Harsimran Singh

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Ph.D. student in Computing Science
Simon Fraser University

CAREER OBJECTIVE

To pursue a career in Academia as a researcher in Theoretical Computer Science and be involved as a faculty at a well-renowned University.

RESEARCH INTERESTS

Theoretical Computer Science, Computational Complexity Theory, Randomness in Computing

EDUCATION

Simon Fraser University — British Columbia, Canada
PhD, Computing Science
Advisor: Dr. Igor Shinkar — *January 2023 - Present*

Indian Institute of Technology Goa — Goa, India
M.Tech, Computer Science and Engineering
Advisor: Dr. Arpita Korwar — *August 2020 - June 2022*

Punjab Engineering College — Chandigarh, India
B.Tech, Computer Science and Engineering — *August 2016 - May 2020*

AWARDS / SCHOLARSHIPS

- William B. Johnston Graduate Scholarship in Theoretical Computing Science — Fall 2026 - Spring 2027
- PhD Research Scholarship from Simon Fraser University — Fall 2023 - Present
- CMPT Graduate Fellowship from the School of Computing Science, SFU — Spring 2023 - Present
- Graduate Fellowship from Simon Fraser University — Spring 2023 - Present

PUBLICATIONS

- Worst-Case to Average-Case Reductions for Linear Algebra: Optimal, Simple, and General.
  (Alexander Golovnev, Satyajeet Nagargoje, Igor Shinkar, Harsimran Singh, Noah Stephens-Davidowitz)
  Under submission. Preprint Available online (#761 on this link)
- A Simplified Reduction for Error Correcting Matrix Multiplication Algorithms
  (Igor Shinkar and Harsimran Singh)
  RANDOM 2025. Available at Leibniz International Proceedings in Informatics, 2025 (LIPIcs)
- Matrix Multiplication Reductions
  (Ashish Gola, Igor Shinkar, and Harsimran Singh)
  RANDOM 2024. Available at Leibniz International Proceedings in Informatics, 2024 (LIPIcs)

TEACHING ASSISTANT EXPERIENCE

- Data Structures and Programming (CMPT 225) at Simon Fraser University.
  Instructor: Dr. Igor Shinkar — Fall 2026
- Probability and Computing (CMPT 210) at Simon Fraser University.
  Instructor: Bradley Bart — Summer 2026
- Introduction to Computing Science and Programming II (CMPT 125) at Simon Fraser University.
  Instructor: Dr. Igor Shinkar — Spring 2026
- Introduction to Computing Science and Programming II (CMPT 125) at Simon Fraser University.
  Instructor: Dr. Igor Shinkar — Fall 2025
- Probability and Computing (CMPT 210) at Simon Fraser University.
  Instructor: Mohammad Mahdi Khodabandeh — Summer 2025
- Probability and Computing (CMPT 210) at Simon Fraser University.
  Instructor: Dr. Sharan Vaswani — Fall 2024

- Discrete Mathematics I (MACM 101) at Simon Fraser University.
  Instructor: Dr. Steven Pearce — Summer 2024
- Discrete Mathematics I (MACM 101) at Simon Fraser University.
  Instructor: Bradley Bart — Spring 2024
- Discrete Mathematics I (MACM 101) at Simon Fraser University.
  Instructor: Dr. Andrei Bulatov — Fall 2023
- Data Structures and Programming (CMPT 225) at Simon Fraser University.
  Instructor: Dr. Toby Donaldson — Summer 2023
- Data Structures and Programming (CMPT 225) at Simon Fraser University.
  Instructor: Dr. Igor Shinkar — Spring 2023
- Optimization : Theory and Algorithms (CS 431) at IIT Goa.
  Instructor : Dr. Divya Padmanabhan — Spring 2022
- Data Structures and Algorithms (CS 220) at IIT Goa.
  Instructor: Dr. Sreejith A V — Fall 2021
- Introduction to Computing (CS 101) at IIT Goa.
  Instructor: Dr. Clint Pazhayidam George — Summer 2021
- Algorithm Design (CS 222) at IIT Goa.
  Instructor : Dr. Arpita Korwar — Spring 2021

SELECTED TALKS

- Matrix Multiplication Reductions — August 2024
  The 28^{th} International Conference on Randomization and Conference (RANDOM 2024)
  London School of Economics, UK
- Worst-Case to Average-Case Reductions for Linear Algebra — November 2026
  Algorithms and Complexity Seminar
  Simon Fraser University, Canada