

Vedant Parnaik

EDUCATION

University at Buffalo, SUNY

Master of Science in Engineering and Applied Science

- **Coursework:** Software Development, Generative AI, Deep Learning, Robotics Algorithms, Advanced Machine Learning.

Buffalo, NY

Aug '22 - May '24

Savitribai Phule Pune University (SPPU)

Bachelor of Engineering in Computer Science

- **Coursework:** Analysis of Algorithms, Data Structures and Algorithms, Object-Oriented Programming, Database Management System, Computer Networks, Natural Language Processing, Embedded Programming.

Pune, India

Aug '17 - May '21

TECHNICAL SKILLS

Languages: Python, Java, C++, C, JavaScript, TypeScript, Perl, Bash, SQL, HTML5.

Technologies/Frameworks: React.js, Spring, J2EE, Git, GitHub, Docker, Jira, REST API, Kubernetes, Airflow, Kafka, CI/CD.

Cloud/Database: AWS (EC2, S3, Lambda, API Gateway, CodeDeploy), Azure, GCP, MySQL, MongoDB, NoSQL.

ML Frameworks: FastAPI, NumPy, Pandas, Matplotlib, TensorFlow, Scikit-learn, PyTorch, NLTK, CUDA, HuggingFace.

EXPERIENCE

University at Buffalo, SUNY

Software Research Assistant

- Designed a neural network combining convolutional layers for feature extraction, and LSTMs for temporal analysis, achieved 72% accuracy in predicting the stages of Parkinson's disease.
- Created a structured dataset from 15 diverse tests, integrating data from the **National Institute of Health, USC**.
- Developed personalized treatment plans, leveraging insights from model predictions and utilizing SHAP (SHapley Additive exPlanations) for transparency in decision-making.

New York, USA

Aug '24 - Present

University at Buffalo, SUNY

Student Researcher

- Architected a multi-label classification pipeline using stacking ensemble techniques (XGBoost, CATBoost) on the UC Irvine HCV dataset for classifying stages of Hepatitis C.
- Implemented feature engineering, hyperparameter tuning, achieving **94.73% accuracy (96% benchmark)** on unseen data.
- Integrated the model with a simulated Electronic Health Record system to automate HCV diagnosis and enable real-time predictions using historical patient data.

New York, USA

May '23 - Aug '23

IndiaFirst Robotics

Software Engineer Intern

- **Military UGV to detect landmines:** Worked on designing a **Unmanned Ground Vehicle** on NVIDIA Jetson with mine detection sensor, IMU, GPS, and LiDAR for navigation with detection precision of 0.5-meter.
- Implemented Image segmentation and depth estimation on the UGV using the KITTI dataset, achieving 2-meter accuracy and establishing spatial relationships for **real-time navigation** and obstacle avoidance.

Pune, India

Aug '19 - April '20

PROJECT HIGHLIGHTS

Equity Research Chatbot | Streamlit, ChromaDB, Google Generative AI, Docker [\[GitHub\]](#) [\[Website\]](#)

- Engineered an automated chatbot to streamline equity research by analyzing financial data from PDFs.
- Built with a Python backend, Streamlit frontend, and Chroma vector store for document embeddings; Integrated Google Generative AI, achieving **92% accuracy for context-based responses**.
- Deployed using Docker containers on Streamlit Cloud for real-time interactions, reducing manual research time by **75%**.

ASL (American Sign Language) Gesture Recognition | CNNs and Transformer Models [\[GitHub\]](#)

- Composed a CNN with TensorFlow and Keras to classify ASL fingerspelling images, achieving 74.3% test accuracy.
- Utilized a Transformer model to capture temporal dependencies in hand keypoints, securing **top 10% in Google Contest**.

Open Source Contribution: Streamlit Template | Streamlit, CI, GitHub Actions [\[GitHub\]](#)

- Contributed a template to the Streamlit open-source community, simplifying the process of deploying machine learning applications; Implemented GitHub Actions for CI, automating environment setup and code validation.
- Designed the template to enable faster prototyping and deployment, **simplifying integration of ML models**.

Pickup Gym Web App | Flask, SQLite, Bootstrap [\[GitHub\]](#)

- Created a community-driven fitness platform enabling users to find gym buddies, book sessions, and manage schedules.
- Engineered with a responsive interface and real-time scheduling, capable of handling over **500+ API requests daily**.

LEADERSHIP AND HONORS

- Achieved **All India Rank 1** in an **International Robotics Competition**, developing an autonomous horse-robot.
- Led operations as **President** of ISACA Committee, India, engaging 1200+ students and international delegates.