Daksh Dua

duadaksh@gmail.com | dakshdua.github.io | github.com/dakshdua

---

EXPERIENCE

CLOCKWORK SYSTEMS | Software Engineer
Aug 2022 - Present | Palo Alto, CA

- Head of an 8-person team that developed a platform to monitor network infrastructure for distributed AI/ML workloads supported by NVIDIA Collective Communications Library (NCCL). The platform exposes GPU communication throughput and latency metrics, as well as NIC health, allowing users to quickly debug issues with their cluster or workloads.
- Led 4 developers in the redesign and modernization of the product UI, migrating a static HTML dashboard to use Vue.js and D3.js for reactive data visualization; moved from static measurements and offline reports to live-streamed and replayable insights and alerts for customer deployments.
- Co-led a 15-person team to productionize the clock synchronization product, scaling from a centralized architecture capable of managing at most 3k servers to a fault-tolerant distributed architecture managing over 100k VMs.
- Developed an RDMA traceroute utility in C++ for RDMA over Converged Ethernet (RoCE) v2 clusters to determine the path taken by RoCE v2 packets in the network, which is not possible with traditional traceroute utilities. This utility can be used to triangulate issues with distributed ML training to a particular switch or link in a user's network.
- Advocated for and implemented a testing workflow for the product, which has captured hundreds of bugs that would have otherwise have been shipped to customers.
- Built and maintained multiple product demos used for sales and conferences, highlighting the performance of Clockwork's clock synchronization and congestion control products. Presented at multiple CNCF KubeCon editions, OracleClockworld 2023/2024, FinOps X and The AI Conference 2023.

AMAZON | Software Development Engineer Intern
May 2021 - Aug 2021 | Seattle, WA

- Designed and developed test automation for the Treasure Truck team, using AWS technologies including AWS Lambda, DynamoDB, API Gateway, IAM, CloudFormation, VPC, CloudWatch, and Pipelines.
- Created a Java Coral framework microservice to automate test customer account creation and maintenance, and a Picocli CLI client for its convenient use.

TEXAS ROBOTICS | Student Researcher
Jan 2020 - June 2022 | Austin, TX

- Worked with Texas Robotics and Good Systems to develop an autonomous fleet of food delivery robots on campus.
- Developed a person-avoidance algorithm using Robot Operating System (ROS) for a human-robot interaction paper.
- Reverse-engineered the Boston Dynamics Spot's gRPC protocol for Gazebo simulation.

SENATE OF COLLEGE COUNCILS | Administrative Director
Nov 2019 - Mar 2022 | Austin, TX

- Deployed a secure voting platform for remote organization meetings. The project was hosted on Heroku, using client-side JavaScript for the voting administration website. Express on the server, PostgreSQL for persistence, and JWT (JSON Web Token) for authentication and authorization.
- Built an Initiative Database website to track ongoing and completed student government projects for non-technical users to maintain using Google Sheets as a Content Management System.
- Spearheaded website modernization and ADA compliance initiatives.

EDUCATION

UNIVERSITY OF TEXAS AT AUSTIN
Sept 2019 - May 2022 | Austin, TX

BS in Computer Science with Core Texts and Ideas Certificate (GPA: 4.0/4.0)
Distinguished College Scholar; CNS Second Year Excellence Award; CNS Inventors Fellow; National Merit Scholarship

SKILLS

- **Languages**: C++, Go, Typescript, HTML, CSS, JavaScript, Java, C, Python, x86 Assembly, Clojure, MATLAB
- **Cloud Platforms**: Google Cloud, AWS, Oracle Cloud Infrastructure, Heroku, Azure
- **Databases**: InfluxDB, PostgreSQL, MySQL
- **Technologies**: Vue.js, D3.js, Grafana, etcd, Bazel, Kubernetes, Node.js, gRPC, NVIDIA Collective Communications Library (NCCL), Docker, Bootstrap, Robot Operating System (ROS)