UNNAT ANTANI

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EDUCATION

JOHNS HOPKINS UNIVERSITY | Baltimore, MD — Expected May 2023
Master of Science in Engineering, Major: Robotics
Teaching Assistant - Statistical Learning for Engineers
Related Coursework: Algorithms for Sensor-based Robotics, Computer Integrated Surgery, Advanced Math
Project: Currently working towards implementing AR for better visualization for the surgeons using HoloLens2;

NIRMA UNIVERSITY | Ahmedabad, India — Jun 2020
Bachelor of Technology, Major: Mechanical Engineering
Leadership Experience: President, IEEE Student Branch Chapter
Undergraduate Thesis with Fero.Ai: "Path Planning of Redundant Manipulator using AI"

SKILLS

Languages: C++, Python, MATLAB, C
Software/Tools: ROS, SolidWorks, CopelliaSim, Creo, Unity3D, Postman, Git, LaTex, JSON, Django, Celery, Flask
Hardware: Arduino, Raspberry-pi, NVIDIA Jetson Nano, M5Stack, ESP Boards, Maxon Controller
MOOC Certifications: Computational Motion Planning; Foundations of Robot Motion; AI for Medical Diagnosis; Intro to Self-Driving Cars; State Estimation and Localization for Self-Driving Cars; Control of Mobile Robots; Neural Networks and Deep Learning; C++ Essential Training; Deep Reinforcement Leaning in Python

WORK EXPERIENCE

Research and Development Engineer, Fero.Ai | Ahmedabad, India — Jul 2020 – May 2021
- Developed, tested and deployed algorithms for advanced vehicle routing problems.
- Significantly reduced planning phase of orders from 2 hours to 10 min, increasing the efficiency by 90%.
- Developed Flask backend to be able to implement Machine Learning techniques on captured data.
- Built a custom Map service using OpenStreetMap on to calculate distance and routes to prevent calling Google Maps API, saving almost $20,000 a year.

Robotics Research Intern, Fero.Ai | Ahmedabad, India — Jan 2020 – Jul 2020
- Developed a prototype which included hardware, embedded systems and cameras as well as software integration of Freight Damage Detection using Deep Learning.
- Conducted on-site testing and collected data for accuracy, robustness and feasibility analysis.
- Completed undergraduate thesis "Path Planning of Redundant Manipulator using AI";

Artificial Intelligence Research Intern, Fero.Ai | Ahmedabad, India — Feb 2019 – Jul 2019
- Developed simulation environment and conducted test as Proof of Concept for Freight Damage Detection.
- Documentation of the tests and proposed solution for presenting its feasibility and impact to stakeholders.
- Used CNN to make monitoring systems and implemented the same on embedded systems.

RELEVANT PROJECTS

Path Planning of Redundant Manipulator using AI | Nirma University and Fero.Ai — 2020
- Explored traditional path planning algorithms and visualized via simulation using Python.
- Implemented Reinforcement Learning to teach a car to navigate in a static 2D environment with obstacles.
- Successfully trained a Deep Reinforcement Learning model on UR-10 Robot in CopelliaSim simulation software.

Skills/Concepts : Topology, Path planning, Manipulator Control, Python, Scikit, Pytorch, RL, Deep RL, CopelliaSim, OOP

Self-Driving Car with CARLA Simulator | State Estimation and Localization for Self-Driving cars — 2019
- Implemented state estimation and localization algorithms using Python in CARLA Simulator
- Implemented geometric algorithm and MPC controller on Self-Driving car and tested on CARLA Simulator.

Skills/Concepts : Path Planning, Motion Planning, Controls, Python, CARLA Simulator, OOP, MPC, Kalman Filter