Yashveer Jain

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Experienced Robotics and Machine Learning Engineer with a Master's in Robotics from the University of Maryland. Skilled in advancing OCR models, refining car detection models, and orchestrating ROS-based autonomous control systems.

EDUCATION

Master of Engineering (Robotics) (GPA:3.85/4)   Aug 2022–May 2024
University of Maryland – College Park (UMD), USA

Control System, Robot Modelling, Software Development for Robotics, Robot Planning, Robot Perception, Cognitive Robotics, Becoming a Design Thinker, NLP (Natural Language Programming), Visual Learning & Recognition, Deep Learning.

Bachelor of Engineering (Mechatronics) (GPA:9.44/10)   July 2016- July 2020
Manipal University Jaipur, Rajasthan, India

Digital System Design, Power Electronics, Machine Design, CAD, Analog System Design, MEMS, PLC, Industrial Robotics.

PROFESSIONAL EXPERIENCE

Machine learning Engineer - AIMonk Labs, India   Aug 2020 – Aug 2022
- Spearheaded OCR task within a transformative PyTorch framework for a math mojo project, delivering a remarkable 60% accuracy enhancement leveraging synthetic latex OCR data.
- Amplified car detection AI for parking spots by 20% through strategic implementation of DeepLabv3 segmentation model, coupled with refined accuracy features using YOLOv7.
- Pioneered the creation of a cutting-edge testing infrastructure for AI models. Engineered seamless integration of a FastAPI backend with AWS and Azure DevOps platforms, resulting in substantial efficiency gains for QA and development teams in the testing phase of machine learning models.

RESEARCH AND INTERNSHIP EXPERIENCE

Graduate Teaching Assistant, UMD (Fall 2023)   with Prof. Waseem Malik
ENPM667 – Control of Robotic Systems, a graduate course at UMD. Provided one-on-one tutoring to struggling students, resulting in a 90% pass rate on exams and improved overall grades.

Graduate Research Assistant, UMD (Fall 2022-Spring 2023)   with Prof. Yiannis Aloimonos
TinyDepth: Generalized Neural Metric Depth for Palm-sized Robots. Under Review Nature npj Robotics.
Developed ROS based vision-based autonomous planning and control pipeline for small-scale robots (<6 cm) at Perception and Robotics Group.

Embedded AI Intern - Renesas Electronics, USA   May 2023 – Aug 2023
Worked with various sensors and embedded devices such as Renesas RA6 Series and RL78, trained and deployed AI models on them, achieving 95% accuracy and ensuring success of edge computing projects.

Research Intern - Swaayatt Robotics, India   Jan 2020 – May 2020
Worked on tracking algorithms like the Kalman filter, and particle filter with the optical flow with OpenCV, to identify the sustainability of these algorithms on the autonomous driving system for tracking vehicles and pedestrians.

Research Intern - Omax Auto, India   May 2019 –July 2019
Enhanced inspection efficiency by 30% through creating an algorithm for automatic hole inspection using Machine Vision.

SKILLS AND LANGUAGES

Production Skills: Microsoft Office, Linux, Git, Docker, Microsoft10, AWS - Lambda, S3, SQS, EC2; Azure - devops, VM, google Apps.

Machine Learning: Computer Vision, Machine Learning, Deep Learning, NLP, machine learning algorithms (linear regression, SVM, logistic regression), Reinforcement Learning and Genetic Algorithms, TensorFlow, PyTorch, Pandas, matplotlib.

Others: ROS (Robot Operating System), ROS2, SLAM, Heuristic and Graph-based search algorithms, FastApi, Mqtt, Path planning, OpenCV, LQR & LQG Control system, Nexus Vicon, Programmable Logic Controller, AWS SageMaker, RestAPIs.

Programming Languages: Python, C, C++, Ladder programming, Embedded C, MATLAB Simulink, Flutter & Dart, SQL, NoSQL.

PROJECTS

Leader Follower - GitHub   Jan 2023 - May 2023
- A leader-follower tracking robot with computer vision obstacle detection and based tracking for seamless platoon movement.

Irona - GitHub   Aug 2022-Dec 2022
- Developed a service robot, using ROS (Robot Operating System), computer vision and C++, to pick and place objects.

Home Automation - GitHub   Jun 2021 - Aug 2021
- Established a home server with FastAPI, MQTT, Arduino, Raspberry Pi, and SQLite for streamlined device connectivity.

UnDeepVO (Unsupervised Deep Learning Visual Odometry) - GitHub   Jan 2020 - May 2020
- Implemented visual odometry using deep learning to handle depth estimation and rotation using a monocular camera.

Third eye - GitHub   Oct 2019 - Dec 2019
- A device created for blind people to navigate around the world, using computer vision, and Text2speech.

CERTIFICATE

Building Transformer-Based Natural Language Processing Applications (Nvidia)   Feb 2024
- Training and Deploying BERT Transformer Model on NER and Text classification and deployed on Triton Server.

Generative AI with Diffusion Models (Nvidia)   Feb 2024
- Course on Generative AI with Diffusion Model learned Condition based Diffusion Models, and UNet Models.

Control of Mobile Robots (Coursera)   May 2019
- Taught by Georgia Institute Tech : Control System, Linearization techniques, Robot Modeling of differential drive models.