

# Hrishee M. Shastri

Website: [sites.google.com/view/hrishee](https://sites.google.com/view/hrishee)

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EDUCATION	<b>Reed College</b> , Portland, Oregon, USA - B.A., Computer Science & Mathematics (GPA: 3.90, Major GPA: 3.93) - <b>Senior Thesis</b> , advised by Professors Jim Fix and Marcus Robinson Topic: Self-adjusting skip graphs with working set properties	2017–2021
RESEARCH EXPERIENCE	<b>Joint Center for Quantum Information and Computer Science, University of Maryland</b> Advised by Professors Andrew Childs and Alexey Gorshkov - Investigated the problem of routing qubits along a path graph using parallel reversals. - Designed an algorithm that grants a provable asymptotic constant factor speedup in the worst case routing time over the optimal SWAP-based algorithm, the first known quantum advantage over SWAP-based routing. - Proved that the optimal swap based algorithm has average routing time asymptotically equal to its worst case routing time, which our algorithm outperforms in the average case. - We are also currently preparing a journal paper for peer review, to be submitted to <i>Quantum</i> . <b>Department of Computer Science, Reed College</b> Advised by Professor Eitan Frachtenberg - Analyzed locality properties of binary-integer problem representations on Evolutionary Algorithm performance. - Proved tight lower and upper bounds on local and global locality metrics and proved that standard binary and binary reflected gray representations exhibit optimal locality. - Designed algorithms for generating gray codes with sub-optimal locality. - Proved asymptotic equivalence among all representations for global locality. - Implemented multiple Evolutionary Algorithm experiments to obtain empirical evidence for performance as a function of representation locality. - Conference paper accepted at IEEE FOCI 2020, to appear December 2020. We have also submitted an expanded journal version to PeerJ Computer Science. <a href="#">ArXiv version</a>	2020        2019 – 2020
PUBLICATIONS	[1] Hrishee Shastri and Eitan Frachtenberg. " <a href="#">Locality Bounds for Nonredundant Binary-Integer Representations</a> ," in 2020 IEEE Symposium on Foundations of Computational Intelligence (FOCI)	
WORKING PAPERS	[2] " <a href="#">Revisiting Locality in Binary-Integer Representations</a> ," with Eitan Frachtenberg. Submitted to <i>PeerJ Computer Science</i> . [3] "Quantum Routing with Fast Reversals," with Sam King, Aniruddha Bapat, Eddie Schoute, Andrew Childs, and Alexey Gorshkov. To be submitted to <i>Quantum</i> .	
TEACHING EXPERIENCE	<b>Computer Science Teaching Assistant</b> , Reed College Dept. of Computer Science - Held weekly office hours and labs for introductory level computer science classes - Graded assignments, projects, and exams <b>Mathematics Teaching Assistant</b> , Reed College Dept. of Mathematics - Held weekly office hours for Calculus, Analysis, Discrete Math, Linear Algebra, Vector Calculus	2018 – 2020     2019
SKILLS	<b>Technical Languages</b> Python, Javascript, C++, Mathematica, MIPS Assembly, $\text{\LaTeX}$ , HTML, CSS <b>Human Languages</b> English ( <i>native</i> ), Tamil ( <i>conversational</i> )	
AWARDS	Commendation of Academic Excellence, Reed College Reed College Undergraduate Research Opportunity Grant	2018, 2019, 2020 2020