical Engineering and Computer Science <ul style="list-style-type: none">• Advisor: Sertac Karaman• Thesis Title: The Traveling Salesman Problem Under Dynamic Constraints |
| Jun 2017 | S.M in Electrical Engineering and Computer Science |
| Jun 2014 | Princeton University , Princeton, NJ
B.A. in Mathematics |

Research Interests

Algorithmic problems in **robotics** and **autonomous agents**, with a focus on the design and analysis of algorithms based on **optimization**, **graph theory**, and **computational geometry**; **probability theory** and **stochastic processes**; **information theory**.

Publications

Conference

- Jennifer Tang, [Aviv Adler](#), Amir Ajorlou, and Ali Jadbabaie. “Convergence of Opinion Dynamics under Social Pressure for General Networks”. In: *To appear at IEEE Conference on Decision and Control (CDC) 2023*
- Varun Kamat, Viraj Ramakrishnan, Yashish Mohnot, Harshika Jalan, Julia Isaac, Vincent Schorp, Yahav Avigal, [Aviv Adler](#), Danyal M Fer, and Ken Goldberg. “Automating 2D Suture Placement”. In: *2023 IEEE 19th International Conference on Automation Science and Engineering (CASE)*. IEEE. 2023, pp. 1–8 (**Best Student Paper Award**)
- Shrey Aeron, Edith Llonetop, [Aviv Adler](#), Wisdom C Agboh, Mehmet Dogar, and Ken Goldberg. “Push-MOG: Efficient Pushing to Consolidate Polygonal Objects for Multi-Object Grasping”. In: *2023 IEEE 19th International Conference on Automation Science and Engineering (CASE)*. IEEE. 2023, pp. 1–6
- [Aviv Adler](#), Jennifer Tang, and Yury Polyanskiy. “Efficient Representation of Large-Alphabet Probability Distributions via Arcsinh-Compander”. In: *2022 IEEE International Symposium on Information Theory (ISIT)*. 2022, pp. 162–167

- **Aviv Adler**, Jennifer Tang, and Yury Polyanskiy. "Quantization of Random Distributions under KL Divergence". In: *2021 IEEE International Symposium on Information Theory (ISIT)*. IEEE. 2021, pp. 2762–2767
- **Aviv Adler**, David Miculescu, and Sertac Karaman. "Optimal policies for platooning and ride sharing in autonomy-enabled transportation". In: *Algorithmic Foundations of Robotics XII: Proceedings of the Twelfth Workshop on the Algorithmic Foundations of Robotics*. Springer. 2020, pp. 848–863
- **Aviv Adler**, Jeffrey Bosboom, Erik D Demaine, Martin L Demaine, Quanquan C Liu, and Jayson Lynch. "Tatamibari is NP-complete". In: *arXiv preprint arXiv:2003.08331* (2020)
- **Aviv Adler**, Erik D Demaine, Adam Hesterberg, Quanquan Liu, and Mikhail Rudoy. "Clickomania is hard, even with two colors and columns". In: *The Mathematics of Various Entertaining Subjects: Research in Games, Graphs, Counting, and Complexity, Volume 2* 2 (2017), p. 325
- **Aviv Adler** and Sertac Karaman. "The stochastic traveling salesman problem and orienteering for kinodynamic vehicles". In: *2016 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE. 2016, pp. 2788–2795
- **Aviv Adler**, Mark De Berg, Dan Halperin, and Kiril Solovey. "Efficient multi-robot motion planning for unlabeled discs in simple polygons". In: *Algorithmic Foundations of Robotics XI: Selected Contributions of the Eleventh International Workshop on the Algorithmic Foundations of Robotics*. Springer. 2015, pp. 1–17
- **Aviv Adler**, Michael Biro, Erik D Demaine, Mikhail Rudoy, and Christiane Schmidt. "Computational complexity of numberless Shakashaka." In: *CCCG*. 2015
- Fatemeh Panahi, **Aviv Adler**, and A Frank van der Stappen. "Pose statistics for eccentric parts". In: *2015 IEEE International Conference on Automation Science and Engineering (CASE)*. IEEE. 2015, pp. 580–585
- Fatemeh Panahi, **Aviv Adler**, A Frank van der Stappen, and Ken Goldberg. "An efficient proximity probing algorithm for metrology". In: *2013 IEEE International Conference on Automation Science and Engineering (CASE)*. IEEE. 2013, pp. 342–349

Journal

- **Aviv Adler**, Oscar Mickelin, Ragesh K Ramachandran, Gaurav S Sukhatme, and Sertac Karaman. "The Role of Heterogeneity in Autonomous Perimeter Defense Problems". In: *To appear in: International Journal of Robotics Research*. 2023
- **Aviv Adler**, Jennifer Tang, and Yury Polyanskiy. "Efficient Representation of Large-Alphabet Probability Distributions". In: *IEEE Journal on Selected Areas in Information Theory* 3.4 (2022), pp. 651–663
- **Aviv Adler**, Mark de Berg, Dan Halperin, and Kiril Solovey. "Efficient Multi-Robot Motion Planning for Unlabeled Discs in Simple Polygons". In: *IEEE Transactions on Automation Science and Engineering* 12.4 (2015), pp. 1309–1317
- **Aviv Adler**, Fatemeh Panahi, A Frank van der Stappen, and Ken Goldberg. "Efficient proximity probing algorithms for metrology". In: *IEEE Transactions on Automation Science and Engineering* 12.1 (2014), pp. 84–95
- **Aviv Adler** and Ilan Adler. "Fundamental Transformations of Sudoku Grids". In: *Mathematical Spectrum* 41.1 (2008), p. 2009 (**Best Student Paper of the Year**)

Preprint

- Jennifer Tang, [Aviv Adler](#), Amir Ajorlou, and Ali Jadbabaie. *Estimating True Beliefs from Declared Opinions*. 2023. arXiv: 2310.17171 [eess.SY]
- [Aviv Adler et al.](#) *The Teenager's Problem: Efficient Garment Decluttering With Grasp Optimization*. 2023. arXiv: 2310.16951 [cs.R0]
- Jennifer Tang, [Aviv Adler](#), Amir Ajorlou, and Ali Jadbabaie. *Stochastic Opinion Dynamics under Social Pressure in Arbitrary Networks*. 2023. arXiv: 2308.09275 [eess.SY]
- [Aviv Adler](#), Oren Gal, and Sertac Karaman. *Agility and Target Distribution in the Dynamic Stochastic Traveling Salesman Problem*. 2023. arXiv: 2302.00243 [cs.R0]
- [Aviv Adler](#), Joshua Ani, Lily Chung, Michael Coulombe, Erik D Demaine, Yevhenii Diomidov, Dylan Hendrickson, and Jayson Lynch. "This Game Is Not Going To Analyze Itself". In: *arXiv preprint arXiv:2302.01145* (2023)

Awards and Honors

2013	Melvin Morris Goldberg Fellowship for Research in Israel
2008	Best Student Paper of the Year, <i>Mathematical Spectrum</i>

Teaching Experience

Fall 2022	Teaching Assistant for 6.7900: Machine Learning, MIT <i>Prepared and gave recitations; held office hours and answered student questions online; prepared and graded homework and exams</i> Teaching Evaluations: Average 6.4/7.0, Median 6.5/7.0
Fall 2018	Teaching Assistant for 6.436/15.085: Fundamentals of Probability, MIT <i>Prepared and gave recitations; held office hours and answered student questions online; prepared and graded homework and exams</i> Teaching Evaluations: Average 5.5/7.0, Median 6.0/7.0

Industry Experience

Summer 2012	Siemens Corporate Research <i>Research Intern</i> Developed and tested software for automatically tracking changes in documents
Summer 2010	Nomis Solutions <i>Research Intern</i> Researched the Canadian mortgage market; developed and tested customer behavior models to study price optimization

University and Professional Service

2023	Toyota Research Institute (TRI) sponsor coordinator for AUTOLAB
2015-2023	Reviewer of 40+ conference and journal papers, including for: <ul style="list-style-type: none">• IEEE International Conference on Robotics and Automation (ICRA)• IEEE Conference on Automation Science and Engineering (CASE)• IEEE International Conference on Intelligent Robots and Systems (IROS)• International Workshop on Algorithmic Foundations of Robotics (WAFR)• Robotics Science and Systems (RSS)• IEEE Conference on Decision and Control (CDC)• American Control Conference (ACC)• Neural Information Processing Systems (NeurIPS)• IEEE Robotics and Automation Letters (RA-L)• IEEE Transactions on Robotics (TR-O)• Discrete Optimization
2018	MIT Theory Retreat, Chief Organizer
2017	MIT Theory Retreat, Safety Officer