Yashveer Jain

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Software Developer with a Master's in Robotics from the University of Maryland and 2 years of hands-on experience. Expertise lies in training and deploying cutting-edge machine learning models and orchestrating ROS-based autonomous control systems.

SKILLS AND LANGUAGES

Production Skills: Microsoft Office, Linux, Git, Docker, agile development, AWS, Azure.
Machine Learning: TensorFlow, PyTorch, Pandas, matplotlib, OpenCV, scikit-learn, vector-c++, huggingface.
Others: ROS (Robot Operating System), ROS2, Arduino, Raspberry pi, Nvidia Jestson, Nexus Vicon, RestAPIs.
Programming Languages: Python, C, C++, Ladder programming, Embedded C, MATLAB Simulink, Flutter, SQL, NoSQL.

WORK EXPERIENCE

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 **SVM and logistic regression** models on them, achieving 95% accuracy for an Asset Tracking Project for classification and ensuring success of edge computing projects.

Machine learning Engineer - AIMonk Labs, India Aug 2020–Aug 2022

- Optimized **OCR algorithms** using **Transformers** implemented on **PyTorch**, achieving a 60% accuracy boost.
- Enhanced car detection AI by 20% using **DeepLabv3** and **YOLOv7** integration, with advanced feature engineering.
- Developed a robust testing infrastructure for AI models, integrating **FastAPI** backend on **AWS EC2** instance.
- Collaborated with cross-functional teams on **Azure DevOps** for model deployment using **AWS Sage Maker**.

Research Intern - Swaayatt Robotics, India Jan 2020–May 2020

Implemented **Kalman and particle filters with LK optical flow using OpenCV** for vehicle and pedestrian tracking in autonomous driving systems. Evaluated their suitability for real-time applications.

Research Intern - Omax Auto, India May 2019–July 2019

Enhanced automatic hole inspection efficiency by 30% through **Modified Hough Transform** using OpenCV.

RESEARCH AND TEACHING EXPERIENCE

Grader, University of Maryland (Spring 2024) Jan 2024-May 2024

ENPM808z – Cognitive Robotics with Prof. Yantian Zha, a graduate course at UMD. Adept at assessing student progress in integrating human cognition with robotics and AI, using simulators like **NVIDIA Issac Sim**, and **Meta Habitat 2.0**.

Graduate Teaching Assistant, University of Maryland (Fall 2023) Aug 2023-Dec 2023

ENPM667 – Control of Robotic Systems with Prof. Waseem Malik, a graduate course at UMD. Boosted exam pass rates and overall grades through targeted tutoring in **Linearization techniques** and control system topics such as **LQR, LQG**.

Graduate Research Assistant, University of Maryland (Fall 2022-Spring 2023) Aug 2022-May 2023

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 with Prof. Yiannis Aloimonos.

PROJECTS

Robo Serve - GitHub Jan 2023 - May 2023

Utilized Robotics Master's knowledge (ENPM662 and ENPM661) to design autonomous serving robots, implementing RRT* planning algorithm for the hospitality industry.

Irona - GitHub Aug 2022-Dec 2022

Designed a service robot **using ROS, computer vision, and C++** for object manipulation.

Home Automation - GitHub Jun 2021-Aug 2021

Established a home server for device connectivity **using FastAPI, MQTT, Arduino, Raspberry Pi**.

UnDeepVO (Unsupervised Deep Learning Visual Odometry) - GitHub Jan 2020-May 2020

Implemented visual odometry using deep learning for depth estimation and translation and rotation motion.

Third eye - GitHub Oct 2019-Dec 2019

Built blind navigation device using **Siamese Network** (face recognition), **Yolo9000** (object detection), and **Text2Speech**.

Search and Rescue Drone - GitHub Jul 2019 - Oct 2019

Developed an AI Drone to detect human beings using **RentinaNet** for object detection in hazardous areas and send their locations to the Rescue team.

EDUCATION

Master of Engineering (Robotics) (GPA:3.85/4) Aug 2022–May 2024

University of Maryland – College Park (UMD), USA

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, Industrial Robotics.

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.