Sushma Subhas Chandra

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Portfolio: https://suzie13.github.io/Sushma_S_Chandra/

EDUCATION

Northwestern University   **Evanston, IL**
- MS in Robotics   *Sept 2022- Dec 2023*
  Relevant Coursework: Robotic Manipulation, Machine Dynamics, Machine Learning, Embedded Systems in Robotics
  Current Coursework: SLAM (in C++), Quadrotors: Design and Control

Manipal University Jaipur   **Jaipur, India**
- Bachelor of Technology in Mechatronics Engineering   CGPA 9.13/10   *July 2017- June 2021*

SKILLS

- Programming: Python, C, C++, Machine Learning, Deep Learning, Tensorflow, Pytorch, Computer Vision and OpenCV, HTML
- Software: Git, Bash, Linux, Flutter, Azure cloud service, MATLAB, Creo and SolidWorks, Tableau, Power Bi
- Robotics: ROS2/ROS, Gazebo, Rviz, MoveIt, Modern Robotics library, CoppeliaSim

EXPERIENCE

Artenal   **Vancouver, Canada**
Computer Vision Intern (Remote)   *Feb 2022 - June 2022*
- Built and custom trained SSD VGG deep learning algorithm for garbage sorting for solid waste management
- Performed image extraction from bag files and polygon image labelling on those acquired images
- Built MaskRCNN deep learning model for depth estimation of veneer wood using depth camera
- Developed object distance estimation and object detection and classification from YOLOv5, using Intel RealSense API
- Created a desktop application for palletizing which on the backend had 3D bin packing logic

National University of Singapore   **Singapore, Singapore**
Intern (Remote)   *June 2021 - Sept 2021*
- Implemented SSD-MobileNet for Pedestrian detection and LSTM for sales forecasting on timeseries dataset
- Developed a flask web application and deployed it on Azure cloud service. Used ML pipeline of Azure and deployed it on cloud.

Piltover Technologies Pvt. Ltd.   **Jaipur, India**
Technical Intern   *Sept 2019 - Dec 2020*
- Devised time series dataset pre-processing code and implemented deep learning and ML models for bionic prosthetics
- Programmed encoder, surface-emg sensor and motor to develop a custom cognitive system for gesture recognition
- Worked on STM32 blue pill, STM CUBEMX, Keil uVision, TrueStudio
- Worked with the myo-armband

PROJECTS

Attack of the Franka   *Fall 2022*
- Built custom MoveIt API for ROS2 with a small team
- Developed code using AprilTags to obtain camera and workspace transforms from the robot to know their relative positions
- Devised computer vision code using openCV to detect enemies represented by red blocks and allies as blue blocks
- Implemented control of Franka Emika Panda 7-DOF robot arm with the team to plan and execute actions like picking up a lightsaber and knock over enemies while protecting allies

Pen Grab   *Fall 2022*
- Implemented control of PincherX 100 4-DOF robot arm to track and grab a purple pen
- Developed a computer vision code that performed image-processing like image thresholding and edge detection using OpenCV on the feed from intel RealSense D435i camera to recognize a purple pen.

Outdoor Autonomous Trash Collecting Robot   *Winter 2021*
- Built and compared object detection models using transfer learning for outdoor trash detection
- Programmed motors, sensors, motor drivers, Arduino, and Raspberry Pi for outdoor trash collecting robot prototype with a rocker bogie mechanism
- Published in MDPI Journal: "OATCR: Outdoor Autonomous Trash Collecting Robot Design using YOLOv4-tiny" https://www.mdpi.com/2079-9292/10/18/2292

Heart Attack Prediction   *Winter 2020*
- Built ML model to pre-warn user with probability of heart-attack based on sleep pattern.
- Secured third position with a team, for the complete software prototype, in Hackathon held in undergrad college

Solar Electric Car   *2019*
- Programmed ultrasonic sensors for obstacle detection and temperature sensors to monitor battery temperature on Arduino
- Programmed dashboard to alert the driver for safety measures using Raspberry Pi with electrical team
- Worked on the BLDC motor, solar panels, motor controller and battery with the electrical team
- Reached final round in Electric Solar Vehicle Championship (ESVC) (Asia's biggest Solar Vehicle Event)
- Published 'Data Acquisition System for Solar Electric Vehicles' in AIP. https://doi.org/10.1063/1.5123931