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 (Computational Perception and Robotics 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 to visualise surfaces 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.
- Created fault-tolerant networking programs for sensors, reducing their downtime to less than **.001%**.

Oracle – Bangalore, India
Software Engineer   *July 2021 – September 2022*
- Implemented **4+** features in a cloud application with microservice architecture using Java Spring Boot.
- Wrote terraform code to deploy Kubernetes infrastructure for the application on Oracle cloud. Deployed these codes across **50+** OCI data centres worldwide and reduced developer involvement by over **30%**.

OPEN SOURCE CONTRIBUTIONS

RTEMS – Sponsored by Google Summer of Code   *Summer 2020*
- Contributed 1000+ lines of code to RTEMS for implementing the Strong Arbitrary Processor Affinity (APA) scheduler that allows dynamically relocating higher-priority tasks among processors and improves system schedulability by over **20%**. Published a paper and wrote a blog on the implementation.

SKILLS

Programming Languages: Python, C/C++, Java, SQL, Javascript
Tools/Frameworks: PyTorch, Ski-kit, Spring Boot, Kafka, Docker, Kubernetes, Git, Jenkins, Linux