SHANMUKHA GANESNA
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Software Developer with a strong background in **web development**, an expert in: **Python, Machine learning, Java, JavaScript**. On my way to an MS in Computer Science, I hope to use my skills in creating highly innovative AI solutions that improve the user experience and help to grow the business.

EDUCATION

M.S. in Computer Science and Engineering ***January 2024 - December 2025***
Santa Clara University
Courses: **Machine Learning**, Wireless Mobile/Multimedia Networks, **Distributed Systems**, Computer Architecture, **Deep Learning**, Design Analysis and Algorithms, **Cloud Computing**, Advanced Operating Systems, **Solution Architecture and the Cloud.**

SKILLS

- **Programming Languages**: Python, Java, Javascript, C++, C, HTML, CSS, Bash. Linux, Bootstrap
- **Libraries and Tools:** React, TensorFlow, Pytorch, Keras, AWS Lambda, Amazon DynamoDB, Scikit-Learn, NumPy, Pandas, OpenCV
- **Databases**: MySQL, Oracle SQL Developer, PostgreSQL
- Other: SDLC Life Cycle, Agile Methodologies, Data Analysis Data Science, Problem-Solving, Data Structures, Algorithm, CNN, RNN, Statistical Modeling, Machine Learning, Deep Learning, Natural Language Processing (NLP), Statistics

CERTIFICATIONS

- **AWS Solution Architect Associate** (13 June 2024- 13 June 2027)

PROJECTS

CV-Based Attendance System Using Face Recognition

- Collected and preprocessed a dataset of student images, ensuring multiple images per student to account for variations in lighting, angles, and expressions. Implemented real-time face detection and recognition using **OpenCV** and **dlib**, accurately matching detected faces with the student image dataset.
- Automatically logged attendance when a student's face was recognized, storing the date and time in a database like SQLite for future reference. Enabled multi-face detection, allowing the system to identify and mark attendance for multiple students simultaneously in real-time.
- **Technologies: OpenCV, dlib, Python, SQLite, Machine Learning**

Dynamic Pricing Using Serverless Architecture

- Implementation of dynamic pricing using Lambda Functions for various products and events. Here we have formulated the simplified function that will calculate the prices of products based on the current demand and competition in the market.
- These formulations are done using AWS Lambda functions. The data that is required for this function is stored in DynamoDB.
- **Technologies: AWS Lambda, Amazon DynamoDB, AWS Serverless Architecture**

Antibiofilm Peptide Classification using Custom Neural Networks

- Built a custom feed-forward neural network from scratch in NumPy to classify antibacterial peptides as antibiofilm-positive, using biologically inspired 2-mer encoding to convert amino acid sequences into meaningful numerical features.
- Designed and trained a deep neural architecture (input → 128 → 64 → 32 → 1) with `tanh` activations and sigmoid output, achieving 84%+ MCC, and addressed severe class imbalance using class-weighted binary cross-entropy loss to improve prediction of minority samples.

Technologies: Python, NumPy, scikit-learn, Machine Learning, Bioinformatics

Lane Detection and Steering Angle Estimation

- Developed a computer vision pipeline to detect lane lines and estimate steering angles from dashcam video frames. Utilized Canny edge detection, region of interest masking, and Hough Line Transform to identify lane markers. Calculated real-time steering angles based on the position of detected lanes and logged outputs to a CSV for evaluation. Optimized frame-by-frame processing to simulate real-world autonomous driving scenarios.

Technologies: Python, OpenCV, NumPy