Sagnik Ghatak

Ingolstadt, Deutchland

sag9959@thi.de | (+49) 1755538219 | linkedin | Github

EXPERIENCE

Schanzer Racing Elektrik

Team Member - Driverless — *Mar 2024 - Jul 2024, Ingolstadt*

Localization and planning of an autonomous vehicle

- Designed a dual Extended Kalman Filter (EKF) system for robust sensor fusion, integrating steering angle sensors, wheel odometry, and GPS data to enhance vehicle state estimation.
- Designed a path planning algorithm for autonomous driving in dynamic environments to generate optimized paths for acceleration and maneuvering, ensuring precise and adaptive navigation.

Cognizant Techniology Solution

Programmer Analyst — *Oct 2021 - Sept 2023, Kolkata*

Data engineering for insurance services

- Led the development of an ETL pipeline for insurance services
- Automated tasks with UNIX and Python scripts that reduce manual intervention by 60 %
- Reduction of project implementation time by 15 % through agile collaboration and cross-functional teamwork

PROJECTS

Tower of Hanoi

Python, PyTorch, Reinforcement Learning, Pygame, Seaborn, Numpy

Github

- Development of Tower of Hanoi, an environment to train a reinforcement learning agent.
- Analysis of Markov Decision Process and implementation of a Q-Learning Agent using Q-Learning Algorithm
- Development of a Deep Q Network(DQN) agent to tackle the dynamic aspect of the Tower of Hanoi environment

Local Planning And Evaluation Of Evasive Maneuvers For Automated Vehicles

Python, Matplotlib

Github

- Design and implementation of a Local Trajectory Planner (LTP) to facilitate evasive maneuvers in automated vehicles.
- Develop vehicle model and controller algorithms to track the trajectory planned by the LTP accurately.

Echo-bot

C++, Python, CMAKE, ROS2, SLAM, GAZEBO

Github

- Development of an echo robot with URDF and simulation in Gazebo. Control of the robot with the ROS 2 control package.
- Implementation of SLAM for real-time mapping and localization. Robust navigation with NAV2, which enables autonomous path planning and obstacle.

SKILLS

- **Programming Languages:** C/C++, Python, MATLAB, SQL
- **Software Development:** OOP, Agile, CI/CD
- **Frameworks/Libraries:** Tensorflow, Sci-kit Learn, PyTorch, NumPy, Pandas, Matplotlib, Pygame, ROS2
- **Simulators:** Gazebo, CARLA, Simulink, CoppeliaSim
- **Tools:** Azure DevOps, Docker, JIRA, Git, Linux

ACADEMICS

Technische Hochschule Ingolstadt
Master of Engineering
AI Engg. of Autonomous Systems
Ingolstadt, Deutchland

St. Thomas' College of Engineering and Technology
Bachelor of Technology
Electrical Engineering
Kolkata, India

ACHIEVEMENTS

- **Cognizant Cheers (Cognizant)**
  Recognized for an invaluable contribution to project implementation

LANGUAGES

- Bengali (Mothertongue)
- Hindi (Business Fluent)
- English (Business Fluent)
- German (Beginner)

INTERESTS

- Football
- Hiking
- Cooking