

# SJ Arulprasaad

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## Summary

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Machine Learning Engineer with a CGPA of 9.43 and solid academic foundation (10th: 96%, 12th: 94.5%). Strong focus on solving complex AI problems with real-world impact. Specialized in advanced generative models, NLP, and scalable deployment pipelines. Experienced in building custom ML workflows, quantum-inspired techniques, and end-to-end React apps. Currently pursuing B.Tech CSE (AI/ML) at VIT Chennai; ranked 1st in Semester 1.

## Core Skills

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**Languages:** Python, SQL, JavaScript (React), C, C++, Java, HTML, CSS

**ML/DL:** PyTorch, TensorFlow, scikit-learn, Hugging Face, XGBoost

**Deployment:** FastAPI, Docker, GitHub Actions

**Tools:** NumPy, Pandas, MLflow, Airflow, OpenCV, PostgreSQL

## Professional Experience

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### Anomaly Detection using Quantum-Inspired Angle-Embedding

scikit-learn, NumPy

*Large-Scale Imbalanced Streaming Data*

- Designed a novel angle-based embedding function inspired by quantum state representation to project features into a high-dimensional polar space.
- Engineered fused similarity scoring combining angle-based cosine distance, Spherical distance and Mahalanobis Distance to improve detection accuracy on noisy data.
- Applied chunked sliding window processing for stream data ingestion, enabling anomaly detection over high-velocity, memory-constrained input (30M+ rows).

### Advanced WGAN for Conditional Image Generation

PyTorch, TensorBoard

*Wasserstein GAN with Gradient Penalty (WGAN-GP)*

- Designed and trained a conditional WGAN with spectral normalization and instance noise for stabilized training.
- Achieved high-fidelity generation on small-sample domain-specific datasets.

## Education

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**B.Tech in Computer Science and Engineering (AI/ML)** — Vellore Institute of Technology, Chennai

Aug 2023 – May 2027

*CGPA: 9.43 / 10*

**Maharishi Vidya Mandir Senior Secondary School (Class 12)**

May 2023

*Score: 94.5%*

**Maharishi Vidya Mandir Senior Secondary School (Class 10)**

May 2021

*Score: 96%*

## Achievements

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- Secured **Rank 1** in AI & ML specialization (CSE) for Semester 1 at VIT Chennai
- Ranked among top 15 teams in Data Mission Impossible Workshop hosted on Kaggle
- Worked under AI/ML Department for 6 months under OSPC Club, VIT Chennai