

Karthik Abinav Sankararaman

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Department of Computer Science
University of Maryland, College Park

CONTACT INFORMATION

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INTERESTS

Algorithms, Machine Learning, Artificial Intelligence, Operations Research

EDUCATION

University of Maryland, College Park

PhD. in Computer Science

September 2014 - August 2019 (Expected)

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

SELECTED PUBLICATIONS

(As per
tradition, author
names are
ordered
alphabetically by
last name)

1. “[Allocation Problems in Ride-Sharing Platforms: Online Matching with Offline Reusable Resources](#)” — Joint work with John Dickerson, Aravind Srinivasan, Pan Xu
Proceedings of the 32th AAAI Conference on Artificial Intelligence (AAAI), 2018
2. “[Algorithms to Approximate Column-Sparse Packing Problems](#)” — Joint work with Brian Brubach, Aravind Srinivasan, Pan Xu
Proceedings of the 29th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 2018
3. “[Attenuation-based Frameworks for Online Stochastic Matching with Timeouts](#)” — Joint work with Brian Brubach, Aravind Srinivasan, Pan Xu
Proceedings of the 16th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2017
4. “[New Algorithms, Better Bounds, and a Novel Model for Online Stochastic Matching](#)” — Joint work with Brian Brubach, Aravind Srinivasan, Pan Xu
Proceedings of the 24th Annual European Symposium on Algorithms (ESA), 2016
Full Version under submission to Mathematics of Operations Research
5. “Ensuring Privacy in Location-Based Services: An Approach Based on Opacity Enforcement” — Joint work with Yi-Chin Wu, Stéphane Lafortune
Proc. of the 14th International Workshop of Discrete Event Systems (WODES), 2014

MANUSCRIPTS

1. “[Combinatorial Semi-Bandits with Knapsacks](#)” — Joint work with Alexandrs Slivkins
Under review AISTATS-2018
2. “Budgeted Online Assignment in Crowdsourcing Markets: Theory and Practice” — Joint work with Kanthi K. Sarpatwar, Aravind Srinivasan, Kun-Lung Wu, Pan Xu
Under review WWW-2018
3. “Matching Workers to Tasks in Crowdsourcing Platforms: Two-Sided Online Matching” — Joint work with John Dickerson, Aravind Srinivasan, Pan Xu
Under review AAMAS-2018

HONORS

- Nominated by the UMD CS department for IBM PhD fellowship, 2017
- **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	Causal Inference May 2017 - Present <i>Part of this project conducted as a visitor to Indian Institute of Science and Microsoft Research, Bangalore during May-July 2017</i> <i>Joint work with Navin Goyal, Anand Louis</i> Working on algorithmic problems in theory of causal inference.
	Bandit Algorithms and Online Learning August 2016 - Present <i>University of Maryland, College Park</i> <i>Joint work with Alex Slivkins</i> Working on Bandit algorithms with global budget constraints.
	Stochastic Optimization, Economics and Algorithms August 2014 - Present <i>University of Maryland, College Park</i> <i>Joint works on multiple projects with Brian Brubach, John Dickerson, Aravind Srinivasan, Pan Xu</i> Working on multiple problems such as crowdsourcing algorithms, budgeted allocation and matching problems.
	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>
TEACHING EXPERIENCE	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 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 Summer 2016 <i>Manager: Shivakumar Vaithyanathan, Mentor: Prithviraj Sen</i> <i>Inter-disciplinary project on Algorithms, Machine Learning and Finance</i> Paper —Karthik Abinav Sankararaman, Prithviraj Sen, Marina Danilevsky, Sanjiv R Das, Seoyoung Kim, Rajasekhar Krishnamurthy, Shivakumar Vaithyanathan “Financial Time-Series Nowcasting with LSTM’s and Imperfect Information”, <i>Under Review SDM-2018</i>
	Adobe Inc., San Jose, CA Summer 2015 <i>Algorithms Team headed by Anil Kamath; Mentor: Fangpo Wang</i> <i>Database algorithms</i>
MISCELLANEOUS	External Reviewer: Transactions on Algorithms (TALG), Networks Graduate Admissions Committee: Department of Computer Science, UMD, 2016, 2017 Graduate Executive Council: Secretary 2017 CATS organizer: 2016-2017 Travel Grants: FOCS 2016, UMD CS Travel Award (2017)

COLLABORATORS Brian Brubach (UMD), Yi-Chin Wu (UMich), John Dickerson (UMD), Navin Goyal (Microsoft Research), Stéphane Lafortune (UMich), Anand Louis (IISc), Kanthi K. Sarpatwar (IBM Research), Prithviraj Sen (IBM Research), Aleksandrs Slivkins (Microsoft Research), Aravind Srinivasan (UMD), Kun-Lung Wu (IBM Research), Pan Xu (UMD)