

Tavor Baharav

CONTACT INFORMATION	<i>Email:</i> tavorb@stanford.edu	<i>Web:</i> www.tavorb.com
RESEARCH INTERESTS	Randomized algorithms, machine learning, multi-armed bandits, and their applications in engineering problems and computational biology.	
EDUCATION	Stanford University Ph.D., Electrical Engineering, expected graduation 2023 Advisor: David Tse	Sept 2018 - Present
	University of California, Berkeley B.S., Electrical and Computer Engineering, Highest Honors Mathematics minor GPA: 4.00	Aug 2014 - May 2018
RELEVANT COURSEWORK	Computer Science: Algorithms, Artificial Intelligence, Databases, Machine Learning, Spectral Graph Theory, Randomized Algorithms, Matching Theory Electrical Engineering: Random Processes, Convex Optimization, Convex Optimization and Approximation, Information Theory, Advanced Topics in Information Theory Mathematics: Linear Algebra, Abstract Algebra, Numerical Analysis, Real Analysis, Complex Analysis	
RESEARCH	Multi-Armed Bandits: Prof. David Tse <i>Stanford ISL (Information Systems Laboratory)</i> <ul style="list-style-type: none">Designed and implemented multi-armed bandit based randomized algorithms for efficiently solving certain computation and optimization problemsDesigned a spectral algorithm for efficiently estimating pairwise alignment of DNA reads	July 2018 - Present
	Amazon Applied Scientist Intern: hosted by Prof. Sujay Sanghavi <i>Frequency aware hierarchical clustering</i> <ul style="list-style-type: none">Designed information theory inspired hierarchical clustering schemes for Extreme Multilabel Classification (XMC) for Amazon Search	Spring 2020
	Information Theory: Prof. Kannan Ramchandran <i>BLISS (Berkeley Laboratory for Information and System Sciences)</i> <ul style="list-style-type: none">Studied use of codes to mitigate effect of stragglers on large scale distributed computationAnalyzed high dimensional product codes and deterministically generated LDPC ensemblesDeveloped C++ testing framework for Sparse Walsh-Hadamard Transform	Apr 2016 - July 2018
	Image Processing: Prof. Avideh Zakhor <i>VIP Lab (Video and Image Processing Lab)</i> <ul style="list-style-type: none">In situ plant stem width estimation in 2.5d images research with TERRA MEPPCollaborated with groups in Cornell and UIUC to design robot and guide data collection	May 2015 - Feb 2017
PUBLICATIONS	Tavor Z. Baharav , Daniel L. Jiang, Kedarnath Kolluri, Sujay Sanghavi, Inderjit S. Dhillon. <i>Enabling Efficiency-Precision Trade-offs for Label Trees in Extreme Classification</i> . ACM International Conference on Information and Knowledge Management (CIKM), 2021. Vivek Bagaria*, Tavor Z. Baharav* , Govinda M. Kamath*, David N. Tse. <i>Bandit-based Monte Carlo Optimization for Nearest Neighbors</i> . IEEE Journal on Selected Areas of Information Theory, 2021.	

Itai Bistriz, **Tavor Z. Baharav**, Amir Leshem, Nicholas Bambos. *One for All and All for One: Distributed Learning of Fair Allocations with Multi-player Bandits*. IEEE Journal on Selected Areas of Information Theory, 2021.

Govinda M. Kamath*, **Tavor Z. Baharav***, Ilan Shomorony. *Adaptive Learning of Rank-One Models for Efficient Pairwise Sequence Alignment*. Advances in Neural Information Processing Systems (NeurIPS), 2020.

Tavor Z. Baharav*, Govinda M. Kamath*, David N. Tse, Ilan Shomorony. *Spectral Jaccard Similarity: A new approach to estimating pairwise sequence alignments*. Cell Press: Patterns (Patterns), 2020.

Itai Bistriz, **Tavor Z. Baharav**, Amir Leshem, Nicholas Bambos. *My Fair Bandit: Distributed Learning of Max-Min Fairness with Multi-player Bandits*. International Conference on Machine Learning (ICML), 2020.

Tavor Z. Baharav*, Govinda M. Kamath*, David N. Tse, Ilan Shomorony. *Spectral Jaccard Similarity: A new approach to estimating pairwise sequence alignments*. International Conference on Research in Computational Molecular Biology (RECOMB), 2020.

Tavor Z. Baharav, David Tse. *Ultra Fast Medoid Identification via Correlated Sequential Halving*. Advances in Neural Information Processing Systems (NeurIPS), 2019.

Tavor Z. Baharav, Kangwook Lee, Orhan Ocal, Kannan Ramchandran. *Straggler-proofing massive-scale distributed matrix multiplication with d-dimensional product codes*. IEEE Int. Symp. on Inf. Theory (ISIT) 2018.

Tavor Baharav, Mohini Bariya, Avidah Zakhor. *In Situ Height and Width Estimation of Sorghum Plants from 2.5d Infrared Images*. Electronic Imaging (EI), 2017.

HONORS AND AWARDS	SIGIR Student Travel Award for CIKM	2021
	RECOMB 2020 travel fellowship	2020
	NSF Graduate Research Fellowship (3 years)	2018
	Stanford Graduate Fellowship (Alcatel-Lucent Fellow, 3 years)	2018
	UC Berkeley EECS Honors Program	2016
	Eta Kappa Nu and Tau Beta Pi	2015
	UC Berkeley Regents' and Chancellor's Scholar	2014-2018

TEACHING EXPERIENCE	<i>Head Undergraduate Student Instructor</i> , EE126 (Random Processes)	Spring 2018
	<ul style="list-style-type: none"> Helped scale the course from 70 students in Spring 2017 to over 200 students in 2018 Taught weekly discussion sections, coordinated a course staff of 11 TAs and graders Created exams as well as lab and homework assignments 	
	<i>Undergraduate Student Instructor</i> , EE126 (Random Processes)	Spring 2017
	<i>Reader</i> , CS70 (Discrete Math and Probability), CS170 (Algorithms)	Fall 2015, Spring 2016
	<ul style="list-style-type: none"> Mentored students, graded assignments, and hosted office hours 	

TECHNICAL SKILLS	Programming: Python, C++ Languages: English (native), Hebrew (native)
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PROFESSIONAL SERVICE	Organizer for Stanford's ISL Colloquium (ISLC)	Winter 2019 - Present
	Reviewer for IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Access, International Symposium on Information Theory	

SERVICE	Eta Kappa Nu, Mu Chapter:	Fall 2015 - May 2018
	<ul style="list-style-type: none"> <i>Community Service Officer</i>, Spring 2016 	

- Led HKN in organizing its first local community focused event for high school students
 - Included a faculty speaker, student panels, and custom CS and circuits labs
- Events *continued*, attracting over 50 students from local Oakland High Schools
- *Treasurer*, Fall 2016
 - Managed budget and allocated finances for club of over 100 active members