

Sharmila Duppala

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EDUCATION **University of Maryland**, College Park, Maryland, USA Aug 2019–Present
M.S./Ph.D. in Computer Science, Department of Computer Science

Stony Brook University, New York, USA Jul 2017–May 2019
M.S. (Thesis), Department of Computer Science

National Institute of Technology Surat, Gujarat, India Jul 2012–May 2016
B.Tech., Department of Computer Science and Engineering

PUBLICATIONS **Concentration of Submodular Functions Under Negative Dependence**
abc Sharmila Duppala, George Z. Li, Juan Luque, Aravind Srinivasan, Renata Valieva
Under submission at ITCS 2023

Probabilistic Proportionally Fair Matching
Sharmila Duppala, Nathaniel Grammel, Juan Luque, Aravind Srinivasan
In preparation

Barter Exchange with Shared Item Valuations
Juan Luque, Sharmila Duppala, John P. Dickerson, Aravind Srinivasan
Under submission at NeurIPS 2023

Algorithms for online matching under random order with degree-dependent competitive ratios
Sharmila Duppala, Pan Xu
In preparation

Group Fairness in Set Packing Problems
Sharmila Duppala, Juan Luque, John P. Dickerson, Aravind Srinivasan
IJCAI 2023

Rawlsian Fairness in Online Bipartite Matching: Two-sided, Group, and Individual
Seyed Esmaeili, Sharmila Duppala, Vedant Nanda, John P. Dickerson, Aravind Srinivasan
AAAI 2023

Online minimum matching with uniform metric and random arrivals
abc Sharmila Duppala, Karthik Sankararaman, Pan Xu
Operations Research Letters 2022

Fair labelled Clustering
Seyed Esmaeili, Sharmila Duppala, Brian Brubach, John P. Dickerson
KDD 2022

Improved MapReduce Load Balancing through Distribution-Dependent Hash Function Optimization
abc Zafar Ahmad, Sharmila Duppala, Rezaul Chowdhury, Steven Skiena
ICPADS 2020

Data Races and the Discrete Resource-time Tradeoff Problem with Resource Reuse over Paths
Rathish Das, Shih-Yu Tsai, Sharmila Duppala, Jason Lynch, Ester Arkin, Rezaul Chowdhury, Joseph Mitchell, Steven Skiena
SPAA 2019

RESEARCH EXPERIENCE	Ph.D. Student, University of Maryland, College Park	Aug 2019–Present
	<i>Algorithmic Fairness and Stochastic Models for Combinatorial Optimization</i>	Prof. John P. Dickerson Prof. Aravind Srinivasan
	Worked on formulating notions of fairness, translating them into rigorous mathematical objects, and incorporating them in classical algorithmic problems. Specifically, fairness in hypergraph matching, online matching, clustering and kidney exchange markets and the role of stochasticity in obtaining fairness, with emphasis on how the latter can ensure socially fair algorithmic solutions.	
	Masters Thesis , Stony Brook University	Jul 2017–May 2019
	<i>Optimizing two systems employing reducers</i>	Prof. Rezaul A. Chowdhury
	Work on approximation algorithms for the <i>Space-Time Trade-off Problem</i> that can simultaneously optimize the memory utilization and the makespan of series-parallel graphs and computational Directed Acyclic Graphs (DAGs) with applications in parallel algorithms.	
	Applied Scientist Internship , Optum Labs	Jul 2017–May 2019
	<i>Clustering text documents (patient transcripts) with overlapping and partial labels</i>	Dr. Carlos W. Morato
KEY COURSES	Graduate Level: Quantum Computing, Modern Discrete Probability, Mechanism Design for Social AI, Algorithmic Lowerbounds, Advanced Algorithms, Computational Geometry, Discrete Mathematics, Computer Vision, Operating Systems, Network Security. Data Science: Deep Learning Theory, Advanced Numerical Optimization, Algorithms in Machine Learning	
POSITIONS OF RESPONSIBILITY	Graduate Teaching Assistant	Jul 2017–May 2021
	Served as a Discussion Leader and responsible for teaching Object Oriented Programming, Advanced Algorithms, Analysis of Algorithms, Computer Systems and Discrete Structures during different semesters.	
	Organizer, CATS (Capital Area Theory Seminar)	Aug 2021–May 2023
	Responsible for co-organizing CS theory weekly seminar and hosting external speakers.	
	Curriculum Designer and Instructor, Girls Talk Math	Jun 2021–Aug 2021
	Responsible for designing curriculum on undergraduate mathematics topics like Group Theory, Network Theory and Quantitative Finance for high school students and conducting educational camps.	
TECHNICAL SKILLS	Programming Languages: C, C++, Java, Python, SQL, PL-SQL, MATLAB, Prolog, Qiskit Platforms/Tools: Linux, Windows, GDB, Eclipse, QEMU, Processing Libraries for Machine Learning: PyTorch, Numpy, Keras, TensorFlow, Jupyter Notebook	
ACADEMIC AWARDS	Chair's Fellowship, University of Maryland, College Park TCS (Theoretical Computer Science) Women Scholarship STOC-2018 ACM Travel Scholarship SPAA-2019 TCS (Theoretical Computer Science) Women Scholarship STOC-2019	
REFERENCES	Prof. Aravind Srinivasan, University of Maryland, College Park Prof. John Dickerson, University of Maryland, College Park Prof. Rezaul Chowdhury, Stony Brook University	email: srin@cs.umd.edu email: johnd@umd.edu email: rezaul@cs.stonybrook.edu