

Tushant Mittal

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RESEARCH INTERESTS	Structured constructions of objects (expanders, linear spaces, etc..) with applications to derandomization, complexity theory. More broadly, I like using algebraic techniques to tackle computational problems.	
EDUCATION	Ph.D. Computer Science , University of Chicago, USA M.S. Computer Science , University of Chicago, USA Bachelor of Technology (B.Tech.) , Indian Institute of Technology Kanpur (IITK), India Computer Science and Engineering	2018-Ongoing 2018-2022 2014-2018
RESEARCH EXPERIENCE	Ph.D. Student , University of Chicago, USA Advised by Prof. Madhur Tulsiani and Prof. Janos Simon Undergraduate Research Project , IIT Kanpur Supervised by Prof. Nitin Saxena Research Intern , Université de Montréal Supervised by Prof. Matilde Lalin Research Intern , Indian Institute of Science Education and Research (IISER) Mohali Supervised by Prof. Kapil Paranjape	Oct 2018 - Ongoing Fall 2017 Summer 2017 Summer 2016
PUBLICATIONS	[1] Almost Ramanujan Expanders from Arbitrary Expanders via Operator Amplification arXiv with Fernando G. Jeronimo, Sourya Roy, and Avi Wigderson <i>In Proc. of IEEE Annual Symposium on Foundations of Computer Science, (FOCS) 2022</i> <i>Invited to Special Issue of SIAM Journal of Computing (SICOMP)</i> [2] Explicit Quantum LDPC Codes and Abelian Lifts arXiv with Fernando G. Jeronimo, Ryan O'Donnell, Pedro Paredes, and Madhur Tulsiani <i>In Proc. of 13th Innovations in Theoretical Computer Science Conference (ITCS) 2022</i> [3] Symbolic determinant identity testing and non-commutative ranks of matrix Lie algebras arXiv with Gábor Ivanyos and Youming Qiao <i>In Proc. of 13th Innovations in Theoretical Computer Science Conference (ITCS) 2022</i> [4] The Mahler measure for arbitrary tori Link with Matilde Lalin. <i>In Research in Number Theory, March 2018</i>	
AWARDS AND FELLOWSHIPS	MITACS Globalink Research Internship , Canada Summer Research Fellowship Programme, Indian Academy of Science KVPY National Fellowship, DST, Government of India	2017 2016 2014
TEACHING EXPERIENCE	Teaching Assistant , University of Chicago <ul style="list-style-type: none">Algorithms, MastersDiscrete Math, MastersTheory of Algorithms, UndergraduateIntroduction to Formal Languages, Undergraduate Teaching Assistant , Toyota Technological Institute at Chicago (TTIC) <ul style="list-style-type: none">Mathematical Toolkit, GraduateAlgorithms, Graduate Teaching Assistant , Indian Institute of Technology, Kanpur (IITK) <ul style="list-style-type: none">Fundamentals of Computing, Undergraduate	Fall (2018, '20, '22), Winter (2020, '21) Fall 2019 Winter (2019, '22) Spring 2022 Spring 2021, Fall 2021 Winter 2023 Fall 2017