SACHIT GAUDI

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Education

Masters - Computer Science	**Michigan State University**, East Lansing, USA	Jan 2023 - Expected Dec 2024
Bachelor of Technology	**Indian Institute of Technology**, Guwahati, India	Jul 2014 - May 2018

Graduate Research - Algorithms, Fairness & Privacy

My research spans Algorithms, Fairness, & Privacy, drawing inspiration from each domain. I am advised by Prof. Vishnu Boddeti. My blog lists my works on Dynamic programming, Fairness in LLM, Unlearning private data, and Optimisation.

- Algorithms - Transformed dynamic programming into a convex optimization problem, achieving O(N) approx solutions.
- Fairness - I work on improving generalization capability of model, addressing imbalance, group shift, and memorization.
- Privacy - Proposed solutions based on pruning, re-weighting, projections for removing private information from models.

Professional Experience

Reliance Jio Haptik   Mumbai, India
Software Development Engineer II   *Apr 2021 - Dec 2022*

- Led research and implementation efforts in multi-task BERT-based transformer models, improving the **recall** of product labeling, NER, and intent detection for JioMart Search (25M MAUs) by $\approx$ **10%**.
- Engineered a collaborative filtering-based product personalization module, enhancing targeted recommendations. Achieved a significant improvement, with the **average first click rank** decreasing from 3.4 to **2.1**.

Software Development Engineer I   *Jan 2020 - Apr 2021*

- Refactored monolith to microservices, employing async queues for inter-service communication, resulting in a **30%** reduction in latency as well as contributing to a **99%** up-time guarantee.
- Led the initiative to integrate centralized logging into Elastic Search & Kibana, boosting developer velocity.
- Developed a solution based on mediator pattern that integrates messages from all sources, including Meta.
- Applied back-track algorithm to enhance Intent detection & utilized Tf-idf for improved semantic extraction.

SmatSuite   Hyderabad, India
Lead Backend Engineer   *Jan 2019 - Jan 2020*

- Led architecture and database design for the chatbot. Implemented database sharding, replication, and pushed efforts to make platform No-code Plug & Play (PnP), reaching a scale of **10 req/sec**.
- Managed a team of **4** developers in the development of micro-services for flow analytics and client dashboard.

Academic Experience

Graduate Teaching - Michigan State University   C++, Python

- Taught Locks and Object-Oriented Design in Database Systems. Guided students in hands-on creation of SQL database.
- Instructed 80 students in CSE 232 - Intro to C++ programming during Fall'23. Developed problem sets and delivered lectures on pointers, IO, strings, objects, and recursion.

Distributed Deep Learning   C++, MPI, OpenMP, CUDA

- Developed P-GPT algorithm - a gradient map-reduce parallelization strategy - for training deep learning models across multiple servers. P-GPT establishes optimal parameters for data scheduling, threading, and process parallelism tailored to specific network topologies achieving a parallel efficiency of **95%**.

Pattern Unrecognition   Python, PyTorch, sklearn

- Addressed the problem of spurious correlation, developed a novel research solution by incorporating fairness constraints into LDA, yielding a substantial **8%** improvement in generalization accuracy.

Deep Learning based Image Search for e-commerce   Python, PyTorch, Huggingface, MongoDb, Faiss

- Implemented a Triplet Pair Siamese Network with a base model of VGG16, trained using hinge loss. Achieved a **10% recall** while maintaining flexibility for training on search rank data.

Technical Skills & Services

Programming	Python, C++, Java, PyTorch, Huggingface, sklearn, CUDA, Shell Scripting
Databases & Search	MySQL, Redis, MongoDB, Solr, Elastic Search
Tools & Technologies	Docker, Flask, Django, Git, Jenkins, RabbitMQ, Wandb
Relevant Courses	Computer Vision, Graph Theory, Parallel Computing, Data Structures, NLP, Machine Learning

Achievements

Best Employee: Received Big Hand award from Reliance for exemplary quarterly performance, youngest to do so.
Merit Scholarship: Received Scholarship based on Merit from IIT, Kharagpur. (Top 10%)
Joint Entrance Examination: Secured an All India Rank of **2240** out of 1.35 million candidates. (Top 0.17%)