Vishal Shankar Jadhav

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OBJECTIVE:

As a graduate student in Automotive Engineering, I am focusing on autonomous and robotics technologies and looking for an internship starting from Fall 2022.

EDUCATION:

Clemson University – International Center for Automotive Research **GPA 3.54/4.00**
Master of Science in Automotive Engineering May 2023
Coursework: Automotive Electronics Integration | Computing & Simulation for Autonomy | Automotive System Integration | Deep Learning | Autonomous Technologies | Machine Perception & Intelligence

SDGCT's Sanjay Ghodawat Group of Institution, Kolhapur **GPA 3.52/4.00**
Bachelor's in mechanical engineering June 2018
Coursework: Control Engineering | Industrial Product Design | Testing & Measurements | Mechatronics

TECHNICAL SKILLS:

Programming: C++, Python, MATLAB
Mechanical Design Tools: Catia V5, Auto CAD, Solid Works, NX
Simulation Software: MATLAB, Simulink
Tools: PLM, Siemen's Teamcenter, Docker, Vim, Bash
Other Software: GitHub, AWS Machine Learning, SLAM (EKF and FAST)
Operating system: Windows, Linux, Robot Operating System (ROS)
Machine Learning algorithms: Linear Regression, Logistic Regression, Deep Neural Network, CNN, RNN
Libraries: NumPy, OpenCV, Keras, Tensorflow, Multi-threading, PyCUDA

EXPERIENCE:

ARM Lab, Research Assistant **Oct 2021-Present**
Automation, Robotics, and Mechatronics Lab (ARM Lab), CUICAR

- Build AWS Deep Racer models and train those reinforcement learning (RL) models using Pure pursuit and Stanley controller. Define a reward function for different models. Hyperparameters are tuned to optimize the reinforcement model performance.
- On TurtleBot 3, using ROS-MATLAB toolboxes did maneuvers like object detection, SLAM mapping, etc.
- Deployment of Husky docker images in high performance computing environment using singularity for computation as well as simulation visualization. Document technical notes and overall process.

Associate Engineer – SQA **June 2020 – Dec 2020**
Tata AutoComp Systems Ltd (IPD), Pune

- As a supplier quality assurance engineer in a new product development department, coordinate periodic supplier performance reviews and provide recommendation to revaluate supplier status.
- Quality inspection of the suppliers' plastic, metal, and foam automotive interior parts.
- Failure mode and effects analysis (FMEA) of automotive parts and manage the Supplier Production Part Approval (SPPAP) to ensure effective and efficient review and disposition of supplier submittals.

Graduate Engineering Trainee **Feb 2019 – Feb 2020**
Tata Technologies Limited (Engg. Research & Development), Pune

- 3D wiring harness routing and packaging of - Engine WH, Cockpit WH, Console WH, Front, Main, Battery, Driver, Doors WH, Floor WH, Rear bumper, Chassis WH.
- Interaction and collaboration with the interdisciplinary teams for achieving design release deadlines.
- Designing wiring harness using Capital Harness XC and defining properties to electrical and electronics hardware. Created Info Fitment Drawings for the assembly production line.
- Professional Teamcenter for visualization & Product Lifecycle Management (PLM) for design release and data management.

ACADEMIC PROJECTS:

Autonomous Navigation on Road Using F1/10th Vehicle **May 2022**

- Autonomously track the lane using a first camera and recognize a stop sign and school sign with second camera using Machine learning technique.

Autonomous Maneuver Using the Turtle Bot 3 Burger **April 2022**

- Turtle Bot 3 autonomously navigates through the Gazebo and real-world environments using LiDAR and camera as perception sensors. Hardware-software integration in the robot.

Anomaly Detection in Manufacturing Data Using Recurrent Neural Network **March 2022**

- Build an RNN model to classify text and an LSTM model for anomaly detection (also outlier detection) on the temperature sensor data.

Traffic Sign Detection Using Convolutional Neural Network **January 2021**

- Classifies 43 classes (Unique traffic sign images) from German Traffic Sign datasets using a convolutional neural network with a test accuracy of 97.36%.

Behavioural Cloning: End to End Learning for Self-driving Cars **December 2021**

- The project aimed to train an end-to-end deep learning model that would let a car drive itself around the track in a driving simulator—used a Convolutional neural network for this project. Data collection and data-pre-processing and data augmentation for training purpose.

Adaptive Cruise Control and Autonomous Lane-keeping with RC Vehicle **December 2021**

- To maintain a safe distance from obstacles with the help of an ultrasonic sensor. Kalman filter implemented to obtain accurate distance. A PID controller carried out steering control and electronic speed control.

System-Level Design of Two-seater Battery Electric Roadster **December 2021**

- Design choices about six different subsystems: Structures, Packaging, Vehicle Dynamics, Powertrain, Human Factors, and System Integration. The goal was to satisfy all the requirements and ultimately maximize the profit.

Reinforcement Learning for Car-Racing Simulation in 2D Environment **December 2021**

- In 2D racing simulator learn a racing controller directly from raw LiDAR observations. Comparing model-based versus model-free Reinforcement learning algorithms performance on different tracks.

Sensor Fusion and Calibration **November 2021**

- Calibration of HC-SR04 ultrasonic sensor. Sensor fusion of multiple ultrasonic sensors using Kalman filter for converging in less than 5 sec with accuracy 2 mm.

Design and Build an Electric Cart **April 2018**

- Design and build an electric cart for campus purposes with a range of 100km and a top speed of 40kmph.

CERTIFICATIONS:

- Machine Learning - Coursera (Stanford Online)
- AWS Machine Learning – Coursera (AWS)
- Fundamentals of Deep Learning – Nvidia DLI
- Self-Driving Car (Applied Deep Learning) - Udemy
- Road Dynamics Simulation Modeling – Dorle Controls LLC
- Python – Coursera (University of Michigan)
- Electric and Hybrid Electric Vehicles – Devise Electronics