KRISHNA NARAYANAN

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EDUCATION

M.Sc, Mathematics — **September 2023 - December 2025**
Simon Fraser University, Burnaby, BC, Canada — *(CGPA: 3.85/4.33)*
Advisor: **Prof. Tamon Stephen**

Integrated M.Sc, Theoretical Computer Science — **June 2018 – June 2023**
Anna University, Chennai, India (via PSG College of Technology, Coimbatore, India) — *(CGPA: 8.93/10)*
Degree Classification: First class with distinction

Advisor: **Prof. Lekshmi R S**

RELEVANT COURSEWORK

- Discrete Optimization*
- Network Flows*
- Design and Analysis of Algorithms
- Advanced Linear Programming*
- Theory of Computation
- Cryptography*
- Graph Theory*

* - Courses taken at Simon Fraser University

RESEARCH INTERESTS

My current focus is on algorithmic questions in polytope theory with connections to linear programming. I also maintain an interest in graph theory and questions arising from related algorithms and computational complexity.

EXPERIENCE

Graduate Research and Teaching Assistant — **September 2023 – December 2025**
Simon Fraser University, BC

- Research Assistant under the supervision of Prof. Tamon Stephen, with a focus on algorithmic questions in polytope theory.
- **Teaching Assistantship Experience:**
  * Fall 2025 - Calculus Workshop - Duties include office hours, invigilation and grading.
  * Summer 2025 - MATH 232 - Applied Linear Algebra - Duties include grading.
  * Fall 2024/Spring 2025 - MATH 308 - Linear Optimization @Burnaby, B.C - Duties include tutorials and grading.
    Introductory Math Workshop @Surrey, B.C - Duties include office hours and grading.
  * Spring 2024 - Introductory Math Workshop @Surrey B.C. - Duties include office hours and grading.
  * Fall 2023 - Algebra Workshop @Burnaby B.C. - Duties include office hours and grading.

Research Intern — **January 2023 – June 2023**
Advisor: **Prof. Venkatesh Raman** — *The Institute of Mathematical Sciences, Chennai, India*

- **Topic:** Monitoring edge-geodetic sets in graphs - algorithms and complexity - Worked on some algorithmic questions surrounding a topic titled "Monitoring edge-geodetic sets in graphs" with an emphasis of the complexity of the parameter in some special graph classes and obtained partial results.
- Audited two courses, Parameterized complexity and Approximation Algorithms through the duration of the internship.

MITACS Globalink Research Intern — **June 2022 – August 2022**
Advisors: **Prof. Danny Dyer and Prof. Andrea Burgess** — *Memorial University of Newfoundland, St. John's, Canada*

- **Topic:** The Deduction number of graphs and subgraphs - a recent cops and robber variant derived from the zero-visibility model of the cops and robber game on graphs. The structural aspects and bounds were studied particularly on some graph products.

Research Intern — **April 2021 – November 2021**
Advisors: **Prof. Florent Foucaud and Prof. Lekshmi R S** — *Université Clermont Auvergne, Clermont-Ferrand, France*

- **Topic:** Monitoring edge-geodetic sets in graphs - A graph-theoretic concept in the area of network monitoring was introduced where one wishes to monitor the vertices and/or the edges of a network (viewed as a graph) in order to detect and prevent failures. Inspired by two notions studied in the literature (edge-geodetic sets and distance-edge-monitoring sets).

Curriculum Tech Intern @Mango Education   **June 2020 – September 2020**
Manager: **Mr.Arumugham Sankaran**   *Remote, Coimbatore, India*
- Curriculum development and analysis using graph-theoretic ideas.

Student Intern   **May 2019 – May 2019**
Manager: **Mr.Balamanikandan K**   *Centre for Development of Telematics (C-DOT), Bangalore, India*
- Web Application Development for the Intellectual Property Rights and Knowledge Management Group at C-DOT, Bangalore

PUBLICATIONS

- **Florent Foucaud, Krishna Narayanan, and Lekshmi Ramasubramony Sulochana**, *Monitoring edge-geodetic sets in graphs*, Algorithms and discrete applied mathematics, Lecture Notes in Comput. Sci., vol. 13947, Springer, Cham, [2023], pp. 245–256. MR 4573059
  Link: https://doi.org/10.1007/978-3-031-25211-2_19

- **Subhadeep R. Dev, Sanjana Dey, Florent Foucaud, Krishna Narayanan, and Lekshmi Ramasubramony Sulochana**, *Monitoring edge-geodetic sets in graphs*, Discrete Applied Mathematics, Vol. 377, 2025,
  Link: https://doi.org/10.1016/j.dam.2025.08.041

SUBMITTED

- **Krishna Narayanan, Tamon Stephen**, *The hardness of Monotone Eccentricity on Polytopes* - Accepted for presentation and proceedings at CALDAM 2026

CONTRIBUTED TALKS

- **Complexity of eccentricities and diameters of simple polytopes** - West Coast Optimization Meeting, October 2025, University of British Columbia, Kelowna, BC, Canada

- **Monitoring edge-geodetic sets in graphs** - Cascadia Combinatorial Feast, October 2024, University of Victoria, BC, Canada

- **Monitoring edge-geodetic sets in graphs.** - 9th Annual International Conference on Algorithms and Discrete Applied Mathematics (CALDAM), February 2023, DA-IICT, Gandhinagar, India

ACHIEVEMENTS/FELLOWSHIPS

- **Graduate Fellowship (awarded by Simon Fraser University) - Summer 2025**

- **Graduate Travel and Research Award (awarded by Simon Fraser University) - Spring 2025**

- **MITACS Globalink Graduate Fellowship (awarded by MITACS, Canada) - January 2024**

- **Best Student Presentation, sponsored by Springer** - For Monitoring edge-geodetic sets in graphs - 9th Annual International Conference on Algorithms and Discrete Applied Mathematics (CALDAM) 2023, DA-IICT, Gandhinagar, India

- **Qualified - Joint Entrance Screening Test (JEST) for 2023, a National Eligibility Test in Theoretical Computer Science** - All India Rank - 51

ACADEMIC PROGRAMS ATTENDED

Certificate Program for Faculty in Computer Science Education - Advanced Graph Algorithms   **May 2023**
- *Organized by the Indraprastha Institute of Information Technology, Delhi at SRM University, Chennai*
  Remarks: Attended and completed the module with excellent performance

Indo-Dutch Pre-Conference School on Algorithms and Combinatorics, 9th CALDAM   **February 2023**
- *Organized at the Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT), Gandhinagar, India.*

Graph Searching in Canada (GRASCan) Workshop 2022   **August 2022**
- *Remote - Organized by Toronto Metropolitan University*

ACM-India Winter School on Algorithms and Lower Bounds   **January 2022**
- *Remote - Organized by the Chennai Mathematical Institute (CMI) and National Academy of Sciences (NASI)*

International Workshop on Domination in Graphs (IWDG)   **November 2021**
- *Online - Organized by Indian Institute of Technology, Ropar*

Indo-French Pre-Conference School on Algorithms and Combinatorics, 6th CALDAM   **February 2020**
- *Hosted and organized by the Indian Institute of Technology Hyderabad, India.*

Technical Skills

Programming Languages: Familiarity: AMPL, Python, Java, Maple, SQL
Developer Tools: NetBeans, PyCharm
Technologies/Frameworks: Linux, Windows, WordPress, Maple

Leadership / Extracurricular

- **Councilor for the Mathematics Graduate Caucus - The Graduate Student Society, Simon Fraser University**
  January 2025 - August 2025

- **Secretary - Mathematics Graduate Caucus, Simon Fraser University**
  September 2023 – April 2024
  Responsibilities included keeping minutes of each general meeting according to Graduate Students Society (GSS) standards, having the minutes approved by other officers, to distribute the minutes to the members of the Caucus and to the GSS and to notify them of changes to the Officers in a timely fashion. Also contributed to a Cost of Living Survey conducted by the Caucus, in an effort to address growing concerns surrounding difficulties faced by members.

- **Exectuive Editor** of The Bridge, the PSG College of Technology's online student body magazine.
  January 2020 - June 2023

- **Joint Secretary** of the Astronomy Club, PSG College of Technology
  October 2020 - April 2021.

- Member, Global Leaders Forum, PSG College of Technology.
  2018-2023

    - Several accolades at Model United Nations (MUN) Conferences at the school and collegiate level.
    - Authored a reference guide for Economic Councils in MUNs which was unveiled by Ambassador (Retd.) T.S. Tirumurthi, Indian Foreign Service, Govt. of India, at YLGC MUN- 2024
    - Organizing team member, TEDxPSGTech 2022.

- **Co-ordinator**, Editorial Team, COMAPP (2019/20 and 2022/23), a technical magazine published by the Computational Sciences Association and Computer Applications Association, PSG College of Technology.

- Self-declared 'Av geek' - short for Aviation geek.

- Formerly a competitive athlete and swimmer.

Last Updated: November 2025