RAMPRAKASH SRIDHARAN

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EDUCATION

- **Robotics and Autonomous systems (Systems Engineering)(MS)** — **Aug 2022 – Aug 2024 (Expected)**
  Arizona State University, Mesa, Arizona | **GPA : 4.00/4.00**
- **Robotics and Automation (BE)** — **Aug 2018 – May 2022**
  PSG College of Technology, TamilNadu, India | **CGPA : 9.1 / 10.0**

SKILLS

- **Hardware**– Arduino, Raspberry pi, ESP8266 Node MCU, SIEMANS S7–1200 PLC.
- **Programming**– C, CPP, Python, Matlab, Javascript, Simulink , ROS/ROS2.
- **CAD Designing**– Autodesk Fusion 360 and Solid Works.
- **Circuit and PCB Designing** – Proteus, EasyEDA.
- **Frameworks** – Numpy, Pandas, Matplotlib, Keras, Tensorflow, Scipy, Pytorch, OpenCV, Kivy.
- **Operating Systems** – Windows, Linux (Ubuntu/ Debian).
- **Others** – FESTO FluidSim, SIEMANS TIA Portal.

CERTIFICATIONS

- Complete Tensorflow 2 and Keras Deep learning Bootcamp
- ROS for Beginners: Basics, Motion and OpenCV
- ROS for Beginners II: Localization, Navigation and SLAM
- Python for Computer Vision with OpenCV and Deep Learning
- Matlab Onramp
- Simulink Onramp

PROFESSIONAL EXPERIENCE

- **Barrow Neurological Institute | Student Project | Phoenix, Arizona** — **Jan 2023 – May 2023**
  → Collaborated with Barrow Neurological Institute (BNU/ASU Collaboration) to design and develop a Mechatronic device with Bio feedback device to help the patients with Parkinson's in adjusting their vocal intensity and loudness.
  → Helped a six-person team to create a vibrotactile feedback device with a microcontroller, two microphones and a vibration DC Motor placed in an armband.
  → An algorithm is developed for background noise cancellation and accurate loudness, softness detection and implemented using the microcontroller.
- **LAPP India private limited | Student Intern | Bangalore, Karnataka, India** — **Feb 2022 – May 2022**
  → Collaborated with the company on the design of a robot to traverse cables laid on overhead trays and detect faulty cables with a thermal camera and develop a software to manually control the Robot using Wi-Fi (TCP/IP,UDP) and view live camera feed.
  → The prototype consists of a thermal camera, two navigation cameras, Raspberry Pi controller and LED light source and it is tested on cable trays; achieved good navigation in trays and a fault detection accuracy of 95 percent.

PROJECTS

- **Semi Autonomous Driving using road signs and Collision Avoidance** — **Jan 2023 – May 2023**
  → Collaborated with a team of three members to develop an algorithm to detect and classify the road signs, navigate the robot through a predefined path with road signs and avoid obstacles on its path.
  → The algorithm is implemented and tested in a Turtlebo4 Lite robot using ROS2, the algorithm uses YOLOv5 to detect and classify objects, the LIDAR data is filtered and used for collision avoidance.
  → Successfully implemented road sign and traffic sign detection using YOLOv5, used the LIDAR data to avoid collision and integrated the algorithm with ROS2.

- **Webcam controlled Rover** — **Nov 2022 – Dec 2022**
  → Helped a four member team in programming and deploying a Rover which moves in a rectangular arena.
  → The rover gets feedback from a webcam that is placed facing down, covering the entire arena.
  → Applied forward and inverse kinematics, given a goal position, the rover uses the camera's feedback to navigate to the desired location and vice versa.

- **Drawing Robot** — **Oct 2022 – Dec 2022**
  → Assisted a team in building and programming a robot that uses pulleys and strings to make drawings on a white board.
  → The robot connected to a PC running Matlab program and is deployed on a vertical white board
  → Integrated the Matlab program which preprocesses the image with the microcontroller and command the robot to draw the image on the whiteboard

- **Self Balancing Motorcycle** — **Sep 2022 – Oct 2022**
  → Aided a team of four members in assembling and programming a PID controller for a self balancing motorcycle that use inertial wheels to balance itself on a surface.
  → Successfully implemented the motorcycle with a PID controller by understanding the idea behind balancing and tuning the PID parameters.

- **Anomalous Human Activity Detection Using Stick Figure and Deep Learning Model** — **Aug 2021 – Dec 2021**
  → Worked with a two person team to develop a deep learning model to detect anomalous human activity using stick figure of a human.
  → Developed and trained a deep learning model (Classification) to take in the key points from the stick figure as input and output one of four poses; Normal, Squat, Crawl and Climb.
  → Deployed the deep learning model in a Raspberry pi interfaced with a Logitech webcam to obtain live camera feed and the pose classification.