Roopdilawar Singh

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Education

University of Alberta   **Sep. 2020 – Current**
Bachelor of Science in Computer Science - Specialization (3.6/4.0 GPA)   *Edmonton, Alberta*

Experience

Meta   **May 2024 – Current**
Contingent Worker   *Remote*
- Working at Meta as a Full Time Contingent Worker in the Silicon Validation team, helping develop Meta's next generation of training accelerators and ASICs.

Meta   **May 2022 – September 2023**
Contingent Worker   *Remote*
- Worked at Meta as a Contingent Worker in the Silicon Validation team, through HCL Tech.
- Architected robust CI/CD pipelines for compiling, testing, and deploying Firmware packages for our infrastructure systems, resulting in a remarkable 3x reduction in release times.
- Leveraged a suite of internal tools and frameworks, including Conveyor, Sandcastle, and Chronos, to develop it.
- Utilized REST APIs and Hack functions for seamless integration of the pipeline with our web services, automating the testing workflow and enhancing efficiency.
- Revamped an existing CI/CD pipeline by introducing intelligent test analysis, allowing the system to automatically identify and disregard noncritical failures, expediting the approval process for releases.
- Assisted in automating tests and creating testing frameworks to boost validation for Meta's new Inference Accelerator, enhancing product quality and efficiency.
- Developed a Python based Test Coverage Analysis tool to bolster randomized testing progress tracking, significantly enhancing efficiency and enabling constrained randomization.
- Utilized internal tools (Daiquery, Unidash) and public libraries (Presto, Pandas) to strengthen the project's foundation for robust data processing.
- Created an intuitive Tableau-like analytics page for user-friendly visualization of Test Coverage statistics, aiding decision-making and testing strategy for our Silicon Chips.
- Designed a Python based Test Randomization framework for AutoVal, enhancing validation flexibility and implementing constrained randomization.
- Utilized advanced Silicon validation tools like Protium/Palladium ASIC emulators to run the tests in our frameworks.

HCL Tech   **May 2022 – September 2023 & May 2024 – Current**
Software Developer Intern   *Remote*
- Worked at Meta as a Contingent Worker through HCL, for the duration of my internship.

Projects

RayTracerCUDA | *CUDA, C++, CMake, NVIDIA Nsight Systems* ⌨   **September 2024**
- A high-performance ray tracing engine using CUDA, achieving up to 300x speedup over traditional CPU methods. Optimized memory access and parallel processing to render complex scenes efficiently with real-time visual fidelity.
- Integrated bilateral denoising filters for smoother image output and anti-aliasing with multi-sample ray casting.

LS ShiftTracker | *React Native, Firebase, Expo, Xcode, Android Studio* ⌨ Ⓐ   **June 2024**
- Developed LS ShiftTracker, a React Native app for iOS and Android, deployed on App Store and Play Store, with features like geo-fencing, live location tracking, cloud image storage, and employee/admin views, etc, enhancing logistics operations for LS Carriers.
- Integrated Firebase for backend functionality, providing real-time updates, secure data storage, and streamlined reporting for hundreds of users.
- Achieved significant improvements in company efficiency by automating shift tracking, fuel consumption logging, and time management for drivers and admins.

SocialDistribution | *React, Django, Javascript, HTML/CSS, MUI, Heroku* ⌨ 🌐   **February 2024**
- Led development of a decentralized social media platform using React, Django, Heroku, and PostgreSQL, enabling seamless interconnectivity across diverse nodes for a decentralized communication network.
- Implemented a REST API-compliant system for interoperability between various social media applications, allowing users to view posts and follow others across different platforms.

Technical Skills

Languages: Python, C++, C, Cuda, Javascript, HTML/CSS, RISC-V, Bash, SQL
Developer Tools: VS Code, GitHub, Linux, Android Studio, Xcode, Postgres, Firebase, AWS