Poojan Shah Researcher

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https://poojancshah.github.io/

Research Interests

Data clustering, quantum computing, statistical learning, algorithm design.

Education

Indian Institute of Technology Delhi (IIT Delhi) New Delhi, India
Bachelor of Technology (B.Tech.) in Computer Science and Engineering 2022 – 2026
(expected)

- Cumulative GPA: 9.86 / 10.00
- Advisors: Prof. Ragesh Jaiswal, Prof. Rajendra Kumar
- Research Areas: Large-Scale Data Clustering, Randomized Algorithms, Quantum and Quantum-Inspired Machine Learning

University of Waterloo Waterloo, Ontario, Canada
Visiting Undergraduate Student, Faculty of Mathematics Winter 2025

- Grade: 94.20 / 100.00

Publications

1. **Poojan Chetan Shah** and Ragesh Jaiswal. **Quantum (Inspired) D^2-Sampling with Applications**. To appear in the 13th International Conference on Learning Representations (ICLR), Singapore, 2025.
2. **Poojan Chetan Shah**, Shashwat Agarwal and Ragesh Jaiswal. **A New Rejection Sampling Approach to k-means++ with Improved Trade-offs**. Preprint, 2025.

Research Experience

Wadhwani AI | Mumbai, India Nov 2025 – Present

- Supervisor: Prof. Makarand Tapaswi
- Research on self-supervised learning from large scale unlabelled data for newborn anthropometry

Atlas Research | Dubai, United Arab Emirates May 2025 – Jul 2025

- Developed optimizations for large-scale financial exchange Application Programming Interface (API) systems.
- Implemented Bayesian optimization pipelines for hyperparameter tuning.
- Conducted large-scale feature selection and predictive modeling for crypto data.

Centre for Quantum Technologies, NUS | Singapore May 2024 – Jul 2024

- Supervisor: Prof. Rahul Jain
- Studied cryptographic primitives based on pseudorandom quantum states and their complexity-theoretic guarantees.

Scholarships & Fellowships

- **Amit and Deepali Sinha Foundation Fellowship**: Fully funded degree; top 5 at IIT Delhi 2022
- **IIT Delhi Merit Award**: Top 7% of department (all semesters) 2022–2025
- **KVPY Fellowship**: All India Rank 112, IISc Bangalore 2022
- **NTSE Scholarship**: NCERT 2020
- **ICLR Travel Award**: Singapore 2025
- **CMMRS**: MPI-SWS, Germany 2025
- **Google DeepMind Research Symposium**: Selected participant 2024
- **ACM India Annual Event**: Fully funded for top Winter School performers 2023

Selected Academic Achievements

- **JEE Advanced**: All India Rank 67 among 250,000 candidates 2022
- **JEE Main**: All India Rank 248 among 1,000,000 candidates 2022
- **IBM Quantum Excellence Badge**: Qiskit Global Summer School 2023
- **OPhO**: World Rank 3 among 600 teams 2021
- **Fyziklani**: 1st place, international physics competition, Charles University, Prague 2021
- **NSEP**: Top 1% nationwide 2021
- **INChO**: Top 49 nationwide 2021

Talks & Presentations

Quantum and Quantum-Inspired Algorithms for Data Clustering.
CS Group Meetings, CQT, NUS.

Quantum Machine Learning Without Any Quantum.
Theory Seminar, CSE Department, IIT Delhi.

Teaching

Teaching Assistant for **Quantum Computing**, Winter 2026, IIT Delhi.

Skills

Programming: `Python`, `C++`, `R`

Software: `LaTeX`, `Git`, `pandas`, `NumPy`, `scikit-learn`, `pytorch`

Graduate Courses: Quantum Computing, Lattices in Computer Science, Machine Learning

Undergraduate Courses: Analysis and Design of Algorithms, Data Structures and Algorithms, Discrete Mathematics, Principles of Artificial Intelligence, Programming Languages, Computer Networks, Computer Architecture, Digital Logic, System Design, Signals and Systems, Probability, Stochastic Processes, Linear Algebra, Real Analysis, Quantum Mechanics, Electrodynamics