Pranjal Sailwal

+91-79867-10627 | pranjalsailwal09@gmail.com | linkedin.com/in/pranjal-sailwal | github.com/sailwalpranjal

PROFESSIONAL SUMMARY

Software Engineer with publications in computational graphics. Expertise in React, Node.js, TypeScript, Python, C++, and Go. Architected applications serving 80+ users with 40% performance gains.

EDUCATION

Graphic Era Hill University — Dehradun, India
Bachelor of Technology in Computer Science and Engineering — *Jul 2022 – Jul 2026*

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, Python, C++, Go, Java, R, SQL, HTML5, CSS3, Bash
Frontend: React.js, Next.js, Angular, Three.js, WebGL, WebAssembly, Tailwind CSS, Material-UI
Backend: Node.js, Express.js, Flask, Django, FastAPI, REST API, GraphQL, Microservices
Databases: MySQL, PostgreSQL, MongoDB, Redis, Query Optimization
ML/AI: TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy, Computer Vision, NLP
DevOps: Docker, Kubernetes, Git, GitHub Actions, CI/CD, Linux, Nginx

RESEARCH PUBLICATIONS

Wavelength-Resolved Geodesic | Zenodo | DOI: 10.5281/zenodo.17336782 — 29 May 2025 - 13 Oct 2025
- Introduced method demonstrating 18% variance reduction through curvature-weighted sampling

Geodesic Flow via WebAssembly | Zenodo | DOI: 10.5281/zenodo.17260563 — 09 May 2025 - 03 Oct 2025
- Published computation system achieving 10-30ms for 1000 steps using Runge-Kutta integration

Spectral Monte Carlo Path Tracer | Zenodo | DOI: 10.5281/zenodo.17227271 — 13 Mar 2025 - 29 Sep 2025
- Authored research on physically-based ray tracer achieving 1.81 megasamples/second with BVH acceleration and Monte Carlo integration algorithms for photorealistic rendering with 100% unit test coverage

TECHNICAL PROJECTS

AetherScan | *Industrial Air Quality Monitoring* | GitHub — 3 Sep 2025 - Present
- Developing Next.js air quality monitoring system with real-time data processing using microservices architecture and PostgreSQL database optimization for industrial-scale environmental data
- Implementing predictive ML models using TensorFlow for air quality forecasting with enterprise-grade security

Solque Portfolio | *3D Interactive Web* | Live — 28 Jun 2025 - 17 Oct 2025
- Crafted immersive 3D portfolio using Three.js, React, and TypeScript with custom WebGL shaders achieving 60 FPS performance and optimizing 300MB memory usage through GPU-accelerated rendering

CodeBrain | *Collaborative Coding Platform* | Demo — 7 Mar 2025 - 22 Jun 2025
- Architected full-stack platform using React, TypeScript, and Node.js serving 80+ concurrent users with real-time WebSocket synchronization reducing latency by 90% and ensuring cross-platform compatibility
- Established automated CI/CD pipeline using GitHub Actions reducing deployment time from 30 minutes to 2 minutes with comprehensive testing and code quality checks

NO2-Sentinel | *Environmental Data Analysis* | GitHub — 4 Nov 2024 - 20 Aug 2025
- Engineered end-to-end TensorFlow pipeline processing 10GB+ satellite datasets with 85% prediction accuracy for nitrogen dioxide concentration analysis using Pandas and NumPy preprocessing
- Created interactive D3.js visualization dashboard with API integration enabling researchers to analyze environmental patterns and generate insights from satellite imagery

PrediStock | *Financial Analysis System* | GitHub — 18 Aug 2024 - 21 Jan 2025
- Redesigned Python-based financial system to Go achieving 40% performance improvement and 50% memory reduction while maintaining 99.9% accuracy through concurrent programming with goroutines
- Integrated real-time financial APIs handling 1000+ data points per minute with comprehensive error handling, rate limiting, and database optimization for high-throughput processing

LEADERSHIP EXPERIENCE

Technical Team Lead — Dec 2024
- Directed cross-functional teams across 5+ projects coordinating 15+ developers achieving 100% on-time delivery using Agile methodologies and Scrum framework
- Mentored 10+ junior developers in software engineering best practices implementing code review standards resulting in 30% bug reduction and improved code quality metrics

CERTIFICATIONS

HackerRank: Software Engineer, React.js | HubSpot: Social Media Marketing II | LinkedIn Learning: Agile Project Management, GitHub, C++ (OpenEDG), Java (JetBrains), Linux (Canonical)