

Samanvith Kashyap

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Education

PES University, B.Tech in Computer Science 2024 – 2028
GPA: 8.14/10
Coursework: Data Structures & Algorithms, Linear Algebra, Probability & Statistics

Experience

Undergraduate Researcher (Computer Vision) Dec 2025 – Present
Mentored by Prof. Lakshmeesha, Dept. of CSE, PES University

- Executed a self-initiated research project on robust biometric authentication, translating academic guidance into a production-grade Python pipeline.
- Engineered a Hybrid Liveness Detection System to solve the "presentation attack" problem, implementing Eye Aspect Ratio (EAR) logic that reduced spoofing vulnerability by ~95%.
- Developed an Explainable AI (XAI) module that audits facial recognition vectors using t-SNE clustering, allowing for the mathematical detection and removal of outlier data.
- Optimized the inference engine for standard CPU hardware, utilizing HOG descriptors and frame-skipping algorithms to achieve real-time performance (30 FPS) without GPU acceleration.

Projects

QPrice (Qiskit Fall Fest 2025) GitHub Repo

- Developed a Variational Quantum Regressor (VQR) using Qiskit to predict SPY option prices, benchmarking performance against a classical Random Forest model.
- Analyzed the "Barren Plateau" phenomenon in quantum circuit training, evaluating the trade-offs between quantum expressibility and classical accuracy (R^2 : 0.98 vs. 0.63).
- **Tools Used:** Python, Qiskit, Scikit-learn, yfinance, Pandas

Quantum Music Generator GitHub Repo

- Developed a quantum computing-based music generation system using Qiskit (Python) and MIDI generation
- Used qubit superposition and measurement to generate pseudo-random musical notes
- Mapped quantum-generated binary outputs to musical scales to produce MIDI sequences
- **Tools Used:** Qiskit, Python

Technical Skills

Languages: Python, C++, JavaScript,
Quantum & ML: Qiskit, TensorFlow, Scikit-learn, NumPy, Pandas
Tools: Git, VS Code, Jupyter

Achievements

2025 IBM Qiskit Fall Fest Hackathon : PES University | 1/45+ teams
2025 Codeblitz Hackathon : PES University | 10/85+ teams