Indrajith Thyagaraja

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EDUCATION

University of Texas at Dallas   **August 2024-May 2027**
Bachelor of Science in Computer Science

Vista Ridge High School, Austin, TX   **August 2021-May 2024**
Endorsement in STEM   GPA:4.00/4.00

Extracurricular Activities

ACM Projects Nexus   **Aug 2024 - Present**
                                                                                                      Richardson, TX

- Developing Nexus, a centralized platform for course-specific group collaboration, integrating automatic group creation, live messaging, document sharing, and AI assistance for study notes. Utilized React Native, AWS (DynamoDB, S3, Amplify, Lex, Kendra), and OCR scanning tools to enhance accessibility, collaboration, and learning for students.

Robotics(Java)   **Aug 2022 - May 2024**
                                                                                                      10hr/wk, 36wk/y

Leadership: Software Lead/Assistant Project Manager
- Managed Git repository
- Used FSM(Finite State Machine) to compartmentalize the robot's behavior in varying states
- Control Systems used for automation:
    - Used a Kalmen Filter to fuse our drive encoder's noisy measurements with QR code data from cameras to relocalize the robot on the field
    - Used PIDs to automate linear slides
    - Used Mecanum Kinematics and motion profiling for robot's velocity control
- Computer Vision using EasyOpenCV:
    - Made an object detection algorithm utilizing contour detection and Canny edge detection to detect Cones and realign to our objective
    - Used the Apriltag pipeline to recognize QR codes and their displacement from the bot

Projects
- Made a very basic Proxy HTTP server to understand TCP sockets and HTTP protocols(Python)
- Face Blurring Project(Python):
    - Used Opencv's neural network features to download and use a face detection model
    - Used Masking to blur the ROI around the face
- Pose Detection Classifier(Python):
    - Used Mediapipe's opensource pose detection library to acquire the coordinates of body parts and made a script to create datasets from videos
    - Trained a neural network from tensorflow to detect the pose a subject is in

Certifications
- OpenCv Bootcamp Certificate of Excellence:
    - Learned a range of opencv tools from basic image manipulation methods to object tracking and pose estimation

Skills
- Languages: Java,Python,C