Indrajith Thyagaraja

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EDUCATION

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

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

Extracurricular Activities

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

Leadership: Software Lead/Assistant Project Manager
- Managed Git repository
- Mentored other software rookies and teams
- Worked with engineering teacher and the district's IT department to successfully install Android Studio on school devices in the district, allowing any student in the district to participate in robotics
- 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

Honors and Awards
- 1st Place Winning Alliance in FTC(robotics) gems-league
- 2nd Place Control Award in FTC(robotics) semi-regionals
- UIL Robotics State Semi-Finalist