

RAJNISH SINGH

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Summary

Computer Science undergraduate building AI-powered and deep-tech software across deep learning, LLM-integrated tooling, and intelligent systems. Practical experience with Python, PyTorch, LLM APIs, prompt engineering, and AI-assisted software development, complemented by quantum computing, post-quantum cryptography, and native product engineering.

Technical Skills

Languages: Python, Swift, C++, Java

AI / Machine Learning: Machine Learning, Deep Learning, PyTorch, CNNs, LSTM, XGBoost

Generative AI: LLMs, LLM APIs, Prompt Engineering, API Integration

Quantum / Deep Tech: IBM Qiskit, QuTiP, Quantum Computing, Post-Quantum Cryptography (ML-KEM-768/Kyber, X25519, AES-256-GCM)

Backend / Product: FastAPI, REST APIs, SwiftData, WidgetKit

Developer Tools: Git, GitHub, AWS, Docker, Jupyter, Google Colab

Selected Projects

Folk-Art-Restoration

2026

- Built a deep-learning restoration pipeline in PyTorch combining EDSR (super-resolution) and LaMa (inpainting) to repair damaged Madhubani, Warli, and Pattachitra folk-art images, evaluated with PSNR/SSIM metrics.
- Engineered the synthetic-damage and dataset-creation pipeline underlying “*Restoring Damaged Indian Folk Art Using Deep Learning*” (submitted, under review, *npj Heritage Science*).

QDMS Quantum Market Simulator

2026

- Modeled financial market crashes as an open quantum system, solving the Lindblad Master Equation with Qiskit/QuTiP to simulate liquidity dissipation and decoherence during shocks.
- Built a FastAPI gateway and React 19 dashboard streaming real-time state-fidelity and risk heatmaps; maintained as an open-source project on GitHub.

HyPQ-Mess Quantum-Safe Messaging

2026

- Engineered a hybrid post-quantum secure messaging application combining X25519 and ML-KEM-768 (Kyber) key exchange with AES-256-GCM authenticated encryption.
- Designed the hybrid classical/post-quantum key-exchange architecture, layering present-day and quantum-resistant cryptographic primitives for message confidentiality.

HabitFlow Native macOS App

2026

- Built a native, privacy-first macOS habit tracker in Swift with local-first SwiftData storage and interactive WidgetKit/AppIntents desktop widgets.
- Implemented GitHub-style contribution heatmaps and Apple Charts analytics with fully on-device, offline computation.

Experience & Leadership

IBM Qiskit Advocate Program, IBM Quantum Advocate

Mar 2026 – Present

- Selected through a globally competitive program; contribute to the open-source Qiskit ecosystem and quantum ML community initiatives.

Technology Innovation Hub (TIH), IIT Guwahati AI/ML Internship Cohort

Jun 2026–Present

- Selected for a competitive AI/ML internship cohort focused on applied AI/ML research and engineering.

National Cadet Corps (NCC) Cadet

Oct 2025–Present

- Completed CATC-130 training Camp and received a Medal for Good Leadership and exemplary performance.

GDG On Campus, Gautam Buddha University Core Team Member

Oct 2025 – Jun 2026

- Organize AI/ML-focused developer events, technical sessions, and hackathons for peer learning.

AWS Cloud Club, Gautam Buddha University AI/ML Core Team Member

Dec 2025 – Jun 2026

- Co-design technical workshops on MLOps fundamentals, model deployment, and ML architecture on AWS.

Certification & Coursework

• NIT Rourkela – Cognitive Engineering & Human Factors

Aug 2025

• IIT Delhi – Foundations of Quantum Computing

Oct 2025

• IISER Bhopal – AI in Mental Health Assessment

Nov 2025 – Mar 2026

• IIIT Delhi – Electronic Design Carnival Training Program

Jul 2026

• NIT Delhi – India–US–UK SPARC Workshop: Next-Gen Wireless Communication Systems

Jul – Aug 2026

Research, Publications & Achievements

- Authored “*Noise Resilience and Parameter Efficiency of Quantum Classifiers*” (GBU collaborators); author, “*Restoring Damaged Indian Folk Art Using Deep Learning*” **submitted, under review** (*npj Heritage Science*).

- *The Prophecy of Faith* – Author, Amazon Kindle Direct Publishing (KDP), 2026.

- Selected, McKinsey Forward Program (Problem Solving & Analytics track); finalist, multiple AI/ML hackathons.

Education

B.Tech in Computer Science & Engineering

Aug 2024 – May 2028

Gautam Buddha University, Greater Noida, India