

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

- Collaborated with Prof. Lakshmeesha to design and execute a foundational research project on robust biometric authentication, scaling academic insights into a production-grade Python pipeline.
- Engineered a Hybrid Liveness Detection System to solve the real-world "presentation attack" problem, training and evaluating the model on a dataset of 10,000+ face images to reduce 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.
- Currently co-authoring a manuscript on Hybrid Liveness Detection methodologies to be submitted to a major computer vision conference.

Projects

ArtExtract — Style Classification with CRNN GitHub Repo

- Engineered a Convolutional-Recurrent Neural Network (ArtCRNN) combining an EfficientNet-B0 backbone with a Bidirectional GRU to classify 81,000+ WikiArt images across 29 art styles.
- Optimized GPU training pipeline using mixed precision (fp16), AdamW optimizer, and CosineAnnealingLR, successfully dropping classification loss from 1.69 to 0.64 in just 5 epochs.
- Developed an automated outlier detection system utilizing per-image cross-entropy loss to identify mislabeled paintings and anomalous artist styles within the dataset.

Tools Used: Python, PyTorch, Torchvision, Pandas, PIL

QPrice (Qiskit Fall Fest 2025) GitHub Repo

- Developed a Variational Quantum Regressor (VQR) using Qiskit to explore algorithmic foundations of optimization for predicting real-world SPY option prices.
- Benchmarked performance against a classical Random Forest model and analyzed the "Barren Plateau" phenomenon in quantum circuit training (R^2 : 0.98 vs. 0.63).

Tools Used: Python, Qiskit, Scikit-learn, yfinance, Pandas

Technical Skills

Languages: Python, C++, C, MATLAB, JavaScript

Quantum & ML: PyTorch, Qiskit, TensorFlow, Scikit-learn, NumPy, Pandas

Tools: Git, VS Code, Jupyter, LaTeX

Achievements

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

2025 Codeblitz Hackathon: PES University | 10/85+ teams