

Sushant Sharma

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Experience

AI Research Intern, JLR North America – Windsor, Ontario May 2025 – August 2025

- Drove impactful research initiatives for a global automotive leader, advancing innovative solutions through cutting edge AI technologies.
- Designed and executed sophisticated experiments with advanced computational tools to analyze complex datasets, delivering high precision results.
- Developed streamlined workflows to process and evaluate data, ensuring alignment with stringent project standards and timelines.
- Collaborated with cross functional teams, including academic partners from the University, to achieve strategic project goals while maintaining strict confidentiality and intellectual property protocols.
- Leveraged expertise in artificial intelligence, machine learning, data analysis, and software development to deliver transformative outcomes in automotive research.

Machine Learning Intern, University of Windsor – Windsor, Ontario January 2025 – April 2025

- Collaborated directly with TD Bank as project client, holding regular meetings to align system requirements and progress.
- Independently designed and implemented the full backend system, managing data pipelines, connection between prediction models, and infrastructure.
- Developed machine learning modules focused on credit-lending decision predictions, optimizing for model integrity and production readiness.
- Contributed to rigorous model validation, testing workflows, and system documentation to ensure deployment quality.

Machine Learning Engineer, S.S. Engineering Works – Una, India June 2023 – April 2024

- Developed AI-based predictive analytics, reducing inventory costs by 15% and improving financial decision-making.
- Implemented fine-tuned deep learning models using PyTorch & TensorFlow for anomaly detection in industrial operations.
- Automated data pipelines and reporting using Python, Pandas, and SQL, improving efficiency by 20%.

Tech Event Coordinator, Gravity LPU – Punjab, India October 2019 – April 2022

- Coordinated events using project management tools (MS Project, MS Excel, MS Word etc.), enhancing operational efficiency.
- Managed 50+ AI & coding hackathons, engaging over 200+ participants and boosting team collaboration.
- Developed detailed event reports and post-event analyses to drive continuous improvement and stakeholder alignment.

Education

University of Windsor, Master of Applied Computing – Windsor, Ontario May 2024 – September 2025

- Available for full time opportunities starting September 2025.
- **Coursework:** Advanced Database Systems, Internet Applications and Distributed Systems, Advance Software Engineering
- **Specialization:** Artificial Intelligence and Finance at Global Perspective

Lovely Professional University, Bachelor of Technology in Computer Science and Engineering – Punjab, India July 2019 – June 2023

- **Coursework:** Predictive Analysis, Android, Cloud, Data Engineering, Data Visualization, Data Structures and Algorithms

Projects

EmotionSentimentNet: Distributed Multi-Task Emotion & Sentiment Classifier 2025

- Engineered a multi-head deep neural network, leveraging DeBERTa-v3 to jointly classify emotions and predict sentiment intensity from social media/user text.
- Developed and optimized a full GPU-accelerated pipeline: data preprocessing, joint-task training, early stopping, and

model evaluation with PyTorch DataParallel/mixed precision.

- Integrated state-of-the-art cleaning (emoji, lemmatization), transformer-based sentiment labeling, robust checkpointing, and detailed diagnostic visualizations.
- **Technologies:** PyTorch, HuggingFace Transformers, DataParallel, spaCy, Scikit-learn, NLTK

Self-learning-LLMs: A Scalable Pipeline for Self-Improving Language Models

2025

- Developed a distributed reinforcement learning pipeline for large language models, implementing SEAL: Self-Editing via Reward-Guided Self-Editing.
- Designed and engineered an iterative training loop that uses multi-candidate edit sampling, token-level F1 and semantic similarity metrics for candidate filtering, and parameter-efficient LoRA fine-tuning.
- Supported multi-GPU/distributed regimes (torchrun, DDP), enabling large-batch RL and rapid scaling.
- **Technologies:** Python, PyTorch, HuggingFace Transformers, PEFT/LoRA, Accelerate, DeepSpeed, Hydra, YAML, SentenceTransformers

Efficient-Image-Restoration: Deep Learning Image Denoising Framework

2024

- Developed a paired data pipeline, custom U-Net model and full training/evaluation suite for image restoration.
- Automated scripts for dataset creation (noise/low-res simulation, target pairing), enabling rapid research cycles.
- Achieved restoration assessment using industry-standard PSNR/SSIM metrics, plus dynamic quantization for deployment.
- **Technologies:** Python, PyTorch, CV2, U-Net, Data Science Automation, Model Benchmarking

EdgeAIOptimizer: Edge-Aware Deep Learning Inference Framework

2024

- Engineered a modular inference framework for fast deep learning on edge hardware, leveraging ONNX Runtime, C++, and OpenCV.
- Implemented resource-aware optimization interfaces supporting quantization, operator fusion, and runtime session tuning.
- Designed CLI tools for benchmarking baseline vs optimized model performance and enabling rapid deployment/testing cycles.
- **Technologies:** C++, ONNX Runtime, Python, OpenCV, PyTorch, Model Compression

Technical Skills

Programming Languages: Python, Java, C++, C

Deep Learning: LLMs, Transformers, Reinforcement Learning, NLP, Multimodal AI, Generative AI

Libraries & Frameworks: PyTorch, TensorFlow, OpenCV, ONNX Runtime, TensorRT, Scikit-learn, HuggingFace

Platforms & Tools: Jupyter notebook, Git, PyCharm, VSCode, Ubuntu, GitHub

Key Proficiency: Parallel Model Training, AI Model Deployment, Fine tuning LLMs, Generative AI, Optimization

Conferences

Twitter Sentiment Analysis on COVID-19

2023

- Presented at ICCS-2023 (KILBY100), showcasing the application of Natural Language Processing (NLP) techniques using Python with implementation of machine learning algorithms to evaluate performance, the maintenance of data pipelines, and the use of statistical analysis in the context of multimodal sentiment analysis.

Certificates & Technical Training

- Machine Learning Certification by Andrew Ng, Coursera
- Artificial Intelligence with Deep Learning, Udemy
- Building Real-Time Video AI Applications, NVIDIA