YATHARTH SINGH

Senior, B.E. (Hons.) Computer Science, BITS Pilani

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EDUCATION

Birla Institute of Technology and Science, Pilani   **Oct 2022 – July 2026**

Bachelor of Engineering in Computer Science with Honours

INTERNSHIPS

Stripe   **May 2025 – Jul 2025**

Software Engineering Intern (Data Infrastructure/Search)   *Bengaluru*
- Designed and developed a **Spark** workflow to ensure robust data consistency between **MongoDB** and **Elasticsearch**.
- Identified bottlenecks in the data quality pipeline and optimized the workflow resulting in a ∼**45%** speedup.
- Increased data freshness from **1 week to 1 day** with projected ∼**$600K** savings in annual data infrastructure costs.
- Visualized data quality metrics via a **dashboard** and set up **checkers** to raise alerts in case of significant inconsistencies.

The Arctic University of Norway   **Jan 2024 – June 2024**

Research Intern   *Remote*
- Conducted research on privacy preservation for action recognition tasks based on **minimax optimization** and **GCNs**.
- Reviewed existing literature, trained **SPACT** framework, and developed a WGAN-based reverse anonymization model.
- Implemented and benchmarked deep learning architectures including ResNet 3D, SimCLR, UNet, WGAN, ST-GCN etc.

ParallelDots   **May 2024 – Jul 2024**

Machine Learning Intern   *Gurgaon*
- Developed an **in-browser face recognition** system from dataset preprocessing stage to training and to deployment.
- Built training and testing pipelines using **ArcFace** loss as an upstream classification task achieving **82.37% top-1 accuracy** over 1087 classes, enabling downstream face recognition via nearest neighbour search on the embeddings.
- Leveraged **FAISS** for high-speed embedding retrieval via cosine similarity, enabling scalable one-shot face recognition.
- Developed frontend and deployed it utilizing **TensorFlow.js** for real-time client-side model inference hosted on AWS.

PROJECTS

Contrastive Activation Steering for Dark Pattern Mitigation in LLMs   **Apr 2025 – May 2025**
- Implemented contrastive **activation steering** to reduce dark pattern tendencies in open-weight large language models.
- Generated a training **dataset synthetically** by developing an LLM pipeline to create diverse contrastive response sets.
- Developed a **test-time inference method** to dynamically steer model outputs away from dark pattern tendencies.

GPT-based De Novo Generation of Ionic Fluids   **Nov 2023 – Jan 2024**
- Developed a GPT model for de novo generation of ionic fluids with desired properties using **SMILES** representations.
- Pretrained on GuacaMol/MOSES datasets to learn molecular generation, finally fine-tuning on custom ionic fluid data.

Chat Server using Socket Programming in C   **Oct 2024 – Nov 2024**
- Developed a chat server using a TCP server, dynamically managing a pool of processes to handle variable client traffic.
- Implemented an event-driven architecture using **epoll/select** to concurrently support multiple clients per process.
- Leveraged **shared memory** and **semaphores** for IPC and synchronization of user states and message queues.

POSITIONS OF RESPONSIBILITY

CSIS Department, BITS Pilani

Teaching Assistant, *Intro to LLMs (Fall '25), Computer Programming (Spring '25), Object Oriented Programming (Fall '24)*
- Contributed to the creation of new lab sheet content and refinement of previously existing lab sheets for the course.
- Assisted in conducting lab sessions for over 250 students, addressing doubts, providing guidance, and invigilating quizzes.

Computer Science Association, BITS Pilani   **Jun 2024 – May 2025**

Lead, *Machine Learning Group*
- Led a **20-member** team in the Machine Learning group, overseeing all association activities and interacting with faculty.
- Developed problems for a **Machine Learning Treasure Hunt** held during APOGEE, BITS Pilani's technical fest.

ACADEMIC ACHIEVEMENTS

- Secured **99.7 percentile** in **JEE Main** out of ∼**1M** candidates
- Secured International Rank **1356** in Round 2 of **Meta Hacker Cup**, 2023, winning a shirt
- Secured **All India Rank 561** to win the **Kishore Vaigyanik Protsahan Yojna (KVPY) Fellowship**
- Qualified India's **National Talent Search Examination (NTSE)** state round