NIVEDITHA MADEGOWDA

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EDUCATION

University of Southern California (3.81/4.0) **Los Angeles, California**
Masters in Electrical Engineering (focus on machine learning and Data Science) **January 2024-May 2025**
Course work : Machine Learning-Supervised, Hardware foundations for machine learning, Autonomous Cyber Physical Systems , Computational Intelligence and Neural learning, Applied and Cloud Computing, Probability and Linear Algebra

TECHNICAL SKILLS

Languages: C++, Python, C# , JavaScript | **Version Control & DevOps Tools**:- Git, Perforce, Jira, Bitbucket , Docker (containerization)
Artificial Intelligence: Classical Machine Learning, Deep Learning, CNNs (ConvNet architectures), LLMs, Object Detection (YOLO), Image Processing, Generative AI, Natural Language Processing
Libraries/Frameworks: OpenCV, Scikit-Learn, Pytorch, TensorFlow, Numpy, Pandas, Seaborn, Hugging Face, LangChain, SQL, Power BI, Node.js | **Game Engines** – Unity , Unreal Engine | **Databases & Cloud:** PostgreSQL, SQL, AWS

EXPERIENCE

WorkUp (Viterbi Startup Garage)- Lead AI Engineer Intern, Los Angeles, California, US June 2024-July 2024
- Led the development of an **AI agentic framework** using gpt APIs, Langchain Framework to optimize job application process
- Increased efficiency of a content-based ML job **recommendation system** from 67% to 84% deployed on **AWS Sagemaker**

Element Technologies - Senior Software Engineer, Bengaluru, India September 2022-December 2023
- Developed a **generative AI**-powered Q&A/summary tool with **GPT API, LangChain** framework, hugging face and Fiass DB to process large volumes of text data and answer the user's queries which **brought down the manual search time by 80%**
- Analysed User profiles and Implemented **collaborative and content based filtering** techniques on a customer data platform which increased the customer traffic to the website by 40%
- Spearheaded Proof of Concept **applications in Virtual Reality with Oculus headset** reducing physical store costs by 50% with Unreal Engine and C++

Tata Elxsi - Software Engineer, Bengaluru, Karnataka, India September 2018-September 2022
- Revamped a **data-driven C# template** with new features and **architectural optimizations**, streamlining game development and **cutting production time by 85%**
- Engineered **AI-powered multiplayer game** prototypes with advanced **pathfinding** on Unreal (C++) and Unity (C#), driving gameplay innovation and helping **secure key clients**.
- Spearheaded development of **2D edutainment games** for the Disney-Byju's K3 app using Unity Engine and Visual Scripting, delivering playful **learning experiences for young audiences**.
- Secured a spot in Knolskape's Leadership Program for driving **technical mentorship** and delivering innovative Unity 3D solutions.

Indian Space Research Organization (ISRO) – Intern, Bengaluru, India January 2018-April 2018
- Led the development of **Machine learning** project which aimed at classifying healthy and diseased leaves by applying **Image processing** techniques using **opencv** to extract features and implemented **Random Forest Algorithm** to predict the results

University of Southern California - Course Producer for EE559, Los Angeles, California, US February 2025- present
- Assisting Students in **Machine/Statistical Learning Course** by providing academic support during office hours/ grading.

PROJECTS

Trojan Map | ***C++, Data Structures and Algorithms***
- Developed and implemented a comprehensive graph-based mapping application in C++ featuring advanced path finding algorithms; optimized real-time queries, cycle detection, and topological sorting to enhance performance and scalability.

Predictive Modeling & Classification with ML Algorithms | ***Scikit-learn, Numpy, NNs, Pytorch, Seaborn***
- Developed ML models for classification, regression, and density estimation, including KNN, Naïve Bayes, SVM, and Neural Networks.
- Applied feature engineering, cross-validation, and model evaluation techniques to real-world datasets.

Hardware-Accelerated ML & Parallel Computing Projects | CUDA, C++, PyTorch, NumPy
- Built and optimized machine learning pipelines and CNNs using custom CUDA kernels; demonstrated parallelism, kernel design, and hardware-aware computation for high-performance AI workloads**.**

Adaptive Cruise Control in Carla Simulator | *python, object detection , computer vision, autonomous vehicles, Simulation*
- integrated a perception-based neural network to predict vehicle distances using YOLOv3 and developed a lane-detection model to ensure safe navigation and optimal cruise control performance. (HPCs at USC were used and hence cannot share the work)

PUBLICATIONS /ACHIEVEMENTS

- Paper titled "Plant disease detection using Machine Learning" published in **IEEE** website based on the work done at ISRO
- STELLAR CONTRIBUTION Award and BRAVO Award for outstanding performance on key projects at Tata Elxsi.