

Pranesh Velmurugan

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Education

Purdue University

BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND DATA SCIENCE

Minors in Math and Statistics

West Lafayette, IN

August 2023 - May 2026

Skills

Languages Python, Java, JavaScript, C, C++, SQL, R
Frameworks React, Angular, Flask, TensorFlow, Mediapipe

Experience

NASA Goddard Space Flight Center

SOFTWARE ENGINEERING INTERN

Greenbelt, MD

June 2024 - August 2024

- Developed Python software to parse KML files and generate transition plans for the IceSAT-2 satellite
- 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
- Troubleshooted and resolved software issues, improving reliability and performance

Autonomous Robotics Club

SOFTWARE ENGINEER

West Lafayette, IN

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 comprehensive 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
- Optimized the performance and accuracy of the machine learning model through iterative training and validation

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