

Yogesh Dahiya

CONTACT INFORMATION	Theoretical Computer Science Group The Institute of Mathematical Sciences Chennai, India	<i>phone:</i> +91 9886936068 <i>e-mail:</i> yogeshdahiya@imsc.res.in yogeshd2612@gmail.com
RESEARCH INTERESTS	Query and Communication Complexity, Sketching Algorithms, Learning Theory	
CURRENT POSITION	Senior Research Fellow The Institute of Mathematical Sciences, Chennai, India.	
EDUCATION	Institute of Mathematical Sciences , Chennai, India. <i>Ph.D. Theoretical Computer Science</i> <i>Advisor:</i> Prof. Meena Mahajan	2018 - present
	Indian Institute of Technology Kanpur , UP, India. <i>MS(Research) Computer Science and Engineering</i> <i>Advisor:</i> Prof. Surender Baswana <i>Thesis Title:</i> <i>Sketching-based Preconditioning for Numerical Linear Algebra</i>	CGPA: 9.60/10 2016 - 2018
	Indian Institute of Technology BHU , Varanasi, India. B.Tech, Electronics and Communication Engineering	CGPA: 8.02/10 2009 - 2013
PREPRINTS	New lower bounds for Polynomial Calculus over non-Boolean bases . With Meena Mahajan and Sasank Mouli. ECCC Report.	
PUBLICATIONS	Query Complexity of Search Problems. With Arkadev Chattopadhyay and Meena Mahajan. In Proceedings of 48th International Symposium on Mathematical Foundations of Computer Science (MFCS 2023). ECCC Report.	
	Linear threshold functions in decision lists, decision trees, and depth-2 circuits. With Vignesh K, Meena Mahajan and Karteeek Sreenivasaiiah. Information Processing Letters, Vol. 183 (106418) (IPL 24). ECCC Report.	
	Randomized Versus Deterministic Decision Tree Size. With Arkadev Chattopadhyay, Nikhil Mande, Jaikumar Radhakrishnan and Swagato Sanyal. In Proceedings of the 55th ACM Symposium on Theory of Computing (STOC 23). ECCC Report.	
	On (simple) decision tree rank. With Meena Mahajan. In Proceedings of the 41st IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2021). Full version to appear in Theoretical Computer Science. ECCC Report.	
	Fixed-Parameter and Approximation Algorithms for PCA with Outliers. With Fedor Fomin, Fahad Panolan, Kirill Simonov. In Proceedings of the 38th International Conference on Machine Learning (ICML 2021).	
	An Empirical Evaluation of Sketching for Numerical Linear Algebra. With Dimitris Kononis, and David P. Woodruff. In Proceedings of 24th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD-18).	
	Discovering Response-Eliciting Factors in Social Question Answering. With Danish and Partha Talukdar. In Proceedings of the 10th International AAAI Conference on Web and Social Media (ICWSM-16).	

ACADEMIC EXPERIENCE	Tata Institute of Fundamental Research , Mumbai, India	
	<i>Visitor</i> (Host: Arkadev Chattopadhyay)	01/2023 - 04/2023
	Worked on problems in Query Complexity.	18/9/22 - 30/9/22
	University of Bergen , Norway	
	<i>Visitor</i> (Host: Saket Saurabh)	05/2019 - 07/2019
	Worked on designing approximation schemes for PCA in the presence of outliers.	
	Indian Institute of Science , Bangalore, India	
	<i>Research Assistant</i> (Advisor: Partha Talukdar)	2015 - 2016
	Worked broadly on representation learning and question answering employing methods from compressed sensing, optimization and topic modelling literature.	
	Indian Institute of Science , Bangalore, India	
	<i>Research Intern</i> (Advisor: Chandra R. Murthy)	05/2013 - 07/2013
	Worked on designing a highly configurable modular test bed for the Cognitive Radio network and analyse the effect of secondary non-licensed users on licensed primary users, in terms of throughput and bit error rate.	
INDUSTRY EXPERIENCE	Flipkart Internet Pvt. Ltd. , Bangalore, India	
	<i>Software Development Engineer</i>	2013 - 2014
	Contributed to building the core of the payment platform which allowed users to pay for their transactions, save cards and use them across websites. Also contributed to developing Aesop an open-source data change propagation system which replicated primary databases to secondary databases online (SQL or NoSQL) while maintaining timeline consistency and transactional boundaries.	
	VizExpert India Pvt. Ltd. , Bangalore, India	
	<i>Member of Technical Staff, Research Intern</i>	05/2012- 07/2012
	Worked on building a pre-processing toolkit for geospatial data using gpgpu methodology. The project required understanding and programming on GPUs.	
TALKS	Presented our paper on Query Complexity of Search Problems at MFCS 23 , Aug 2023.	
	Talk on Time and Space Complexity of Query Algorithms at IMSc 60 event celebrating the 60th foundation year of the Institute of Mathematical Science, Jan 2023.	
	Talk on On (Simple) Decision Tree Rank at IMSc TCS Seminar , Chennai, India, Nov 2021.	
	Talk on Sketching for Numerical Linear Algebra at the summer school on Algorithmic Tractability via Sparsifiers , Leh, India, Oct 2019.	
TEACHING	Teaching Assistant for Randomized Algorithms and Algorithms for Big Data at IMSc, Fall 2019	
	My responsibilities included sharing lecture duties, holding office hours and creating assignments.	
	Teaching Assistant for Randomized Algorithms at IIT Kanpur, Spring 2018	
	My responsibilities included holding office hours and grading assignments. The course was taught by Prof. Surender Baswana	
	Teaching Assistant for Algorithms 2 at IIT Kanpur, Fall 2017	
	My responsibilities included holding office hours, and creating and grading assignments. The course was taught by Prof. Surender Baswana	
ACHIEVEMENTS & ACTIVITIES	<ul style="list-style-type: none"> Ranked in top 0.8% among 400,000 students in the prestigious IIT-JEE Examination 2009 and was ranked among the top 0.6% of the students in All India Engineering Entrance Examination Ranked 2 in Joint Entrance Screening Test(JEST)-2018 in theoretical computer science. Received Academic Excellence Award for academic performance for year 2017. Finished in top 20 in the Inter IIT Programming Contest 2013 and in top 30 in Codesprint 4, international programming contest, organized by Hacker Rank. 	

- Participated in the **AI Science Challenge** hosted at Kaggle, aimed at creating a system for answering 8th-grade multiple-choice science questions. Stood 10th among 170 teams.