Mayank Bansal

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OBJECTIVE:
Gain practical experience in ideating, developing and programming robots to improve quality of life for everyone.

EDUCATION:
Worcester Polytechnic Institute (WPI), Worcester, MA
Master of Science in Robotics — May 2024

Manipal Institute of Technology, **(MIT),** Manipal, India
Bachelors of Technology in Mechatronics, GPA 8.71/10.0 — June 2022

SKILLS:
Programming Languages/ Operating System: Windows, Ubuntu, OOP, Python, C, Java, Embedded C
Applications/ Software: MATLAB, ROS, Solidworks, Arduino, Raspberry Pi, Google Colab, OpenCV, Onshape
Languages: German, Hindi

EXPERIENCE:
Computer Vision Intern, Wastefull Insights, Vadodara, Gujarat, India — January 2022 – May 2022
- Developed the training pipeline for waste detection on a conveyor belt using YoLOv5 object detection algorithm and deployed the model on Jetson Nano using TensorRT inference engine.
- Created and deployed a ResNet based colour classification model on NVIDIA Jetson Nano using TensorRT inference engine.
- Collected real-time images for waste detection and classification and annotated them to create the dataset.

PROJECTS:
Miniaturized Wheelchair Application of Triple Inverted Pendulum, MIT — June 2021 – August 2021
- Designed a triple-inverted pendulum system on a cart to study its use for creation of a wheelchair for the elderly and the injured.
- Developed the dynamic models of the system and visualized it using CAD on MATLAB and Simscape.
- Controlled the system using PID and LQR controllers to stabilize the motion of the links.
- Created a GUI on MATLAB for real-time visualization of the changes occurring in the system.

Computer Vision for Autonomous Cars, MIT — April 2021 – May 2021
- Developed and trained a classification model on Tensorflow to classify different models of cars. The model achieved over 90% accuracy.
- Used YoLov3 object detection algorithm to create a model which can detect common road objects such as pedestrians, traffic lights, etc.
- Trained a U-Net based semantic segmentation model to distinguish between road-objects on a pixel level.

Autonomous Obstacle Avoiding Bot, MIT — November 2018
- Programmed an autonomous obstacle avoiding bot using Arduino Uno and HC-SR04 ultrasonic sensors.
- Collaborated with a group of 5 people to create the hardware of the bot.
- Tested the functioning of the bot rigorously by creating unexpected challenges for it to overcome.

ACTIVITIES:
- **Technical Head**, I.E. Mechatronics, **MIT** — August 2019 – July 2020
- **Organizer,** Capture The Flag, Technical Fest of **MIT** — October 2019
- **Team Leader**, e-Yantra Robotics Competition organized by IIT Bombay, **MIT** — September 2019
- **Member,** Rotaract Club, **MIT** — February 2019 – March 2020