

Jayant Singh Bhati

Bengaluru, India | jayantbhati9093@gmail.com | +91 9899883620
github.com/Relativestein | linkedin.com/in/jayant-singh-bhati | jayant.wtf

SUMMARY

- C++ graphics engineer with a master's in theoretical physics (IISER Bhopal). Experience in OpenGL visualization for engineering simulation software, computational physics (Quantum Monte Carlo / ML), and performance engineering. Targeting C++ and graphics roles where physics, simulation, and scientific computing intersect.

EXPERIENCE

Software Development Engineer

Siemens Digital Industries Software (formerly Altair Engineering) | Jan 2024 - Present | Bengaluru

- Contribute to OpenGL graphics for HyperWorks simulation products (CFD, structural analysis, and related suites), working inside a very large, decades-old C++ codebase.
- Profile and optimize performance bottlenecks in the graphics stack using Intel VTune.
- Resolve customer-reported defects and internal tickets spanning rendering correctness and runtime efficiency.

Software Engineer

Arcturus Business Solutions | Jul 2023 - Oct 2023

- Video Management System: Backend microservices and video analysis in Go, Python, and C++ (FFmpeg, GStreamer, PyTorch, CUDA).
- Speed Detection and Tracking: On-site vehicle speed pipeline with OpenCV, GStreamer, YOLOv8, DeepSort, and Kalman-filter estimation.
- Multi-Camera Capture: Real-time multi-camera feed pipeline with multi-threading, dynamic batching, and Python via Ctypes.

MS Thesis - Fermion Sign Problem via ML

IISER Bhopal (Dr. Nirmal Ganguli) | Aug 2021 - Mar 2022

- Investigated the fermion sign problem in Quantum Monte Carlo using unsupervised learning.
- Built ML models in JAX/Flax to approximate probability distributions for stochastic quantum simulations.
- Combined Markov-chain sampling with physics constraints to simulate material quantum states.

EDUCATION

BS-MS, Theoretical Physics - IISER Bhopal

Integrated master's program | Aug 2017 - Jun 2022

TECHNICAL SKILLS

- Languages: C++, Python
- Graphics and Performance: OpenGL, CMake, Intel VTune, GLFW, GLSL
- Scientific Computing: JAX / Flax, Quantum Monte Carlo
- Tools: Git, GitLab, Jira
- Prior experience: Go, OpenCV, GStreamer, FFmpeg, PyTorch, CUDA, MongoDB, Redis

SIDE PROJECTS

- Mesh Viewer (github.com/Relativestein/mesh_viewer) - C++ / OpenGL 3.3 CAE-style mesh viewer.
- Monitor Control Script (github.com/Relativestein/monitor-control-script) - AutoHotkey DDC/CI monitor utility.

VOLUNTEER

- Make A Difference (MAD) - Mentor to underprivileged students