

DILRAJ DEVGUN

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EDUCATION

University of Washington
BS Computer Science *GPA: 3.75*

Seattle, WA
Aug 2015 - Jun 2019

EXPERIENCE

Meta

Senior Software Engineer - XR Eyes

New York, NY
Oct 2023 - Present

- Productized advanced Eye Tracking Computer Vision/Machine Learning (CV/ML) solutions for next-generation AR/VR devices, enabling novel UX/input modalities through gaze-based interactions
- Designed and implemented real-time APIs within the Eye Tracking (ET) Engine and AOSP to provide filtered gaze data for critical use cases such as system interaction, codec-avatars, and foveated rendering
- Led development of the new system eye-tracking calibration mechanic in Oculus devices, from concept, user studies, and finally to productization, achieving tighter gaze vector clusters and improved accuracy
- Optimized dynamic memory allocations for low level computer vision algorithms, such as glint detection and matching, to enable the bring up of an E2E Eye Tracking pipeline in an embedded environment for Orion and future AR Glasses
- Developed tools and frameworks to profile CPU and power performance of the ET Engine to inform power budgets and cross-team integration and planning for next-generation devices
- Improved ML infrastructure and tooling to automates our data ingestion pipeline of raw eye-tracking recordings, adding functionality to stitch multi-camera feeds and undistort images enabling higher-quality datasets and improved model training efficiency

Senior Software Engineer - Instagram Web Server

Oct 2022 - Oct 2023

- Enhanced the performance, scalability, and reliability of Instagram's infrastructure to support billions of global users as part of Web Server team
- Improved IG Django server fleet efficiency by >3%, by driving the implementation of immortal instances into the CPython runtime and optimizing refcount behaviour for backwards compatibility; this feature is now upstream in the official CPython source (PEP-683) and created \$5 million in cost savings annually
- Reduced network overhead between Facebook and Instagram servers by implementing a streaming RPC protocol for requests that require multiple back and forth communication between the two fleets
- Optimized threading and fiber memory on IG's server fleet by 66% (600MB/Host) by profiling system memory allocations and fine-tuning the pool size to optimize for the average request
- Increased host throughput during overload scenarios for Instagram traffic by implementing request timeouts and load-shedding in the reverse proxy

Senior Software Engineer - AR Glasses CV/ML Firmware Team

Apr 2021 - Oct 2022

- Developed custom silicon firmware to accelerate on-device Computer Vision and Machine Learning for Orion and future AR glasses
- Adapted Structured Light Depth algorithms from research teams into high-performance production C/C++ implementations to produce depth maps from raw sensor data in an embedded system
- Assisted in pre-silicon validation for custom CV and ML ASIC accelerators

Microsoft

Software Engineer

Redmond, WA
Aug 2019 - Apr 2021

- Software development for custom ASIC on the HoloLens, IVAS Project, and future AR devices
- Integrated sensors and supported device bring-up by writing drivers and creating APIs for data access.
- Tripled frame rate for IVAS cameras by implementing shared memory buffer libraries in an embedded memory constrained environment
- Maintained C++ tools for recording and replaying sensor data streams to debug runtime algorithms
- Cut factory costs and increased output yields by 50% through implementing novel computer vision algorithms to calibrate display and cameras in factory pipelines

SKILLS

Fluent Programming Languages: C, C++, Java, Python, Swift, Objective-C, C#
Intermediate Programming Languages: JavaScript, Rust, Go