Vedant Jayant Padole

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EDUCATION

M.S, Computer Science Graduating May 2026
Arizona State University, Tempe, AZ 3.89 /4.00 GPA
Ira A. Fulton Schools of Engineering
Relevant coursework: Statistical Machine Learning, Data Mining, Generative AI, Natural Language Processing

TECHNICAL SKILLS

Programming Languages: C, C++, Python, Java, JavaScript
Web Development Tools: React, Bootstrap, Node, Express, Django, FastAPI, RestAPI, MongoDB, PostgreSQL
AI/ML Frameworks: Pytorch, TensorFlow, Keras, HuggingFace, OpenCV, YOLO, GANs, Diffusion Models, LLMs
Cloud Platforms: AWS (S3, EC2, Sagemaker), GCP (Vertex AI), Azure,

PROFESSIONAL EXPERIENCE

Persistent Systems Pvt Ltd, Pune, India: Software Development Engineer Jan 2024 – Aug 2024

- Optimized number plate detection system using object detection models like **YOLOv8** and **OpenCV** and temporal models like **LRCN**, **LSTM**, and **ARIMA** to reduce detection time by **78%** and improve accuracy by **12%**.
- Contributed in the deployment of the smart toll traffic system using **Python**, **Django**, and **REST APIs** resulting in **32%** increase in revenue and **40%** reduction in traffic congestion.

Tools Web, Nagpur, India: Full Stack Development Intern May 2023 – Sep 2023

- Developed a scalable website for a school using **ReactJS** and **AngularJS** for frontend, **NodeJS** with **ExpressJS** for backend and managed **MySQL** database to handle **1,000+** transactions daily with **zero** data loss.
- Collaborated with the backend team to manage CRUD operations using **MongoDB**, **Express**, **Node.js**, and **RESTful APIs** and hosted using **AWS services** thus reducing release cycle times by **20%** .

Bio Spectronics, Nagpur, India: Machine Learning Intern Oct 2023 – Dec 2023

- Built a mobile app using machine learning (**Simple Vector Regression**, **Linear Regression**, **ANN**) to measure uric acid levels thus reducing error rate from **11%** to **2%** through data cleaning and clustering.
- Secured the patent for our technology and led the drafting of a research paper to document and publishing.

ACADEMIC PROJECTS

Semantic Table Join Discovery with LLMs | Gemini, CTAB-GAN+, Spider Spring 2025
Led research on join prediction using Gemini-2.0 across real/synthetic SQL datasets.

- Analyzed 187 join prediction failures using **Gemini-2.0** on the Spider dataset thus identified **72%** false positives and **28%** false negatives to improve model understanding and model refinement.
- Generated **500+** synthetic table pairs with **CTAB-GAN+** to benchmark semantic join accuracy under schema drift and column mismatch improved F1-score by **23%** over baselines using WarpGate.

Text-to-Image Generation with Diffusion CLIP Spring 2025
Implemented VQGAN+CLIP with pooling and DiffusionCLIP using pretrained models

- Trained and evaluated **VQGAN+CLIP** and **DCGAN+CLIP** on ImageNet thus achieved a **26%** lower FID score (**127 vs. 173**) compared to **cDCGAN**, and improving image generation quality.
- Enhanced **CLIP** cosine similarity of **Diffusion model** from **0.43 to 0.56** over **200** iterations and applied pooling in **VQGAN** which reduced training instability by **18%**, boosting text-image semantic alignment and convergence rate.

PUBLICATIONS AND PATENTS

- Driver Monitoring Based Drowsiness and Yawning Detection, IEEE journal, Link
- Effects of Sentiment Analysis for Enhanced Stock Market Predictions , TIJER Journal, Link
- Machine Learning Model for Risk of Breast Cancer Relapse TIJER Journal, Link
- Patents : 1) Electronic Component Cutter , Patented, Link
- Patents: 2) Modern Water Bottle Holder Table, Patented, Link