

Utsav Sharma

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Education

New York University, New York, USA Master's of Science, Computer Science <i>Relevant courses: Data Science, Big Data, Data Visualization, Artificial Intelligence, Database Management Systems, Open-Source Software Development</i>	May 2025 GPA: 3.77
Amity University, Noida, India Bachelor's of Technology Computer Science (AI/ML Honors)	May 2023 CGPA: 8.44

Experience

Graduate Research Assistant, New York University <ul style="list-style-type: none">Spearheading the integration of Generative AI Large Language Models (LLMs) (Llama3, Mistral, Falcon) into semiconductor designCreating a multi-modal agent-based system using curated datasets on high-performance clusters, employing retrieval augmented generation, and reinforcement learning from human feedback (RLHF), achieving 80% improvement in task-specific accuracyResearch work "Towards AI Design Assistants for EDA" selected for presentation at the 2024 Student Research Competition (SRC) at the International Conference on Computer-Aided Design (ICCAD) - Tier-1 ConferenceAwarded at Student Scholar Program at ICCAD'2024 for exceptional research on LLMs	Oct 2023 - Present
Data Science Intern, Hewlett Packard Enterprises <ul style="list-style-type: none">Developed automated scripts for API data collection and optimized data pre-processing to enhance integration efficiency by 95% for the Indus Army Project	Jan 2023 - Jul 2023
ML Research Intern, Deloitte Touche Tohmatsu Limited <ul style="list-style-type: none">Developed advanced chatbot workflows and researched emerging AutomationAI technologies, achieving a 70% improvement in user experience through optimized machine learning-driven interactions	Jun 2022 - Jul 2022
Data Science Intern, SheValues <ul style="list-style-type: none">Engineered and processed 35,000+ job listings via Python web-scraping and applied data transformation to enable seamless feature engineering and AI model training for a recommendation system	Sep 2021 - Nov 2021

Projects

OpenROAD-Assistant: Domain-Specific Large Language Model For Chip Design Developed an LLM chatbot through advanced retrieval-aware fine-tuning and self-tailored datasets, leveraging the Llama3 foundation model, for both script generation and natural language responses, achieving performance metrics of 77% pass@1, and 98% BERTScore	Oct 2023 - Present
Predictive Analysis of Histopathological Images With Hybrid Algorithms Enhanced IDC breast cancer detection accuracy to 99% by combining nature-inspired optimization techniques with advanced ML models	Jul 2022 - Jun 2023
Analysis of AI Customer Segmentation Clustering Techniques Conducted a comparative study of clustering models (K-means, Hierarchical) with AI frameworks, including TensorFlow 2.0 and Keras	Jul 2021 - Jan 2022
Twitter Sentiment Analysis Designed an NLP model achieving 80% accuracy for sentiment analysis using Naive Bayes and SVM algorithm	May 2021 - Aug 2021

Publications

OpenROAD-Assistant: An Open-Source Large Language Model for Physical Design Tasks. Utsav Sharma*, Bing-Yue Wu*, Sai Rahul Dhanvi Kankipati, Vidya A. Chhabria, and Austin Rovinski. *ACM/IEEE International Symposium on Machine Learning for CAD (MLCAD '24)*. Sep 2024

Invited: Generative Methods in EDA: Innovations in Dataset Generation and EDA Tool Assistants. Vidya A. Chhabria, Bing-Yue Wu, Utsav Sharma, Kishor Kunal, Austin Rovinski, and Sachin S. Sapatnekar. *Proceedings of IEEE/ACM International Conference on Computer-Aided Design (ICCAD '24)*. Oct 2022

EDA Corpus: A Large Language Model Dataset for Enhanced Interaction with OpenROAD. Bing-Yue Wu*, Utsav Sharma*, Sai Rahul Dhanvi Kankipati, Ajay Yadav, Bintu Kappil George, Sai Ritish Guntupalli, Austin Rovinski, Vidya A. Chhabria. *The First IEEE International Workshop on LLM-Aided Design (LAD'24)*. Jun 2024 - **Nominated Best Paper**

Predictive analysis on histopathological images using metaheuristics and machine learning methods. Aditi Ganapathi, Utsav Sharma, Saumya Gupta, Arihan Deshwal, Surbhi Vijn and Sumit Kumar. *International Journal of Bioinformatics Research and Applications, Vol. 20, No. 5*

Blockchain in Healthcare: Use Cases. Utsav Sharma, Aditi Ganapathi, Akansha Singh, Krishna Kant Singh. *Blockchain and Deep Learning for Smart Healthcare*, 2023

Analysis of Customer Segmentation Clustering Techniques. Utsav Sharma, G Aditi, Nihar Ranjan Roy, Shailendra Narayan Singh. *12th International Conference on Cloud Computing, Data Science & Engineering (Confluence)*. January 2022

A Quantitative Performance Evaluation of Machine Learning Algorithms for Analyzing Sentiments of Emoticons. G Aditi, Utsav Sharma, Sumit Kumar, Jitendra Singh Jadon. *12th International Conference on Cloud Computing, Data Science & Engineering (Confluence)*. January 2022

Key Skills

Languages	Python, C, C++, Java, HTML, CSS, SQL, MATLAB
Operating System	Windows, Linux, High-performance clusters
Frameworks/Tools /Technologies	PyTorch, Transformers, Pandas, Numpy, Matplotlib, TensorFlow, Scikit-Learn, Keras, Seaborn, NLTK, HuggingFace, Inference Pipelines, Datasets, Unsloth, GitHub, NLP, Apache Spark, Hadoop, Tableau, CI/CD, MLOps, LLMOps
Software	Agile methodology, Data Structures, Analysis and Design of Complex Algorithms, Networking, Business Process Management, Software Lifecycle