

Karthik Abinav Sankararaman

June 2017

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

Design, Analysis and Applications of Algorithms, Machine Learning, Operations Research

EDUCATION

University of Maryland, College Park

PhD. in Computer Science

September 2014 - Present

M.S. in Computer Science

December 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

PUBLICATIONS (AUTHORS ORDERED BY ALPHABETICAL ORDER)

- Brian Brubach, **Karthik A Sankararaman**, Aravind Srinivasan, Pan Xu “Attenuate Locally, Win Globally: Attenuation-based Frameworks for Online Stochastic Matching with Timeouts”, *Proceedings of the 16th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2017*
- Brian Brubach, **Karthik A Sankararaman**, Aravind Srinivasan, Pan Xu “New Algorithms, Better Bounds, and a Novel Model for Online Stochastic Matching”, *Proceedings of the 24th Annual European Symposium on Algorithms (ESA), 2016*
Journal Version under submission to Mathematics of Operations Research
- Yi-Chin Wu, **Karthik Abinav Sankararaman**, Stéphane Lafortune “Ensuring Privacy in Location-Based Services: An Approach Based on Opacity Enforcement”, *Proc. of the 14th International Workshop of Discrete Event Systems, pages 33-38, 2014*

MANUSCRIPTS

- John Dickerson, **Karthik Abinav Sankararaman**, Aravind Srinivasan, Pan Xu “Online Matching with Offline Reusable Resources”, *Under Submission, 2017*
- **Karthik Abinav Sankararaman**, Alexandrs Slivkins “Semi-Bandits with Knapsacks”, *Under Submission, 2017*
- Brian Brubach, **Karthik Abinav Sankararaman**, Aravind Srinivasan, Pan Xu “Algorithms to Approximate Column-Sparse Packing Problems”, *Under Submission, 2017*

HONORS

- **Dean’s Fellowship:** University of Maryland, 2014, 2015
- Recipient of the *S.N. Bose Scholarship* 2013 given to **top 50** Indian students.
- Awardee of the *National Talent Search Examination(NTSE)* Scholarship.
- 14th and 16th position in ICPC Mid-Atlantic regionals 2014 and ICPC Asia-Amritapuri regionals 2013 respectively.

RESEARCH EXPERIENCE

Bandit Algorithms and Online Learning

August 2016 - Present

University of Maryland, College Park

Joint work with Alex Slivkins

Working on Bandit algorithms with global budget constraints.

Stochastic Optimization, Randomized Algorithm Design

August 2014 - Present

University of Maryland, College Park

Joint work with Brian Brubach, Pan Xu, Aravind Srinivasan

Working on multiple problems in Stochastic Matching and other Stochastic Optimization Problems

	Theory of Causal Inference	May 2017 - Present
	<i>Visitor Indian Institute of Science, Microsoft Research, Bangalore</i> <i>Joint work with Navin Goyal, Anand Louis</i> Working on algorithmic problems in theory of causal inference.	
	Algorithms for Maximum Flow, Graph Sparsification and related problems	Aug 2013 - Aug 2014
	<i>Indian Institute of Technology, Madras</i> <i>Area of Work: Spectral Graph Theory, Convex Optimization</i> <i>Joint work with Narayanaswamy N.S.</i>	
	Privacy in Location Based Services	May - July 2013
	<i>University of Michigan, Ann Arbor</i> <i>Area of Work: Cyber Security</i> <i>Joint work with Yi-Chin Wu, Stéphane Lafortune</i>	
TEACHING EXPERIENCE	Teaching Assistant, University of Maryland <i>CMSC250 - Discrete Structures, CMSC131- Intro to Programming, CMSC451- Design and Analysis of Computer Algorithms</i> <i>Responsibilities: Conducting Discussion Sessions, Office Hours, Grading Homeworks and Exams</i>	
	Teaching Assistant, Indian Institute of Technology, Madras <i>Paradigms of Programming</i> <i>Responsibilities: Grading Programming Assignments</i>	
PROFESSIONAL EXPERIENCE	IBM Almaden Research Center, San Jose, CA <i>Mentor: Prithviraj Sen</i> <i>Inter-disciplinary project on Machine Learning and Economics</i>	Summer 2016
	Adobe Inc., San Jose, CA <i>Algorithms Team headed by Anil Kamath; Mentor: Fangpo Wang</i> <i>Database algorithms</i>	Summer 2015
CLASS PROJECTS	Lower Bounds for Fault Tolerant Facility Placement Problem	Fall 2014
	<i>Class: Algorithmic Lower Bounds</i> <i>Joint work with Thomas Pensyl, Bartosz Rybicki, Mohammad Taghi Hajiaghayi(Instructor)</i>	
	Relation between recursive teaching dimension and VC dimension	Fall 2015
	<i>Class: Machine Learning</i> <i>Joint work with Sina Dehghani, Neal Gupta, Aravind Srinivasan(Instructor)</i>	
	Community detection in Public-Private Graph models	Fall 2015
	<i>Class: Network Design</i> <i>Joint work with Brian Brubach, Soheil Ehsani, Mohammad Taghi Hajiaghayi(Instructor)</i>	
MISCELLANEOUS	External Reviewer: Transactions on Algorithms(TALG), Networks Graduate Admissions Committee: Department of Computer Science, UMD, 2016, 2017 Travel Grants: FOCS 2016	
GRADUATE COURSEWORK	University of Maryland, College Park: Algorithmic Lower Bounds (M.T. Hajiaghayi), Logic and Artificial Intelligence (V.S.), Randomized Algorithms (A.Srinivasan), Statistical Learning for Biology (Z.Khan), Machine Learning (A.Srinivasan), Network Design Algorithms (M.T. Hajiaghayi), Convex Optimization (M.Rotkowitz), Computational Journalism (N.Diakopoulos), Bandit Theory (Guest class by Alex Slivkins)	
	Indian Institute of Technology, Madras: Complexity Theory (Jayalal Sarma), Approximation Algorithms (Narayanaswamy N.S.), Algorithmic Algebra (Jayalal Sarma), Cryptography (C.Pandu Rangan), Convex Optimization (Krishna Jagannathan), Theory Toolkit (J.Sarma, Narayanaswamy N.S., Ragavendra Rao), Communication Complexity (J.Sarma)	