Richi Dubey

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EDUCATION

Georgia Institute of Technology – Atlanta, GA *August 2024 - June 2026 (Expected)*
Master of Science, Computer Science (Specialization: Computing Systems)
Relevant coursework: Computer Vision, Deep Learning, Natural Language, Graduate Operating Systems (TA)

Birla Institute of Technology & Science, Pilani – Goa, India *Aug 2017 - June 2021*
Bachelors in Computer Science, GPA: 3.9/4
Relevant coursework: Real-Time System (Top 5/35), Computer Network (A grade), Operating Systems (A grade)

PUBLICATION

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*

- Managed a distributed and redundant SCADA system called REMUS that interfaces **1000+** diverse sensors deployed in CERN's accelerator, experimental, and surface areas.
- Developed multi-threaded embedded device drivers in C++ for REMUS and state-aware fault-tolerant networking programs for sensors with outdated OSes, enabling robust networking capabilities.
- Tech Stack: C++14, WinCC OA, OPC UA, Apache Kafka, MQTT, Grafana, SQL.

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 on Oracle Cloud using Java and Spring achitecture.
- Wrote terraform code to create and manage the deployment of kubernetes infrastructure required for the application using docker on the cloud. Deployed these codes in a part of a 5-member team across **50+** OCI data centres worldwide and set up monitoring scripts on Grafana.

Google – Remote
Summer of Code Student with RTEMS *May 2020 – Aug 2020*

- Contributed to RTEMS, a POSIX-compliant real-time operating system extensively utilized in various domains, including NASA/ESA satellites and particle accelerators across US DoE national labs.
- Implemented the Strong Arbitrary Processor Affinity (APA) scheduler, a state-of-the-art scheduler that had not been implemented in a real-world operating system.
- The Strong APA scheduler can dynamically move high-priority tasks between processors to optimize resource use and accommodate lower-priority tasks with affinity constraints.
- The scheduler is proven to schedule roughly **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
Languages: Fluent in English and Hindi, Conversational in French

AWARDS

Merit-Need Scholarship — BITS Pilani *2017-2021*
Hercules Prize - edition 2019/2020 — University of Modena and Reggio Emilia, Italy *Feb 2021*
Google Summer of Code (GSoC) 2020 — Google *May 2020*