

# Shashwat SHARMA

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## EDUCATION

<b>Institut Polytechnique de Paris   <i>École Polytechnique</i></b> <i>Master in Computer Science - Data and Artificial Intelligence</i>	2024 – 2026 <i>GPA: 17.3/20 (4.0/4.0 on U.S. Scale)</i>
<b>SMVD University &amp; Indian Institute of Technology - Madras</b> <i>Bachelor of Engineering in Computer Science and Diploma in Data Science</i>	2020 – 2024 <i>GPA: 8.2/10</i>

## RESEARCH EXPERIENCE

<b>Laboratoire d’Informatique (LIX), École Polytechnique</b> <i>Exploring Machine Unlearning on Fine-Tuned LLMs</i>	Jan 2025 - Apr 2025 <i>Guide: Dr. Davide Buscaldi</i>
<ul style="list-style-type: none"><li>Explored fine-tuning and machine unlearning concepts using a dataset of QnA pairs related to individual bibliographies. Fine-tuned a small LLM to achieve high performance and implemented machine unlearning to selectively remove 2% of the dataset while maintaining accuracy on the remaining pairs with minimal computational cost. Leveraged PEFT methods like LoRA and experimented with existing unlearning techniques to improve baseline methods.</li></ul>	
<b>Computing AI &amp; DL Lab (Hecaidl), SMVD University</b> <i>Multilingual Speech Recognition and Summarization with Transformers</i>	Undergraduate Research <i>Guide: Dr. Baijnath Kaushik</i>
<ul style="list-style-type: none"><li>Designed a system for live transcription and summarization using transformer-based NLP models like BERT, RoBERTa, and sequence-to-sequence architectures. Fine-tuned pre-trained multilingual models, achieving an 8% reduction in word error rate for speech recognition tasks.</li></ul>	
<i>Medical AI Research: Transfer Learning, Image Segmentation, and Multimodal VQA</i>	
<ul style="list-style-type: none"><li>Leveraged pre-trained vision models and U-Net architectures for image segmentation. Achieved state-of-the-art results in detecting various diseases by improving accuracy by 5–10% through feature selection using heuristic-based algorithms and advanced ensembling techniques. Developed a Multimodal Transformer for Medical VQA, integrating Transformer-based language models and MaxVit for image feature extraction. Finetuned on the VQA-Med dataset, the model optimizes attention mechanisms for precise image region analysis, achieving state-of-the-art results with 83.1% modality accuracy.</li></ul>	
<i>Vision Transformer Compression using Structured Pruning Techniques</i>	<i>Guide: Dr. Manoj Kumar Gupta</i>
<ul style="list-style-type: none"><li>Implemented single-path one-shot neural architecture search to compress Vision Transformer (ViT) architectures, utilizing structured pruning techniques and fine-tuning for optimal performance. Achieved 35% reduction in parameters and FLOPs while maintaining accuracy, facilitating efficient deployment in mobile and edge devices.</li></ul>	

## INDUSTRIAL EXPERIENCE

<b>Data Scientist</b> <i>STMicroelectronics, France</i>	Apr 2025 - Sep 2025 <i>Internship</i>
<ul style="list-style-type: none"><li>Developed a comprehensive price prediction model for microelectronic components, devising a novel estimation strategy that outperformed state-of-the-art models. Benchmarked various ML algorithms and optimized XGBoost for both accuracy and inference speed. Implemented a TabNet-based architecture with pretraining and downstream finetuning, and constructed a knowledge graph with Graph Neural Networks (GNN) for enhanced regression performance in semiconductor pricing.</li></ul>	
<b>Associate Data Scientist</b> <i>SkilloVilla, India</i>	Sep 2023 - Dec 2023 <i>Internship</i>
<ul style="list-style-type: none"><li>Developed Jupyter Notebooks to enhance the data science curriculum, explicating diverse ML models, resulting in a 20% improvement in feedback scores compared to previous iterations. Collaborated with industry experts to design masterclasses for each topic, detailing real-world and industry-specific use cases for various models. Engineered an automated scoring system for Python lab test notebooks and ensuring efficient feedback mechanisms.</li></ul>	







## HACKATHON EXPERIENCE

<b>OpenAI x Tech Europe Hackathons</b> <i>2<sup>nd</sup> Prize; MagnOSS: Open Source AI Chess Trainer</i>	Sep 2025
<ul style="list-style-type: none"><li>Built <b>MagnOSS</b>, an AI-powered interactive chess coach integrating OpenAI models, a custom RAG pipeline, and Stockfish, winning second prize after developing the project in just 24 hours.</li></ul>	
<b>MistralAI x Cerebral Valley Hackathon</b> <i>AI-Powered DevOps Automation with MCP Server</i>	Sep 2025
<ul style="list-style-type: none"><li>Developed an MCP server that enables natural language deployment of GitHub repos, VM orchestration, and Docker container management using the Mistral Medium model, demonstrating the potential of AI-driven DevOps automation.</li></ul>	
<b>MistralAI Game Jam Hackathon</b> <i>Finalist; “Shyguy’s Wingman” Interactive Game</i>	Jan 2025
<ul style="list-style-type: none"><li>Created a finalist project under the theme “You don’t control the character”, designing a Hugging Face-deployed game where Mistral models power indirect player influence and humorous AI-driven interactions.</li></ul>	





## LEADERSHIP

<b>Google Developer Student Club   <i>Machine Learning Lead</i></b>	2022 – 2024
Led a team of 100+ developers as the Machine Learning Lead in Google Developer Student Club, conducted over 24+ workshops and contributed to open source projects that fostered practical AI and ML skills among members.	

PROJECTS

<b>Multimodal Deception Detection</b>   <i>Pytorch, Multimodal AI</i>	
<ul style="list-style-type: none"><li>Developed a multimodal AI system integrating visual (ViT), audio (Wav2Vec2), and linguistic (BERT) features with cross-attention and gated fusion mechanisms to detect deception in long-form videos, achieving 70% accuracy with 81% recall for deceptive behavior on the DOLOS dataset using parameter-efficient adapters and hierarchical temporal processing</li></ul>	
<b>Multilingual Summary Generation</b>   <i>Large Language Models, HuggingFace Transformers, qLoRA</i>	
<ul style="list-style-type: none"><li>Developed and evaluated multilingual summarization models across English, French, German, and Japanese using Wikipedia data, demonstrating that full fine-tuning of compact models (Qwen2.5-0.5B) outperformed parameter-efficient tuning of larger models (Phi-4-3.8B), achieving up to 167% ROUGE score improvements and significant cross-lingual knowledge transfer</li></ul>	
<b>Quantum Enhanced Transformer</b>   <i>Pytorch, PennyLane, Attention</i>	
<ul style="list-style-type: none"><li>Developed Quantum-enhanced transformer model leveraging PennyLane for quantum computations, featuring quantum multi-head attention and feed-forward networks for improved information processing, attaining 7% higher text classification accuracy at the same number of training steps.</li></ul>	
<b>Voxtalum: AI Voice Assistant</b>   <i>Langchain, DeepLake, Streamlit, Natural Language Processing</i>	
<ul style="list-style-type: none"><li>Developed a dual-input AI voice assistant using Whisper and Langchain, enabling efficient knowledge retrieval and natural user interactions. created vector database using DeepLake for integrating the scraped knowledge base using BeautifulSoup4 and Implemented Streamlit app enabling easy user interactions.</li></ul>	
<b>Open Source Code Contributions</b>   <i>Activeloop.ai, Plone, MindsDB, TensorFlow</i>	
<ul style="list-style-type: none"><li>Contributed in the QA of new datasets to <i>DeepLake</i> by implementing Pytorch dataloaders and models and Fixed open issues in Plone <a href="#">merged</a>, TensorFlow <a href="#">merged</a> and MindsDB <a href="#">merged</a>.</li></ul>	
<b>Kaggle Competitions</b>   <i>Python, PyTorch, TensorFlow</i>	
<ul style="list-style-type: none"><li>Achieved top 10% or better rankings in multiple Kaggle machine learning competitions, demonstrating skills in data preprocessing, feature engineering, and model optimization across diverse problem domains.</li></ul>	

PATENTS & PUBLICATIONS

<b>Intellectual Property, India</b>	 Granted, 2024
Kaushik, B., <b>Sharma, S.</b> , Pant, P., Jamwal, R.	
<i>System and Method for Live Transcription and Summarization using Natural Language Processing</i>	
<b>Intellectual Property Office, United Kingdom</b>	 Granted, 2023
Kaushik, B., <b>Sharma, S.</b> , Pant, P., Jamwal, R., Mahajan, A., Khan, Y., Ashok, M., Chadha, A.	
<i>A Novel Machine Learning Based Data-driven Device for Precision Agriculture</i>	
<b>International Conference on Cognitive Computing and Cyber Physical Systems</b>	 doi
<b>Sharma, S.</b> , Kaushik, B.	
<i>FeaTrim-ViT: ViT Trimming with One Shot Neural Architecture Search in Continuous Optimization Space</i>	
<b>International Conference on Computing, Communication, Security and Intelligent Systems</b>	 doi
Gupta, N., Kaushik, B., Chadha, A., Khan, Y., <b>Sharma, S.</b>	
<i>An ensemble approach for multiclass skin lesion classification from dermoscopic images</i>	

TECHNICAL SKILLS

<b>Programming Languages:</b> Python, C, C++, SQL
<b>Data Science:</b> TensorFlow, PyTorch, Pandas, NumPy, Matplotlib, Seaborn, Langchain
<b>Software Development:</b> Flask, FastAPI, Next.js, HTML/CSS
<b>Development Tools:</b> AWS (EC2, S3, Lambda), Kubernetes, MLflow, Tensorboard, Git, Docker
<b>Languages:</b> English (Fluent), Hindi, Maghi (Native), German (B1), French (Learning)

VOLUNTEERING

<b>Vikalp</b>   <i>Volunteer</i>	2021 – 2024
Volunteered at Vikalp, an organization dedicated to uplifting underprivileged children from rural areas surrounding the university, by providing educational support, fostering their holistic development, and organizing 40+ events, while also contributing to the development of Vikalp’s website.	
<b>National Service Scheme</b>   <i>Volunteer</i>	2021 – 2022
Served as a volunteer at the National Service Scheme, dedicating 120+ hours and leading impactful campaigns and community engagement initiative for increased computer literacy within rural areas.	

AWARDS

<b>Meritorious Scholarships</b>	
Received tuition fee scholarship at Shri Mata Vaishno Devi University on academic merit	2020
Received a 90% tuition fee scholarship at Fiitjee Institute based on high rank in National Entrance Exam	2017
Received a 50% tuition fee scholarship at Kothari International School based on high GPA in Grade 10th	2017
<b>Scholarly Achievements</b>	
Qualified the Graduate Aptitude Test in Engineering (GATE) Achieved All India Rank 1331 (Top 2%) in Data Science	2024
Awarded Rank 1 in the Kimo.ai Artificial Intelligence Competition among all participants from IIT Madras	2023
Achieved 97th Percentile in Joint Entrance Examination out of 1.04 Million applicants across India	2020
Secured multiple medals in national science and mathematics olympiads during high school	
<b>International Award for Young People</b>   <i>Duke of Edinburgh’s International Award</i>	
Attained the Silver Award for my outstanding contributions to various social outreach initiatives	2019
<b>Extra Curricular Achievements</b>	
Awarded Volunteer of the session for my for my dedicated service at Vikalp	2022
First Place for Table Tennis Competitions at IIT Madras and SMVDU Katra	2022
Recipient of Best Speaker awards across multiple presentations and competitions	