Richi Dubey

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Blog: https://rtemswithrichi.wordpress.com/

EDUCATION

Georgia Institute of Technology – Atlanta, GA *August 2024 - May 2026*
Master of Science, Computer Science (Machine Learning Specialization), GPA 4/4
Relevant coursework: Computer Vision, Natural Language, Deep Learning, Graduate OS (Teaching Assistant)

Birla Institute of Technology & Science, Pilani – Goa, India *Aug 2017 - June 2021*
B.E.(Hons), Computer Science, GPA: 3.9/4
Relevant coursework: Machine Learning, Data Structures & Algorithms, Operating Systems (A grade)

PROJECTS

Improving LLMs performance on mathematical operations *Fall 2024*
- Integrated ALUs in transformer architecture to enhance the performance of LLMs. Training on GPT-2 with 10k epochs gives **0.002 average error** across operations, outperforming GPT for up to 1 decimal place.

Improving Masked Autoencoders' (MAEs) performance by Enhancing Data Augmentation with Generative Models *Fall 2024*
- Finetuned Diffusion model and CycleGAN models to improve performance (**over 9% decrease in loss**) of MAEs that use CNN and pixel wise loss to learn latent representation for improved downstream tasks.

Homography Projection for Surfaces in Art Paintings *Fall 2024*
- Built a homography projection app allowing visualising in an elevation view without perspective distortion.

PUBLICATIONS

R. Dubey, V. Banerjee, S. Hounsinou, G. Bloom, *Strong APA scheduling in a real-time operating system: work-in-progress*, International Conference on Embedded Software (EMSOFT), 2021. [DOI], [Talk], [Poster]

EXPERIENCE

CERN (European Organization for Nuclear Research) – Geneva, Switzerland
Fellow *October 2022 – July 2024*
- Developed multi-threaded device drivers in C++ for a distributed SCADA system called REMUS that interfaces **1000+** diverse sensors deployed in CERN's accelerator areas. Also developed fault-tolerant networking programs for sensors, reducing downtime to less than **.001%**.

Oracle – Bangalore, India
Software Engineer *July 2021 – September 2022*
- Implemented new features and fixed production bugs in a multi-tenant application, Oracle Process Automation, with a microservice architecture using Java Spring Boot MVC on Oracle Cloud.
- Wrote terraform code to deploy Kubernetes infrastructure for the application on the cloud. Deployed these codes across **50+** OCI data centres worldwide and reduced developer involvement by over **30%**.

Google – Remote
Summer of Code Student with RTEMS - an open-source Real Time Operating System(RTOS) *Summer 2020*
- Implemented the Strong Arbitrary Processor Affinity (APA) scheduler on RTEMS, which allows dynamically relocating higher-priority tasks among processors. The scheduler can schedule **20%** more task sets than other schedulers for certain utilization. Published a paper and wrote a blog on the implementation.

SKILLS

Programming Languages: C/C++/C++14, Python, Java, SQL, Javascript, TypeScript
Tools/Frameworks: React, Spring Boot, Kafka, PyTorch, Docker, Kubernetes, Git, Jenkins, Linux