Karan Khandekar

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Education

Patkar Varde College, University of Mumbai June 2026
Bachelor of Science in Computer Science *Current GPA: 9.5/10.0*

Patkar Varde College of Science April 2022
High School Diploma *Grade: A*

Skills

Programming Languages: Python, Java, JavaScript/TypeScript, React, HTML/CSS
Frameworks / Libraries: Qiskit, Pandas, NumPy, TensorFlow
Version Control: Git/GitHub

Professional Experience

Neuromatch Academy | *Summer Research Intern* July 2024 – August 2024

- Performed comprehensive literature reviews, including evaluating GitHub repositories and Hugging Face models, to inform the research statement.
- Trained deep learning models to address complex research problems, analyzed outcomes, and synthesized actionable insights.
- Collaborated with an international team, actively participating in discussions and incorporating constructive feedback.
- Presented project findings alongside teammates, demonstrating strong communication and teamwork.
- ***Tech Stack: Python, Pandas, NumPy, OpenCV, Jupyter Notebook***

Projects

Advancing Quantum Cryptography with Qiskit | *Python, Qiskit*

- Conducted in-depth simulations of Quantum Key Distribution (QKD) protocols (BB84, SARG04, E91) using Qiskit on IBM Quantum simulators.
- Explored the behavior and security of these algorithms under varying bit lengths and introduced noise models to benchmark the robustness of quantum hardware.
- Presented findings at *ICCSAS - International Conference on Computing, Applied Sciences and STEM*, earning the *Best Paper Presenter Award*, with the research paper soon to be published in a Scopus Indexed Journal.
- Contributed to advancing post-quantum cryptography by identifying and addressing vulnerabilities in key generation mechanisms.

Skin Cancer Detection Using Transfer Learning | *Python, TensorFlow, Pandas*

- Developed a deep learning-based diagnostic tool leveraging Inception-ResNetV2 on the HAM10000 dataset for classifying dermatoscopic skin lesion images.
- Achieved over 90% classification accuracy through advanced data augmentation and transfer learning techniques.
- Collaborated with a global team to address imbalanced dataset challenges and improve diagnostic explainability using Grad-CAM visualizations.

Awards

ICCSAS '25 - International Conference on Computing, Applied Sciences and STEM March 2025
Won the 'Best Paper Presenter' award at ICCSAS '25: Track 06 Technology, for my research paper titled 'Quantum Cryptography Algorithms Assessment: A Comprehensive Study Using IBM's Qiskit Framework'