Snehasis Addy

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Research Interests

Neuromorphic wearable and mobile sensing, IoT, and Ubiquitous computing

Education

University of Massachusetts-Amherst — *Amherst, United States*

PhD in Computer Science — *Sept 2024 - Present*

- **Supervisors: Prof. Prashant Shenoy & Prof. VP Nguyen**
- **Courses:** Performance Evaluation, Quantum Information Systems, Distributed and OS, Advanced Algorithms

University of Calgary — *Calgary, Canada*

MS in Physics- Thesis based — *Sept 2021 - Apr 2024*

Indian Institute of Technology (ISM), Dhanbad — *Dhanbad, India*

Bachelors of Technology in Electronics and Communication Engineering — *Sept 2017 - May 2021*

Research Experience

Research Assistant in LASS — *Amherst, US*

University of Massachusetts-Amherst — *Aug 2025 - Present*

- Designing neuromorphic-based sensing systems to advance wearable health monitoring technologies.

Research Assistant in Quantum Systems Lab — *Amherst, US*

University of Massachusetts-Amherst — *Sept 2024 - Aug 2025*

- Developed a queueing-theoretic framework to model and analyze entanglement distribution from a single server to multiple clients using round-robin scheduling.

Research Assistant in QCloud lab — *Calgary, Canada*

University of Calgary — *Sept 2021 - Dec 2023*

- Developed the first decoder-free encoder using custom reliability sequences for arbitrarily long block lengths.

Publications

THESIS

Polar codes for information reconciliation in QKD *Quantum security for polarized channels*

Snehasis Addy

PAPER

Flexible polar encoding for information reconciliation in QKD

Snehasis Addy, Sabyasachi Dutta, Somnath Panja, Kunal Dey, Reihaneh Safavi-Naini, and Daniel Oblak

Skills

Programming	Python, Matlab and C/C++
Quantum Tools	Qiskit (IBM Certified Qiskit developer)
Technical	Algorithm design, Information theory and Coding theory, LaTeX, Microsoft Office, Git.
Platforms	HPC clusters of University of Calgary

Conferences and Workshops

Efficient polar encoding for information reconciliation in QKD — *College Park, United States*

Poster — *Aug 14-18, 2023*

QCRYPT- 2023

Efficient polar encoding for information reconciliation in QKD *Edmonton, Canada*
Contributed Talk *July 31- Aug 1, 2023*
Quanta CREATE Symposium- 2023

Improved Polar Code Encoder for Quantum Key Distribution *Online*
Poster *Jan 17-19, 2023*
Quantum Days- 2023

Error Correction in Quantum Key Distribution using Polar Codes *Calgary, Canada*
Poster *Oct 11-13, 2022*
Quantum Alberta Summit- 2022

Information Reconciliation in Quantum Key Distribution *Edmonton, Canada*
Contributed Talk *Aug 7-9, 2022*
Quanta CREATE Symposium

Error Correction in Quantum Key Distribution *Calgary, Canada*
Contributed Talk *Feb 22, 2022*
University of Calgary Physics and Astronomy Symposium

Error Correction in Quantum Key Distribution *Online*
Contributed Talk *May 3-4, 2021*
Undergraduate Research in Science Conference of Alberta- 2021

Awards and Achievements

2024	**Scholarship**, 2024 CICS Scholarship: $5000	*United States*
2021-23	**Award**, International Graduate Tuition Award	*Canada*
2022-23	**Award**, University of Calgary PHAS Internal Award	*Canada*
2021	**2nd Place**, Undergraduate Research in Science Conference of Alberta (URSCA)	*Canada*
2020	**Scholarship**, MITACS Globalink Research Award: $6000	*Canada*
2017	**99.44 percentile**, JEE (Mains) and JEE (Advanced)	*India*
2017	**Certificate of Excellence**, All India Senior School Certificate Examination	*India*
2017	**99.9 percentile**, Physics and Math in Senior Secondary Examination	*India*

Responsibilities

University of Massachusetts-Amherst *Amherst, US*
Teaching Assistant *Sept 2024 - Present*
- **Course:CS 490Q- Quantum Information Science**
- **Course:CS 590AB/ 690 BB- Quantum Cryptography**
- **Course:CS 240- Reasoning under uncertainty**

University of Calgary *Calgary, Canada*
Lead Teaching Assistant *Sept 2022 - December 2022*
- **Course:PHYS 369- Acoustic, Optics and Radiation**
- **Course: PHYS 259- Electricity and Magnetism**

University of Calgary *Calgary, Canada*
Research Intern *May 2020 - July 2020*
- **Project: Error Correction in Quantum Key Distribution using LDPC codes.**