Prabhman Dhaliwal

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Work Experience

SKSP INC   **Sacramento, CA**
Software Consultant, Retail Digitization and Operations   *December 2023 - Present*

- Modernized point-of-sale (POS) system and enabled remote access for real-time inventory audits, supplier integration, and employee access control
- Designed and deployed a digitized inventory system with barcode scanning, automatic stock alerts, and restocking recommendations using sales analytics
- Helped reduce inventory shrinkage and restocking costs through software-driven demand forecasting and purchase optimization

Amazon Astro   **Sunnyvale, CA**
Software Engineer, Computer Vision/Deep Learning and Robotics   *July 2022 - July 2023*

- Deployed optimized TensorFlow Lite models to both embedded Linux (ARM) and Android subsystems
- Converted and quantized models using TFLite for edge inference
- Integrated C++ inference modules into a ROS perception stack supporting multi-platform execution
- Augmented robots CV algorithms to identify objects regardless of orientation using neural networks
- Authored internal documentation for unit testing workflows on the robot and collaborated with other teams to support system-wide testing

Education

University of California, Berkeley   **Berkeley, CA**
BA: Data Science (Robotics Emphasis), Minor in EECS   *August 2017 - July 2021*

Georgia Institute of Technology   **Atlanta, GA**
Masters, Computer Science   *August 2025 -*

Projects

PokeRogue Full Stack Open Source Game Developer in Typescript   *July 2024- Present*

- Implemented new gameplay features and quality-of-life UI enhancements for a browser RPG with 10K+ daily players
- Diagnosed and fixed game-breaking bugs using browser debugging tools; created unit tests with Jest
- Collaborated in a large open-source team with structured triage of issues and contributions on Github

Custom Compiler in C++   *January 2025*

- Designed compiler in C++, with floating/int arithmetic, if-else, variables, pointers, function scopes, etc.
- Implemented precedence climbing for arithmetic ops. which is **10-20% faster** than base C++ precedence algorithm

Custom Raytracer in C++   *July 2024*

- Designed and created a ray tracer in C++ from scratch. Implements basic materials (dielectric, metal, matte, etc.)
- Developed antialiasing, threading, and BVH algorithms which sped up the raytracer by **over 90x** for scenes

Custom Video Compression Scheme in Python   *Spring 2021*

- Implemented image compression algorithm to send best quality GIF (1st place in competition, 66x compression)
- Sparsified image with SVD/DCT, downsampled color based on eigen information using LZMA compression

Additional Projects   *2022 - 2025*

- Used thread parallelism and AVX SIMD extensions to achieve **66x** time improvement on Mandelbrot calculations
- Applied custom video compression scheme to win course competition of 50 people with 66x compression rating
- Implemented Conflict Based Search to plan paths for multiple agents using A* as a subroutine
- Created multi-view 3D reconstruction algorithms to match images (RANSAC, SIFT)

Technical Skills

- C++, Python, ROS, Typescript/Javascript, TensorFlow, Linux, OpenCV, gRPC, TCP