PRANESH VELMURUGAN

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EDUCATION

Purdue University   West Lafayette, IN
Bachelor of Science in Computer Science and Data Science   *Graduation: May 2026*
Minors in Mathematics and Statistics
Specialization in Machine Intelligence

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

EXPERIENCE

NASA   June 2024 – August 2024
Software Development Engineer Intern   *Greenbelt, MD*
- **Developed a script that automated the generation and modification of satellite orbits, saving NASA scientists significant time and improving data accuracy for the ICESat-2 satellite mission**
- Python software parses KML files and generates pointing plans for ICESat-2 and the Cryospheric Sciences Laboratory
- Utilized Shapely and FastKML libraries to automate processes, reducing **two months** of manual work to **seconds**
- Enhanced data processing capabilities, resulting in a **99%** reduction in manual data handling time

Autonomous Robotics Club of Purdue   January 2024 – Present
Project Manager, Software Engineer   *West Lafayette, IN*
- **Developed computer vision software for a large, interactive chess game with robotic 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 robots
- Implemented algorithms for real-time object detection and tracking, enhancing the accuracy and responsiveness of the system

PROJECTS

Emotional Oranges | Devpost | *ReactJS, Firebase, TensorFlow, Kaggle*
- **Created a web app that generates a personalized Spotify playlist based on the mood detected from an image uploaded by the user**
- Developed web application using ReactJS and Firebase
- Trained an image classification machine learning model using TensorFlow, leveraging a Kaggle dataset to 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 | GitHub | *Pandas, Numpy, Scikit-learn*
- **Created a custom K-means clustering algorithm to analyze NFL receivers' based on key statistics**
- 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

SpaceCrafts-in-AR | GitHub | *Swift, ARKit, RealityKit*
- **Created an app that lets users view 3D spacecraft in the real world using their phone's camera, making space exploration interactive and fun**
- Developed an augmented reality iOS app using ARKit and RealityKit to visualize spacecraft models in the real-world
- Utilized and integrated NASA spacecraft models

TECHNICAL SKILLS

Languages: Python, Java, C, C++, JavaScript, TypeScript, Swift, HTML, CSS, SQL, R
Frameworks: ReactJS, Flask, TensorFlow, Mediapipe, JUnit, Pytest
Tools: Git, GitHub, Firebase, REST API Figma, Vite, Tableau, Linux
Libraries: Pandas, NumPy, Matplotlib, Scikit-learn, OpenCV