Ankush Kumar

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WORK EXPERIENCE

STRYKER R&D INDIA Gurugram, India
Robotics Engineer May 2025 – Present

- Developing applications for robot-assisted Total Hip Replacement surgery leveraging C++, Qt/QML, and robotics expertise to enhance precision, usability, and surgical workflow efficiency.

MERCEDES-BENZ R&D INDIA Bangalore, India
Software Engineer Aug 2023 – May 2025

- Worked on Development of Active Safety Modules, including AEB, FCW and CDW, for enhanced vehicle safety.
- Designed predictive models for ego vehicle trajectory using the bicycle model.
- Applied deep learning to autonomous driving projects including self-driving car prototyping.

MERCEDES-BENZ R&D INDIA Bangalore, India
Data Analyst Intern Jan 2023 – July 2023

- Automated measurement analysis pipelines to detect abnormal vehicle operations, such as false braking.
- Streamlined data analysis processes by developing efficient scripting solutions.
- Created Streamlit Application Dashboard to monitor the results.

PERSONAL PROJECTS

PEDESTRIAN DETECTION & AUTOMATIC BRAKING USING DEEP REINFORCEMENT LEARNING

- Designed, implemented, and tested a pedestrian-crossing environment with random spawn locations and velocities, and trained a Deep Q-Learning agent with a custom reward function for autonomous decision-making in a simulation.

PATH PLANNING FOR SELF-DRIVING CAR USING ARTIFICIAL POTENTIAL FIELD

- Developed and implemented an Artificial Potential Field algorithm for real-time path planning.
- Optimized APF-based trajectory generation by fine-tuning repulsive and attractive forces, improving path efficiency, and reducing local minima issues.
- Integrated and tested the APF algorithm in a simulated environment.

UNIVERSITY PROJECTS

MALWARE CLASSIFICATION USING NOVEL DEEP LEARNING ALGORITHM

- Designed and implemented a novel deep learning architecture to classify encoded image into 25 different types of malwares, the proposed architecture outperformed some standard architecture including VGG 16, VGG 19, ResNet 50, DenseNet121 etc. Later the research outcome was published on IEEE by my project guide.

SATELLITE IMAGE DENOISING USING CLASSICAL IMAGE FILTER & U-Net

- Implemented classical image filtering techniques (Gaussian, Median, and Bilateral filtering) and U-Net based deep learning architecture to reduce noise in satellite imagery while preserving critical features, also did the comparative study of these algos.

EDUCATION

National Institute of Technology Karnataka, Surathkal Karnataka, India
Master of Technology Aug 2021 - July 2023
Major in Signal Processing & Machine Learning
Relevant Coursework: Deep Learning, Image Processing & Computer Vision, Machine Learning, Algorithms & Optimization

Aryabhatta Knowledge University Patna, Patna Patna, India
Bachelor of Technology Aug 2017- July 2021
Major in Electrical & Electronics Engineering

ADDITIONAL

Technical Skills: C++/C, Python, DSA, Qt/QML, OpenCV, Image Processing, DL, ML
Tools and Frameworks: RoS, Git, CARLA Simulator, G-Test, Bezel, VS Code, PyTorch, TensorFlow
Achievements & Awards: AIR 620 in GATE 2021 Exam**,** Platinum Award, Silver Award, AutonoMe Award