

EDUCATION

- **BITS Pilani, Hyderabad Campus** Hyderabad, India
Master of Engineering in Computer Science (on campus-full time); CGPA: 8.91 *Nov. 2020 – July. 2022*
- **Heritage Institute of Technology** Kolkata, India
Bachelor of Technology in Computer Science and Engineering; CGPA: 7.31 *Aug. 2011 – July. 2015*

EXPERIENCE

- **University of Surrey** Guildford, UK
Research Assistant under Prof. Nishanth Sastry *July 2023 - Present*
 - **GDPR Compliance for Web Cookies:** Working on the development of, a tool for automated GDPR consent cookie settings, enhancing privacy across 25 countries.
 - **Unlearning in LLMs:** In Progress
- **WESEE Project - Indian Navy Collaboration with IIT Hyderabad** India
Senior Research Engineer *Aug 2023 - Present*
 - **Code Compliance Initiative:** Leading the development of a robust code compliance framework for critical defense software systems. Using **clang, llvm** to analyze and optimize codebase, ensuring stringent adherence to security and performance standards.
- **Digital Green** Bengaluru, India
Software Engineer -2 *Nov 2022 - Mar 2023*
 - **Agri.Chat - An AI-Driven Agricultural Chat Bot:** Engineered and integrated an AI-powered chatbot, Agri.Chat, into the agricultural domain, enhancing digital assistance for farmers and agronomists. Implemented RAG vector embeddings for efficient retrieval of vectorized agricultural data.
 - **FarmStack:** Catalyzed secure data transfer protocols for the agritech startup, funded by the Bill and Melinda Gates Foundation, through the innovative "**Farmstack**" initiative. Utilized Python, Django, and REST APIs to bolster backend development. Achieved a secure data exchange compliance rate of **97%**.
- **Amazon** Bangalore, India
Applied Scientist (Intern) *Jan 2022 - June 2022*
 - **Innovative Session-Based Refinement Recommendation:** Spearheaded the design and implementation of BERT4Ref and BERT4Ref+, pioneering session-based refinement recommendation models, during my tenure in the International Machine Learning (IML) unit. Executed complex data analysis on a vast dataset, featuring over 1 million unique products and exceeding 200 million user-product interactions.
 - **Advanced NLP Techniques and Deep Learning Models:** Employed advanced NLP techniques and deep learning models including fastText, word2vec, GRU4Rec, and BERT variants, to decode and predict user behavior with high precision. Enhanced the session-based recommendation accuracy significantly, surpassing heuristic baselines by 54.5% and 50.3% in P@1 and P@5 metrics, respectively.
 - **Impactful Business Metrics:** My contributions led to a substantial increase in operational success, with top-1 and top-5 recommendations capturing 6.56% and 37.55% of all purchase sessions, respectively. This work underpins a direct correlation between refinement usage and improved purchase rates—60% with a single refinement and 110% with multiple.
 - **Contribution to Amazon's Knowledge Base:** Synthesized research findings into a compelling paper, which was selected for presentation at the Amazon Machine Learning Conference (AMLC) with a 20% acceptance rate, illustrating high-quality research and innovation.
 - **Technical Expertise and Tools Utilized:** Expertly navigated AWS SageMaker, Pytorch, fastText, and Huggingface tools to model intricate customer preference patterns. Devised a novel ASIN representation strategy that encapsulates each product as a dictionary of attribute-value pairs, providing a nuanced understanding of customer refinement preferences.
- **Infosys** Hyderabad
Senior Systems Engineer *Aug 2015 - May 2019*
 - **Project:** Facilitated the backend development of client applications leveraging Java and Spring MVC frameworks. Optimized performance through effective use of multithreading and concurrency principles, resulting in a **30%** increase in application efficiency.

PROJECTS

- **Spectre Attack- CPU Side Channel Attack** : POC Implementation of Spectre Attack
<https://github.com/nsbits/spectre>
Using cache as side channel built a POC of the Spectre attack, we can get CPUs to execute (out-of-order) a protected code branch even if the condition checks fails, essentially defeating the access check.
- **File Transfer using MP-QUIC Protocol**: Developed a file transfer system which uses Multipath-Quic protocol to transfer large files.
Demonstrated MP-Quic's benefits over simple Quic protocol. 135% faster than just using single path transmission over network. Used mininet (network emulator) to emulate multipath network.
- **Using Fuzzy Inference System to predict mortality on Heart failure clinical records dataset**: For discretization of continuous attributes, used Genetic Algorithms for feature selection.
Used decision trees to select the best rules.
Built a Fuzzy Inference System in MATLAB using these rule Github: https://github.com/nsbits/ADM_Project_FIS

PROGRAMMING SKILLS

- **Languages**: C++,C, Python, SQL, Java
- **Technologies**: AWS, Pytorch, Tensorflow

SUBJECTS

- **Coursework**: Operating Systems, Computer Networks, Data Mining, Data Structures and Algorithms
Research: Machine Learning, Deep Learning, Natural Language Processing, Recommender Systems