Karthik Abinav Sankararaman

Department of Computer Science University of Maryland, College Park

Contact Information	Phone: (+1) 240-715-5910 Address: A.V. Williams Building, UMD, College Park MD - 20742			
	Webpage: karthikabinavs.xyz Email: kabinav@cs.umd.edu			
Interests	orithms, Machine Learning, Artificial Intelligence, Operations Research			
Education	University of Maryland, College Park			
	PhD. in Computer ScienceSeptember 2014 - May 2019 (Expected)M.S. in Computer ScienceDecember 2016			
	Advisor: Dr. Aravind Srinivasan			
	Indian Institute of Technology, Madras August 2010 - July 2014			
	B.Tech Honours in Computer Science and Engineering GPA • 9.01/10			
	Minor: Operations Research			
	Thesis: Maximum Flow Problem in Undirected Graphs Advisor: Dr. N.S. Narayanaswamy			
	Advisor. D1. 10.5. Narayanaswaniy			
Honors	• Selected as a <i>Future Faculty Fellow</i> UMD, 2018			
	• Dean's Fellowship: University of Maryland, 2014, 2015			
	 Recipient of the S.N. Bose Scholarship 2013 given to top 50 Indian students. Awardon of the National Talant Scarab Examination (NTSE) Scholarship 			
	Awardee of the National Talent Search Examination(NTSE) Scholarship.			
	• 14th and 16th position in ICPC Mid-Atlantic regionals 2014 and ICPC Asia-Amritapuri region- als 2013 respectively.			
SELECTED PUBLICATIONS (Author ordering alphabetically by last name unless	1. "Matching Workers to Tasks in Crowdsourcing Platforms: Two-Sided Online Matching" — Joint work with John Dickerson, Aravind Srinivasan, Pan Xu The 17th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)			
	2018 (Acceptance: $151/597 \sim 25\%$)			
	2. "Combinatorial Semi-Bandits with Knapsacks" — Joint work with Alexandrs Slivkins The 21st International Conference on Artificial Intelligence and Statistics (AIStats), 2018 — (Invited for Oral Presentation)			
which indicates	(Acceptance: $29/214/645 \sim 5\%$ (of submissions), 15% (of accepted papers))			
primary author(s) by contribution)	3. "Allocation Problems in Ride-Sharing Platforms: Online Matching with Offline Reusable Re- sources" — Joint work with John Dickerson, Aravind Sriniyasan, Pan Xu			
	The 32th AAAI Conference on Artificial Intelligence (AAAI), 2018 — (Invited for Oral Presentation) (Acceptance: 933/3800 ~ 25%)			
N.B.: Conferences are the primary venues of publication in Computer Science.	 4. "Algorithms to Approximate Column-Sparse Packing Problems" — Joint work with Brian Brubach, Aravind Srinivasan, Pan Xu The 29th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018 (Acceptance: 180/625 ~ 29%) 			
	5. "Attenuation-based Frameworks for Online Stochastic Matching with Timeouts" — Joint work			
	with Brian Brubach, Aravind Srinivasan, Pan Xu The 16th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2017 (Acceptance: $155/595 \sim 26\%$)			
	6. "New Algorithms, Better Bounds, and a Novel Model for Online Stochastic Matching"— Joint			
	work with Brian Brubach, Aravind Srinivasan, Pan Xu The 24th Annual European Symposium on Algorithms (ESA), 2016 (Acceptance: $76/282 \sim 27\%$)			
	 7. "Ensuring Privacy in Location-Based Services: An Approach Based on Opacity Enforcement" — Joint work with Yi-Chin Wu, Stèphane Lafortune The 14th International Workshop of Discrete Event Systems (WODES), 2014 			

Research	Causal Inference	May 2017 - Present
Experience	Part of this project conducted as a visitor to Indian Institute of Sca and Microsoft Research, Bangalore during May-July 2017 Joint work with Navin Goyal, Anand Louis	ience
	Working on algorithmic problems in theory of causal inference.	
	Bandit Algorithms and Online Learning	August 2016 - Present
	University of Maryland, College Park	
	Working on Bandit algorithms with global budget constraints.	
	Stochastic Optimization, Economics and Algorithms, Discr Learning	rete Optimization in Machine August 2014 - Present
	University of Maryland, College Park Joint works on multiple projects with Brian Brubach, John Dickers Working on multiple problems such as crowdsourcing algorithms, b problems, sub-modular optimization.	ion, Aravind Srinivasan, Pan Xu budgeted allocation and matching
	Algorithms for Maximum Flow,	
	Graph Sparsification and related problems Indian Institute of Technology Madras	Aug 2013 - Aug 2014
	Area of Work: Spectral Graph Theory, Convex Optimization Joint work with Narayanaswamy N.S.	
	Privacy in Location Based Services	May - July 2013
	University of Michigan, Ann Arbor	
	Joint work with Yi-Chin Wu, Stèphane Lafortune	
Professional Experience	Microsoft Research New York City, NY	Summer 2018
	Mentors: Nicole Immorlica, Rob Schapire, Alex Slivkins	
	IBM Almaden Research Center, San Jose, CA	Summer 2016
	Manager: Shivakumar Vaithyanathan, Mentor: Prithviraj Sen Remote Collaboration Fall 2016/Spring 2017.	
	Technical Report — <i>Karthik Abinav Sankararaman</i> , Prithviraj S Das, Seoyoung Kim, Rajasekhar Krishnamurthy, Shivakumar Vaith Nowcasting with LSTM's and Imperfect Information"'	en, Marina Danilevsky, Sanjiv R nyanathan "Financial Time-Series
	Adobe Inc., San Jose, CA Algorithms Team headed by Anil Kamath; Mentor: Fangpo Wang	Summer 2015
Teaching Experience	Teaching Assistant, University of Maryland CMSC250 - Discrete Structures (2 sems.), CMSC131- Intro to Progr Advanced Algorithms (4 sems.)	amming (2 sems.), CMSC451/651-
	<i>Responsibilities</i> : Guest Lectures, Conducting Discussion Sessions, Office Hours, Grading	
	Teaching Assistant, Indian Institute of Technology, Madra	S
	Responsibilities: Grading Programming Assignments	
Miscellaneous	External Reviewer: Transactions on Algorithms (TALG), Netw Graduate Admissions Comittee: Department of Computer Se Graduate Executive Council: Secretary 2017	vorks, AAMAS, EC, NIPS, ICLR cience, UMD, 2016, 2017, 2018
	CATS organizer: 2016-2017	
	Grants: FOCS 2010 Travel Award, UMD CS Travel Award (2) Goldhaber Travel Award (2018), ICSSA Travel Award (2018), AIS	tats 2018 Travel Grant

Selected	TALKS
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- New Algorithms for Online Stochastic Matching

 IBM Almaden Center, Theory Group
 IBM Almaden Center, Machine Learning Group
- 2. Algorithms to Approximate Column-Sparse Packing Problems
 - Symposium on Discrete Algorithms (SODA), 2018
 - Indian Institute of Technology, Madras
- 3. Combinatorial Semi-Bandits with Knapsacks
 - International Conference on Artificial Intelligence and Statistics (AISTATS), 2018
 - (parts of this work) Indian Institute of Science, Bengaluru
 - Indian Institute of Technology, Madras
- Working Papers/Manuscripts
- "Balancing Relevance and Diversity in Online Matching via Submodularity" Joint work with John Dickerson, Aravind Srinivasan, Pan Xu Under Review 2018
- "Mix and Match: Markov Chains and Mixing Times for Matching in Rideshare" Joint work with John Dickerson, Aravind Srinivasan, Pan Xu Under Review 2018
- 3. "Why is SGD so fast for neural nets and other over-parameterized problems?" Karthik A Sankararaman*, Soham De*, Zheng Xu, Ronny Huang, Tom Goldstein Under Review 2018
- 4. "Online Stochastic Matching: New Algorithms and Bounds"— Joint work with Brian Brubach, Aravind Srinivasan, Pan Xu Under review Algorithmica — Short version previously appeared at ESA-2016
- 5. "Algorithms to Approximate Column-Sparse Packing Problems" Joint work with Brian Brubach, Aravind Srinivasan, Pan Xu Under review Transactions of Algorithms (TALG) — Short version appeared in SODA-2018
- "Attenuation-based Frameworks for Online Stochastic Matching with Timeouts" Joint work with Brian Brubach, Aravind Srinivasan, Pan Xu Under review Algorithmica — Short version appeared in AAMAS-2017