




ARSHDEEP SINGH

COMPUTER ENGINEER

CONTACT

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SKILLS

Technical Skills: Python (several ML/DL/AI libraries and algorithms like Scikit-learn, Pytorch, Tensorflow (Neural Networks) and various others) , C/C++, C#, Unity Game Engine, Arduino, Raspberry Pi, Linux, Electronics, and Basic Mechanics

Soft Skills: Clear Communication, Team Collaboration, Problem Solving, Leadership, Time-management, Dedication

EDUCATION

B.S. Computer Engineering
Texas Tech University
2023-2027

INTERESTS & HOBBIES

Reading books/articles particularly on any field of science and engineering, Sports (Soccer, Polo), Horse Riding, Music, Sometimes Video Games, New Foods

PROFILE

I put my Technical, Analytical and Problem Solving skills to 'engineer' stuff, from ML models to autonomous robots. With my passion and creativity driving me everyday to make the future we envision, a reality! With a builder mindset and critical thinking, I tend to figure out complex problems with optimum solutions.

I love building robotic systems, and programming machine learning models. The cool thing is that I enjoy and tend to do quite good at mechanical, electrical, and software part of any project I am working on!

PAST EXPERIENCE/PROJECTS

Autonomous Half-Humanoid Robot

*Click on project titles to be redirected to respective website/video for detailed info of particular project

- This project was built for an Inter school and college competition we got the 2nd prize. I led a team of 3 (including me) for this project.
- Aim of this project is to make a "half-humanoid" robot (Half refers to upper-body). This robot intends to mimic human activities in outer-space.
- Robot carries a Raspberry Pi as its "brain", motors, camera, and a microcontroller to control the actuations of the robot's joints (the head and the arm). It was uploaded with Object Detection Algorithms and Path finding algorithms and basic voice-assistant-type algorithms for communication. The actuations of the robot was based upon the "Drive-by-wire" mechanism and servo motors were used for head and arm.
- Python (libraries like OpenCV), C/C++, and skills like electronic circuit building were used in this project.

Robot Hand Controlling using Computer Vision

- Aim of this project is to make a prosthetic robot hand mimic the a person's hand via computer vision.
- A microprocessor was used as the controller for prosthetic hand which was connected to a computer. The computer had a camera that captured the operator's hand movements and send the signal to controller to replicate the same exact movements.
- C/C++ was used to program the microcontroller. A python script runs on the computer. Using OpenCV (a framework for video processing in python), Hand movements were tracked, converted to a signal and was sent to controller via serial communication.
- For the movement of prosthetic hand, "Drive-by-wire" system mechanics were used to control each individual joint of the hand.
- This project took account of Computer Vision skills (in Python programming language), C/C++, Electronics (for controller to control the hand movements), and Mechanics (for the mechanisms used to actuate the hand).

Multi Purpose Extensible Weather System

- Aim of this project is to monitor psychrometries (i.e. temperature, humidity, air-pressure etc.) of a room in a household and control basic home appliances such as ceiling fan and lights. If another room is to be monitored and controlled, it can be easily extended for the same.
- NodeMCU, an open-source prototyping board was used as the 'brain' for this project along with various sensors capturing specific readings like temperature, magnetic field etc. C/C++ was used for programming the NodeMCU.
- As this project was very intensive on programming, including topics like Server programming and low-level hardware programming, it helped me to increase my knowledge in these fields. Also this project was very heavily dependent on electronics to make sure all sensors and micro-processor(s) were connected properly with adequate amount of current flowing throughout the circuit. It also helped me in my electronics skills.