

Anubrata Singharoy

Bengaluru, Karnataka, India

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[Google Scholar](#) | [LinkedIn](#) | [Portfolio](#)

RESEARCH INTERESTS

Post-Quantum Cryptography; Quantum-Safe Communication; Hybrid Cryptography; TLS 1.3; Cryptographic Protocols; Power-Grid Security; Cryptographic Agility; Symmetric Cryptography; Sparse Modeling; Signal Processing; Matrix Estimation; Machine Learning.

RESEARCH EXPERIENCE

Indian Institute of Science (IISc), Bengaluru

Jan 2026 – Ongoing

Research Associate, Information & Security Lab

SPARKS Program

- I am a part of the SPARKS Program at the Indian Institute of Science (IISc), working under [Prof. Sanjit Chatterjee](#) on developing a **Quantum-Safe Hybrid TLS Protocol** that combines classical and post-quantum cryptographic primitives for enhanced security.
- Investigating hybrid cryptographic architectures for quantum-safe communication in power-grid environments.

Dayananda Sagar University, Bengaluru

2025 – Present

Assistant Professor, Department of Artificial Intelligence & Machine Learning (On Leave)

- Teaching undergraduate courses in Artificial Intelligence, Machine Learning, and Data Science.
- Mentoring students and supervising undergraduate academic projects.

Indian Institute of Science (IISc), Bengaluru

Apr 2025 – May 2025

IISc-ICASSP Fellowship Recipient

Project: Matrix Estimation Through Matrix-Vector Multiplication

- Worked on matrix estimation techniques using efficient matrix-vector computational approaches under [Prof. Chandra Sekhar Seelamantula](#).

EDUCATION

Indian Institute of Technology Palakkad

2023 – 2025

M.Tech in Data Science

CGPA: 8.14/10.0

Thesis: Coherence Reduction in Sparse Modeling – A Hadamard Transform Approach

Ramakrishna Mission Vivekananda Educational and Research Institute

2019 – 2021

M.Sc in Mathematics

CGPA: 9.71/10.0

Distinction: Department Gold Medal for Outstanding Academic Performance and Excellence in Mathematics

The University of Burdwan

2015 – 2018

B.Sc in Mathematics (Honours)

67.75%

SELECTED RESEARCH PROJECTS

Coherence Reduction in Sparse Modeling – A Hadamard Transform Approach

2024 – 2025

M.Tech Thesis, IIT Palakkad

- Developed methodologies for coherence reduction in sparse signal recovery using Hadamard-transform-based approaches.

Primality Testing in Cryptography

Feb 2021 – May 2021

RKMVERI

- Studied deterministic and probabilistic primality-testing algorithms and their mathematical foundations.
- Analyzed Sieve of Eratosthenes, Lucas–Lehmer, AKS, Solovay–Strassen, and Miller–Rabin tests, including their complexity, advantages, and limitations.
- Examined the relevance of efficient primality testing to public-key cryptography, particularly RSA.

TEACHING EXPERIENCE

Indian Institute of Technology Palakkad

Jul 2024 – May 2025

Teaching Assistant

- **Time Series Analysis and Modeling:** Assisted in course delivery and conducted tutorials on time-series forecasting.
- **Introduction to Optimization:** Assisted students with mathematical optimization, linear programming, and nonlinear programming.

BOOK CHAPTER

- **Singharoy, A.**, “Neural Networks through the Lens of Calculus,” in *Mathematical Architecture*, First Edition, April 2026, pp. 161–172, ISBN: 978-93-6786-005-2.

TECHNICAL SKILLS & KNOWLEDGE

Development & Documentation Tools: VS Code, $\text{\LaTeX}$

Cryptography & Security: Post-Quantum Cryptography, TLS 1.2/1.3, Hybrid Cryptography

Standards & Protocols: [RFC 2712](#), [RFC 4279](#), [RFC 9257](#), [RFC 9588](#), IEC 61850, IEC 62351

HONORS & AWARDS

- **IISc-ICASSP Fellowship Recipient**, 2025.
- **Department Gold Medal** for Outstanding Academic Performance and Excellence in Mathematics, RKMVERI, 2021.
- **CSIR NET JRF Qualified**, 2023; All India Rank 121.
- **GATE Mathematics**, 2021; All India Rank 215.
- **IIT JAM Mathematics**, 2020; All India Rank 367.
- **IIT JAM Mathematics**, 2019; All India Rank 223.
- **Ph.D. Admission Offer in Applied Mathematics**, University of Maryland, Baltimore County (UMBC), USA, 2021.
- **TIFR-2019 and NBHM-2019**, First Round Qualified.

PROFESSIONAL ACTIVITIES

- Member, **IEEE Signal Processing Society**.
- Attendee, **IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2025)**.
- Resource Person, **Mathematics for AI and ML – Lecture and Hands-on**, Dayananda Sagar University, 2025.

REFERENCES

Prof. Sanjit Chatterjee

Associate Professor, Department of Computer Science and Automation

Indian Institute of Science (IISc), Bengaluru

Email: sanjit@iisc.ac.in

Website: [Faculty Homepage](#)

Prof. Chandra Sekhar Seelamantula

Professor, Department of Electrical Engineering

Indian Institute of Science (IISc), Bengaluru

Email: css@iisc.ac.in

Website: [Faculty Profile](#)

Prof. S. Lakshmivarahan

Professor Emeritus, School of Computer Science

University of Oklahoma

Email: varahan@ou.edu

Website: [Faculty Profile](#)