Pranesh Velmurugan

San Jose, CA

(408) 807-5734 | praneshsvels@gmail.com | pvels.com | Praneshv25 | linkedin.com/in/pranesh-vels

Education

Purdue University *West Lafayette, IN*

Bachelor of Science in Computer Science and Data Science *Graduation: May 2026*

Minors in Math and Statistics

Relevant Coursework: Object-Oriented Programming, Programming in C, Computer Architecture, Systems Programming, Intro to Data Science, Data Mining and Machine Learning, Data Structures and Algorithms, Discrete Math, Multivariate Calculus, Linear Algebra, Statistics, Probability

Skills

Languages Python, Java, C, C++, JavaScript, TypeScript, HTML, CSS, SQL, R

Frameworks ReactJS, Angular, Flask, TensorFlow, OpenCV, NumPy, Pandas, Matplotlib, Scikit-learn, Mediapipe, JUnit

Technologies Git, GitHub, Firebase, Figma, Vite, REST API

Experience

NASA Goddard Space Flight Center *Greenbelt, MD*

Software Development Engineer Intern *June 2024 - August 2024*

- Developed Python software to parse KML files and generate transition plans for the IceSAT-2 satellite and the Cryospheric Sciences Laboratory
- Utilized libraries such as Shapely and FastKML to automate processes, reducing two months of manual work to seconds
- Enhanced data processing capabilities, resulting in a 95% reduction in manual data handling time
- Gained experience with geospatial data analysis and satellite mission planning
- Troubleshot and resolved software issues, improving reliability and performance

Autonomous Robotics Club *West Lafayette, IN*

Software Engineer *January 2024 - PRESENT*

- Developed software for ARC's Wizarding Chess project, a life-size chess game with autonomous chess pieces
- Utilized OpenCV and Python to create a computer vision system, incorporating perspective transformation to map the chessboard and track the positions of 32 robotic chess pieces
- Collaborated with team members to integrate software with hardware, ensuring seamless operation of the autonomous chess pieces
- Implemented algorithms for real-time object detection and tracking, enhancing the accuracy and responsiveness of the system
- Conducted testing and debugging to optimize performance and reliability in various environmental conditions

Projects

Emotional Oranges

- Developed a web application using ReactJS and Firebase that generates a Spotify playlist based on the mood detected from an uploaded image
- Trained an image classification machine learning model using TensorFlow, leveraging a dataset from Kaggle to accurately detect moods
- Implemented a user-friendly interface that allows users to upload images and receive personalized Spotify playlists
- Integrated Spotify API to fetch and curate playlists that match the detected mood, enhancing the user experience

NFL Receivers Analysis with Custom K-means Clustering

- Implemented a custom K-means clustering algorithm from scratch to analyze NFL receivers' performance
- Used Pandas and NumPy for data manipulation, cleaning, and normalization
- Analyzed five key features: Games Played, Receptions, Receiving Yards, Yards Per Reception, and Receiving TDs
- Provided insights into receiver performance and characteristics through cluster analysis

FRC Competition Ranking Predictor

- Developed a Java-based predictor for rankings in the FIRST Robotics Competition (FRC), utilizing advanced algorithms and data analysis techniques
- Integrated The Blue Alliance REST API to retrieve real-time competition data, ensuring accurate team rankings during events
- Implemented data preprocessing to clean and normalize data, optimizing the accuracy of ranking predictions

HandGesture-VolumeScaler

- Developed a system using Mediapipe and OpenCV to recognize hand gestures for adjusting computer volume
- Implemented real-time gesture recognition to control volume levels by detecting hand movements
- Enhanced user interaction and accessibility through intuitive gesture-based controls