

Shisheer S Kaushik

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EDUCATION

Indian Institute of Technology (IIT), Jodhpur

Graduated: May 2025

M.Tech. in Quantum Science and Technology | [Link to all courses](#)

GPA: 8.52/10

Relevant Courses: Classical & Quantum Machine Learning, Complexity Theory, Quantum Mechanics, Quantum Information Science & Computation, Open Quantum Systems, Classical & Quantum Algorithms, Quantum-Inspired Optimisation, Software and Data Engineering, Device-independent Quantum technologies, MI-Ops

B N M Institute of Technology (BNMIT)

Graduated: Jun 2022

B.Eng. in Electronics and Communication Engineering | [Link to all courses](#)

GPA: 8.37/10

Relevant Courses: Network Analysis, Computer Architecture, Signals & Systems, Verilog HDL & VLSI Design, Information Theory & Coding, Digital Communication, C++ & Python Application Programming, Network Security, Cellular & Space Communication

EXPERIENCE

QpiAi India Pvt. Ltd

Technical Lead (Quantum Systems Software)

Apr 2026 – Present

Quantum Engineer (Quantum Systems Software)

Jun 2025 – Apr 2026

Leading quantum systems software across the stack (SDK, compiler toolchain, quantum OS/runtime, and control firmware), driving end-to-end integration, performance.

Quantum Computing Intern (Remote, alongside M.Tech)

Jul 2024 – Jun 2025

Quantum Computing Intern (On-site, Bengaluru)

May 2024 – Jul 2024

- Developed and validated features for QpiAI Opt, improving robustness and usability.
- Contributed to QpiAI ML library modules, expanding machine learning capabilities.
- Developed parametric circuit and simulation components for the QpiAI Quantum SDK.

QNU Labs Pvt. Ltd

May 2023 - July 2023

Summer Intern Fellow [PHP](#), [JavaScript](#), [SQL Server](#), [HTML](#), [CSS](#), [Bootstrap](#), [Qiskit](#), [Python](#), [Git](#), [GitHub](#)

- Collaborated on a Browser-Based Quantum-Safe VPN PQC Plugin as part of the SparQ Summer Internship.

Qkrishi Quantum Pvt. Ltd

Feb 2023 - April 2023

Junior Researcher

[Qiskit](#), [Python](#), [NetworkX](#), [Dwave-ocean-sdk](#), [Bootstrap](#), [Git](#), [GitHub](#), [Docker](#), [Linux](#)

- Developed and evaluated a quantum optimization algorithm to solve the traveling salesman and vehicle routing problems using phase estimation techniques.

Qworld Association (QIntern-2021)

Jul 2021 - Aug 2021

Summer School Internship

[Qiskit](#), [Python](#), [Git](#), [GitHub](#)

- Developed a surface error code-based quantum error detection model while working on quantum error correction.

PROJECTS

Exploring Quantum Technology in Finance

Dec. 2024 - May 2025

Master Thesis, IIT Jodhpur

[Python](#), [Qiskit](#), [Torchgan/Keras-GAN](#), [MXNET](#), [JAX](#), [Docker](#), [Gitlab](#)

- Developed a Quantum Approximate Optimization Algorithm (QAOA)-based portfolio optimization solver to solve financial knapsack problems.
- Explored advanced QAOA variations, including **adaptive mixers**, **warm-start QAOA**, and **Quantum Walk QAOA**, for financial applications.
- Integrated noise models (e.g., depolarizing noise, amplitude damping) and experimented with multiple mixer types (Grover, Ring, XY, etc.).
- Achieved an approximation ratio of **0.92** for portfolios with 10 stocks and **0.80** for portfolios with 20 stocks.

Evaluating Quantum Circuit descriptors and Dataset Characteristics for Optimizing Quantum Models. June. 2024 - Sept.

Capstone project, IIT Jodhpur

[Pennylane](#), [Python](#), [PyTorch](#), [Keras](#), [paddle-quantum](#), [Git](#), [GitHub](#)

- optimizing quantum models like **QNNs**, **QCNNs**, and **QSVMs** by analyzing critical circuit metrics such as expressibility, entangling capability, and parameter variance.
- I studied the influence of dataset characteristics, including distribution, balance, and feature correlations, to identify optimal configurations that enhance model accuracy, scalability, and efficiency in practical quantum applications.

Iris Insight: End-to-End ML Deployment Pipeline

Oct. 2024

A end-to-end machine learning project *Qiskit, Tensorflow/Pytorch, Python, ZenML, MLflow, Docker, Streamlit, Git/Gitlab*

- Showcases the power of automation in model development by integrating data preprocessing, model training, evaluation, and deployment into a seamless pipeline.
- Fully deployed using ZenML for pipeline orchestration, MLflow for experiment tracking, and Streamlit for real-time web-based predictions.

Similarity Analysis: Gene Prioritization for Type II Diabetes Mellitus (T2DM)

Aug. 2024 - Sept. 2024

Predicting genes of Type II Diabetes Mellitus (T2DM) *Python, Biopython, Tensor Analysis, Pandas, Matplotlib, Seaborn*

- Utilized sequence similarity analysis and physiochemical characteristics of amino acids to prioritize candidate genes for further investigation.
- Leveraged tensor-based modeling for converting protein sequences into vectors representing the moment of inertia, enabling precise similarity assessments using Euclidean distance.

VQC Classifier using EstimatorQNN and SamplerQNN

Mar. 2024 - April. 2024

Hybrid-Quantum classifier based project

Qiskit, Tensorflow/Pytorch, Python, Git/Gitlab

- Evaluation of various Customized (Encoding techniques) and Ansatz selection on multiple datasets.

Autism Disease Detection Using Quantum Transfer Learning Techniques

Oct. 2023

Quantum ML model

Pennylane, Python, Tensorflow, Torchvision, Keras, Kaggle, Git, GitHub

- Build a diagnostic model for medical images by employing Convolution Neural Networks (CNNs) and transfer learning techniques.
- Understanding the CNN in terms of Quantum Gates and circuits and compared the results between Classical CNN and QCNN.

Benchmarking and Solving Vehicle routing problems on various Quantum Computing (QPU's)

Feb. 2023 - April. 2023

Quantum based Optimization project

Qiskit/Dwave-ocean-sdk, Networkx/DGL, Bootstrap, Git/Gitlab

- This project was a part of my work as a junior researcher at Qkrishi, Gurgaon, India. The objective is to develop a novel optimized quantum algorithm using several methods, like the phase estimation technique to solve the traveling salesman problem and vehicle routing problem.
- And benchmarked the respective routing algorithm on various available QPU's by testing on several optimization algorithms to observe and compare the best optimal (minimal) cost.

PUBLICATION

Implementation of GHZ States for Dynamic Circuit Based Quantum Teleportation

September 2024

Published in IEEE-CONNECT 2024

- This article explores the application of dynamic circuits in quantum computing to address scalability and error challenges. Unlike traditional unitary quantum circuits, dynamic circuits incorporate non-unitary dynamics with mid-circuit measurements and conditional feed-forward operations. The results demonstrate that dynamic circuits effectively optimize circuit depth and enhance the reliability of multi-qubit quantum teleportation protocols, offering significant improvements in compilation time.

Wearable Antenna For Remote Health Monitoring

Feb. 2023

Published in IEEE Xplore-2023

- This article presents the design and fabrication of a wearable, fully flexible and efficient micro-strip patch antenna pasted on both jeans textile and FR4 (lossy) material to operate at $f = 2.66$ GHz and $f = 2.3$ GHz as a centre frequencies. This work discusses, experimental and numerical results of the antenna designed and fabricated.

LEADERSHIP AND VOLUNTEERING

IBM Qiskit Advocate

Jun. 2023 - Ongoing

Open source contributor & mentor

- The Qiskit Advocate program is a global initiative. As an Advocate, I have joined the most passionate group of people in quantum computing. I work together to grow the Qiskit community by organizing events, making open-source contributions to Qiskit code, creating educational content, and more

Academic Mentor & Project contributor

- Guiding a community of 550+ CS students in their professional development, technical skills and interest in tech.
- Orchestrating workshops, coding sessions, and events to enhance skills and encourage continuous learning.

SKILLS

- **Programming:** Python, C, QASM, Golang*
- **Frameworks & Libraries:** TensorFlow*, PyTorch, Scikit-Learn, Keras, Qiskit, PennyLane/Strawberry-fields, Cplex
- **Data Science Tools:** Pandas, NumPy, Hadoop
- **Data Visualization:** Matplotlib, Seaborn, Plotly, Networkx
- **AI/ML Techniques & Deployment:** Fine-tuning with custom data, vector embedding, DL/MLOPS, Docker, MLflow, GitHub Actions, ZenML
- **Cloud Platforms:** AWS (SageMaker), Google Cloud*
- **Tools & OS:** Git, Jupyter Notebook/Google Colab, VSCode, Linux
- **Web Skills:** HTML/CSS, Streamlit, FastAPI, Flask*
- **Soft Skills:** Analytical thinking, problem-solving, teamwork, effective communication

*Skills marked with * indicate foundational knowledge; currently in learning stage.*

ACHIEVEMENTS

IBM Certified Associate Developer

IBM Quantum Challenges

QC-Hackathon

Excellence in academics

CERTIFICATIONS

Cryptography and Network Security

REFERENCES

- **Dr. Atul Kumar**
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- **Dr. Kirankumar R. Hiremath**
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