Manohar Akula

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SUMMARY

I'm a first-year master's student in Robotics at ASU with a strong interest in AI and 2+ years of experience in deep learning, machine learning, computer vision, and software development. Seeking Opportunities where I can share and enhance my skills
Area of Interest: Robotics, Autonomous vehicles, Artificial Intelligence, Computer Vision, and Deep Learning.

EDUCATION

M.S in Robotics and AutonomousSystems (AI) Expected May 2023
Arizona State University, Tempe, AZ 3.8/4.0GPA
Relevant Coursework: Autonomous Exploration systems, Artificial Neural Computations, Robotics Control.
Bachelors in Electronics and Electrical Engineering June 2014 - May 2017
Adams Engineering College (JNTUH), TS, India 8.5/10 GPA

TECHNICAL SKILLS

Programming Languages : Python, C, C++, Matlab, Java.
AI/Machine Learning : TensorFlow, Keras, OpenCV, PyTorch, sklearn, scipy, pandas, numpy, matplotlib.
Robotics : ROS, Gazebo, RViz, 3D printing, Carla, Arduino, Raspberry Pi, Soldering.
Web Technologies & Tools : Html, CSS, jquery, RestAPI, GIT, VS code, Anaconda, Github, Webstorm

RESEARCH\PUBLICATIONS

LSTM Autoencoder architecture for heart anomaly detection - IJARESM, ISSN: 2455-6211 Volume 9.
https://drive.google.com/file/d/1BlywIR_vo1biYmqmxlBCrmDVMnZGel6d/view?usp=sharing

PROFESSIONAL EXPERIENCE

Accucorps Technologies Pvt Ltd – Hyderabad, India: Machine Learning Engineer 10/2017 - 04/2021

- Developed multiple deep learning models to detect objects in a home with multiplescenarios
- Researched and explored the state of art algorithms in the computer vision and object detections domains.
- Created Auto-ML stack for training and tuning deep learning models that facilitates to build a model 10x faster
- Optimized data pre-processing mechanism, reduced overall training time for a model from 5hrs to 2hrs (250%)
- Automated multi-media stack verification by deep learning and computer vision techniques which cut down the cost of manual verification

Electronics Corporation of India Pvt Ltd, Hyderabad, India: Computer Vision Engineering Intern 07/2017 - 09/2017

- Developed a prototype for **smart home automation** using Node MCU, Relays and various other sensors.
- Created an **android app** that uses voice commands to monitor and control all devices following socket protocols.

RELEVANT PROJECTS

Autonomous Drone - (Academic Project) 01/2022 – 04/2022

- Implemented Yolov4 object detection, body pose estimation, human tracking, object tracking, collision avoidance, 2D & 3D environment mapping are all features of this autonomous drone. Custom features were controlled by gestures.

Simulation and Study of Quadruped Robot with an Revolute-Revolute System - (Academic Project) 08/2021 – 12/2021

- Investigated joint characteristics and performed kinematic analysis on a variety of gaits and trajectories.
- Simulink and Stateflow models were used, as well as Simscape Multibody and Robotics Systems Toolbox. and analyzed the Inverse Kinematics for a given trajectory and replicate the walking motion of a quadruped robot

Autonomous self-driving using RL Algorithms 08/2021 – 12/2021

- Trained an **Inverse RL** algorithm, Generative adversarial Imitation learning(**GAIL**) for an autonomous racing car on Open AI Gym. Reached average reward of 700 from imitator agent compared to reward of 800 from agent trained using **TRPO**

Accident Risk Prediction Model Using Machine Learning Algorithms - (Academic Project) 08/2021 – 12/2021

- Implemented state-of-the-art ML models using a country-wide accident dataset to accurately predict the risk of accidents
- This model includes information derived from NSL and Hummingbird algorithms, which might help ground reaction teams such as police forces and emergency response teams avoid deadly incidents.

Text to Image Synthesis 05/2021 – 07/2021

- Implemented **multistage text to image** generation on BIRDS dataset following **Stacked Generative Adversarial Networks** (StackGAN) v1 and v2. Achieved **Inception Score** of 6.03

Household object detection using deeplearning techniques 09/2020 – 03/2021

- Developed deep learning models to detect household objects in kitchen room, living room and bedroom with prediction mAP of 28.
- Employed Tensorflow object detection API and SSD + Mobilenet Pre-trained model to achieve the desired results.