GURU DEEP SINGH

SOFTWARE ENGINEER

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Results-driven software engineer with a strong background in developing and deploying robust Machine Learning and traditional Computer Vision software solutions. Passionate about innovation and committed to continuous learning, effective problem-solving, and delivering high-quality, scalable solutions.

Work Experience

SOFTWARE ENGINEER

Oct 2022 - Present

CONTINENTAL AG | Neu-Ulm, Bavaria

- Established a CNN framework for detection of traffic participants objects and implemented it using the ONNX framework in C++ on internal MEMS LiDAR data, contributing to a mid-level fusion schema.
- Leading the C++ based implementation and optimization of LiDAR Odometry algorithm with state-of-the-art algorithm (LOAM) based backbone on LiDAR's such as HRL131, Innovusion, P64 and P128.
- Realized a Long range Camera and Lidar based lost cargo height optimization strategy using self developed algorithmic pipeline for L4 Autonomy project.
- Collaborating on the development of multi- modal low-level fusion radar based mapper for Out-of- Distribution objects.
- Engineeried a unique KPI framework to compare multi-modal Odometry signals without the need of explicit extrinsic calibration between sensors.

MASTER THESIS STUDENT

Nov 2021 - Jul 2022

CONTINENTAL AG | Neu-Ulm, Bavaria

- Executed research and development of Domain Mapping based Transfer Learning approach for point cloud adaptation between Optomechanical and Microelectromechanical Systems (MEMS) Lidars with a downstream task of Semantic Segmentation and Object Detection. Thus, using opensource datasets like Cirrus and KITTI for training and inferring pseudo-labels for proprietary internal Lidar's data.

INTERN

Aug 2021 - Oct 2021

CONTINENTAL AG | Neu-Ulm, Bavaria

- Delivered a scan pattern-based dynamic grid generation for a voxel-based semantic segmentation network, thereby enabling efficient and intelligent information e xtraction for needed region of Interest depending on the environment.

Projects

Digital Resume

Sep 2025 - Sep 2025

Developed a chatbot with Retrieval-Augmented Generation (RAG) to create an interactive, voice-enabled digital resume. It supports both frontier LLMs (OpenAI) and open-source HuggingFace models. Integrated text-to-speech capabilities using open-source TTS models. Designed a modular architecture enabling fully open-source deployment or hybrid integration with commercial APIs.

Personalized LLM (Digital Guru)

Aug 2025 - Aug 2025

Fine-tuned Llama-3.2-3B-Instruct on 100k+ personal chat messages (WhatsApp/Instagram) to create an AI assistant that replicates individual writing style and communication patterns. Implemented QLoRA (4-bit quantization + LoRA adapters) for memory-efficient training on personal laptop. Applied Supervised Fine-Tuning (SFT) on message-response pairs to capture tone, pacing, emoji usage, and greeting patterns.

AI-Powered Stock Market Analysis & Forecasting Platform

Jun 2025 - Aug 2025

Built a real-time stock analysis platform featuring sub-5-second charting, AI-driven price forecasting, and LLM-enhanced market insights. Engineered data stitching pipelines to consolidate free financial data sources, and combined deep learning models with frontier LLMs to interpret macro-economic factors for comprehensive investment analysis.

Paper Reproduction: W-Net

Apr 2021 - Apr 2021

Reproduced and corss-checked the results of paper "W-Net: A DeepModel for Fully Unsupervised Image Segmentation" in Pytorch. Moreover, summarized the findings in a blog on Medium.com and the code on GitHub.

Core Skills

Computing Language: Python, C++, MATLAB

Machine Learning and Deep Learning: PyTorch, Scikit Learn, OpenCV, ONNX, Open3D, AWS

Collaborating Environment: GitHub, GitLab, JIRA, Jenkins, Confluence

Testing: Google Test, QAC

Others: Robotics Operating System (ROS), Linux, Arduino, Raspberry Pi, Docker, Kubernetes, OpenMP

Education

Delft University of Technology

Sep 2020 - Sep 2022

MASTER OF SCIENCE Robotics
GPA: 8.22

Delhi Technological University

Jun 2016 - Jun 2020

BACHELOR OF TECHNOLOGY Automotive Engineering
GPA: 9.09

Languages

English *(C1)*, **German** *(A1)*, **Hindi** *(C2)*

Awards

Erasmus Scholarship

Aug 2021

Holland Scholarship

Sep 2020

Certificates

AWS Certified Cloud Practitioner

Oct 2025

Amazon Web Services

CUDA Parallel Programming on NVIDIA GPUs Jun 2025
Udemy

Docker & Kubernetes May 2025
Udemy

Jenkins Aug 2025
Udemy

LLM Engineering Aug 2025
Udemy

Publications

Design And Validation Of Engine Intake Manifold Using Physical Experiment And CFD
International Journal of Automobile Engineering Research and Development

Design And Optimization Of Crankshaft For Four-Cylinder 4-Stroke Spark Ignition Engine Using Transient Structural Analysis
International Journal of Mechanical and Production Engineering Research and Development

Design and Fabrication of Wing of High-Payload Aerial Vehicle
International Journal of Mechanical and Production Engineering Research and Development

Design and Development of Inertia Dynamometer for FSAE Application.
6th International Conference of Advance Research and Innovation