Matthew Faw

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Research Interests

Stochastic Optimization, Online Decision-Making, Reinforcement Learning and Control

Education

2024–present	**ARC Postdoctoral Fellow**, *Georgia Institute of Technology*, Atlanta, GA. Mentors: Siva Theja Maguluri, Sahil Singla
2018–2024	**Ph.D. ECE (Thesis: Adaptive Algorithms for Stochastic Optimization and Bandit Learning)**, *The University of Texas at Austin*, Austin, TX. Advisors: Sanjay Shakkottai, Constantine Caramanis.
2013–2017	**B.S.E. Electrical & Computer Engineering, B.S. Computer Science, A.B. Math**, *Duke University*, Durham, NC. Advisors: Nick Buchler, Richard Fair, Benjamin C. Lee

Publications (Google Scholar)

In Submission

2026	"Online Control with Multiple Sensors", **F**, S. T. Maguluri

Conference Papers

ICML 2025	"On Mitigating Affinity Bias through Bandits with Evolving Biased Feedback", **F**, C. Caramanis, J. Hoffmann
ICML 2025	"In-Context Fine-Tuning for Time-Series Foundation Models", **F**, R. Sen, Y. Zhou, A. Das
COLT 2023	"Beyond Uniform Smoothness: A Stopped Analysis of Adaptive SGD", **F**$^=$, L. Rout$^=$, C. Caramanis, S. Shakkottai
COLT 2022	"The Power of Adaptivity in SGD: Self-Tuning Step Sizes with Unbounded Gradients and Affine Variance", **F**$^=$, I. Tziotis$^=$, C. Caramanis, A. Mokhtari, S. Shakkottai, R. Ward
SIGMETRICS 2022	"Learning To Maximize Welfare with a Reusable Resource", **F**$^=$, O. Papadigenopoulos$^=$, C. Caramanis, S. Shakkottai
SODA 2022	"Single-Sample Prophet Inequalities via Greedy-Ordered Selection", C. Caramanis, P. Dütting, **F**, P. Lazos, S. Leonardi, O. Papadigenopoulos, E. Pountourakis, R. Reiffenhäuser (alphabetical order)
NeurIPS 2020	"Mix and Match: An Optimistic Tree-Search Approach for Learning Models from Mixture Distributions", **F**, R. Sen, K. Shanmugam, C. Caramanis, S. Shakkottai

Journal Papers

Theory of Computing 2026	"Single-Sample Prophet Inequalities via Greedy-Ordered Selection", C. Caramanis, P. Dütting, **F**, P. Lazos, S. Leonardi, O. Papadigenopoulos, E. Pountourakis, R. Reiffenhäuser (alphabetical order)
POMACS 2022	"Learning To Maximize Welfare with a Reusable Resource", **F**$^=$, O. Papadigenopoulos$^=$, C. Caramanis, S. Shakkottai
TOCS 2017	"Computational Sprinting: Architecture, Dynamics, and Strategies", S. Zahedi, S. Fan, **F**, E. Cole, B. Lee

Awards + Honors

2023	Dr. Brooks Carlton Fowler Endowed Presidential Graduate Fellowship in ECE, 2023-2024 academic year
2022	Top 10% reviewer for NeurIPS'22 and AISTATS'22, Highlighted reviewer for ICLR 2022
2020	NXP Foundation Fellowship, 2020-2021 academic year
2017	Cum Laude Graduation Honors, Duke University

2016	Member, Tau Beta Pi and Eta Kappa Nu Honor Societies, Duke University
2014	Gold medal, International Genetically Engineered Machine Competition

Talks and Poster Presentations

Invited Talks

October 2025	INFORMS Job Market Showcase, Atlanta, GA: "Optimal Control with Multiple Sensors"
July 2025	INFORMS APS Conference, Atlanta, GA: "Fundamental Limits of Regret Minimization in Stochastic Bandits with Evolving Biased Feedback"
February 2025	Google Research, (Virtual): "Order-Optimal Convergence Rates with Adaptive SGD"
October 2024	INFORMS Annual Meeting, Seattle, WA: "Order-Optimal Convergence Rates with Adaptive SGD"
March 2024	Georgia Tech ARC Colloquium, Atlanta, GA: "The Power of Adaptivity in SGD"

Talks

July 2023	COLT 2023, Bangalore, India: "Beyond Uniform Smoothness: A Stopped Analysis of Adaptive SGD"
April 2023	IFML Workshop, UW "Beyond Uniform Smoothness: A Stopped Analysis of Adaptive SGD"
July 2022	COLT 2022, London, UK: "The Power of Adaptivity in SGD: Self-Tuning Step Sizes with Unbounded Gradients and Affine Variance"
June 2022	SIGMETRICS 2022, IIT Bombay, Mumbai, IN: "Learning To Maximize Welfare with a Reusable Resource"
April 2022	Machine Learning Lab Research Symposium, UT Austin: "The Power of Adaptivity in SGD: Self-Tuning Step Sizes with Unbounded Gradients and Affine Variance"
January 2022	SODA 2022, Virtual: "Single Sample Prophet Inequalities via Greedy-Ordered Selection"

Poster Presentations

October 2022	Joint IFML/Data-Driven Decision Processes Workshop, Simons Institute, UC Berkeley, "The Power of Adaptivity in SGD: Self-Tuning Step Sizes with Unbounded Gradients and Affine Variance"
December 2020	NeurIPS 2020, Virtual, "Mix and Match: An Optimistic Tree-Search Approach for Learning Models from Mixture Distributions"
November 2019	Texas Wireless Summit, UT Austin, "Mix and Match: An Optimistic Tree-Search Approach for Learning Models from Mixture Distributions"

Conference Reviewing

2021-Present	AISTATS, ALT, ICLR, ICML, JMLR, NeurIPS

Industry Experience

March–Sept. 2025	**Visiting Researcher**, *Google Research*, Remote.
June-Sept. 2024	**Ph.D. Student Researcher**, *Google Research*, Mountain View, CA.
June'17-July'18	**Software Engineer**, *Verato*, McLean, VA.
May-Aug 2016	**Software Engineering Intern, Stateflow Semantics**, *MathWorks*, Natick, MA.

Undergraduate Research Experience

Jan-Dec 2016	**Datacenter Architecture**, *Advisor: Dr. Benjamin Lee*, Duke University.
Jan-Dec 2015	**Microfluidics**, *Advisor: Dr. Richard Fair*, Duke University.
May-Nov 2014	**Synthetic Biology**, *Advisor: Dr. Nick Buchler*, Duke University.

Teaching Experience

Georgia Tech	ISyE 3770 Statistics and Applications *Instructor*
UT Austin	EE 460J Data Science Lab *TA*

Duke CS 308 Software Design and Implementation *TA*, ECE 280 Signals & Systems *TA*, Synthetic Biology House Course *Co-Instructor*

Graduate Coursework

UT Austin Probability & Stochastic Processes, Advanced Probability, Stochastic Processes I, Theoretical Statistics, Online Learning, Large Scale Optimization I & II, Combinatorial Optimization, Sublinear Algorithms, Markov Chains & Mixing Times, Combinatorics & Graph Theory, Analysis & Design of Communication Networks

Technical Skills

Programming Python, Java, C/C++, JavaScript
Infrastructure Kubernetes, AWS, Google Cloud, Mongo, Solr

References

Sanjay Shakkottai, UT Austin, sanjay.shakkottai@utexas.edu

Constantine Caramanis, UT Austin, constantine@utexas.edu

Siva Theja Maguluri, Georgia Institute of Technology, siva.theja@gatech.edu