

Utsav Sharma

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Education

New York University, New York, USA

May 2025

Master's of Science, Computer Science

GPA: 3.77

Amity University, Noida, India

May 2023

Bachelor's of Technology Computer Science (AI/ML Honors)

CGPA: 8.44

Experience

Graduate Research Assistant, New York University

Oct 2023 - Present

- Spearheading the integration of Generative AI Large Language Models (LLMs) into chip design, addressing critical accessibility challenges in physical chip design automation, eliminating reliance on proprietary tools/data
- Developing a multi-modal agent-based system, leveraging curated datasets, novel post-training techniques, retrieval-augmented generation, and reinforcement learning with human feedback, achieving model performance accuracy of 80%
- This Research:
 - Recognized at the 2024 Student Research Competition at the International Conference on Computer-Aided Design (ICCAD) - Tier-1 Conference
 - Awarded at Student Scholar Program at ICCAD'2024 for exceptional research on LLMs
 - Won the NVIDIA Academic Grant Program award for LLM research on chip design

Data Science Intern, Hewlett Packard Enterprises

Jan 2023 - Jul 2023

- Automated manual API data pre-processing with optimized algorithms, cutting data integration time by 70%, reducing errors by 90%

Machine Learning Research Intern, Deloitte Touche Tohmatsu Limited

Jun 2022 - Jul 2022

- Researched machine learning models leveraging natural language processing (NLP) techniques to optimize chatbot communication and enhance chatbot functionality

Data Science Intern, SheValues

Sep 2021 - Nov 2021

- Web-scraped over 35,000 job listings and performed data transformation and feature engineering for women's job recommendation system

Projects

Large Language Model For Semi-conductor Chip Design: OpenROAD-Assistant

Oct 2023 - Present

Developed an [Open-Source](#) LLM chatbot through novel retrieval-aware fine-tuning and self-tailored datasets, leveraging the Llama3 foundation model, for script generation and natural language responses, achieving performance metrics of 77% pass@3, 98% BERTScore

Predictive Analysis of Histopathological Images With Hybrid Nature-Inspired Machine

Jul 2022 - Jun 2023

Learning Algorithms

Enhanced cancer detection accuracy to 99% by combining nature-inspired optimization techniques, including Hybrid Lion and Cat Swarm Optimization with artificial neural network model

Twitter Sentiment Analysis

May 2021 - Aug 2021

Quantitative compared Naive Bayes and Support Vector Machine algorithms for novel emoticon-only sentiment analysis using natural language processing techniques, achieving 80% accuracy for the Naive Bayes algorithm

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*. 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 AWARD**

Predictive Analysis on Histopathological Images using Metaheuristics and Machine Learning Methods. Aditi Ganapathi, Utsav Sharma, Saumya Gupta, Arihan Deshwal, Surbhi Vijh and Sumit Kumar. *International Journal of Bioinformatics Research and Applications, Vol. 20*

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)*. Jan 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)*. Jan 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

Achievements/Certifications

Finalist - Student Research Competition - IEEE/ACM International Conference on Computer-Aided Design (ICCAD '24)	2024
Dean's Academic Scholarship - New York University	2023
Student Lead - Amity Innovation and Design Center for AI/ML	2022
Google Cloud Readiness program	2021
Top 30 Finalist - Amity Project Management Hackathon (1000 participants)	2021
3rd Place - Amity Youth Fest - University Research Competition (35 Teams)	2020
Dean's Academic Scholarship - Amity University	2019
High School Valedictorian for Computer Science	2019

Volunteering

Student Volunteer, CharityHat (60 Hours)	Jan 2022 - Jun 2022
Contributed to COVID-19 relief efforts by distributing masks and essential supplies to underserved communities, ensuring safety and support during the pandemic	
Volunteer, Lakshyam (73 Hours)	Oct 2020 - Jan 2021
Engaged in teaching underprivileged girls while securing potential donors to support their education. Managed administrative tasks, including data organization and secondary research, contributing to streamlined operations and impactful programs	
Local Moral Education Trainer, Resident's Welfare Association (20 Hours)	Mar 2019 - Dec 2019
Conducted engaging sessions for local underprivileged residents, promoting values, ethical awareness, and community-building	
Piano-Training Volunteer, International Award For Young People India (102 Hours)	Jul 2017 - Feb 2018
Guided four local children in playing piano, fostering creative potential and holistic development through musical	