Harish Ojha

Software Engineer
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GitHub: https://github.com/Ojhaji000 | Portfolio: https://ojhaji000.github.io/portfolioWeb/

Summary

Engineer with a strong focus on computational geometry. Experience building math-driven features for CAD software backends'. Comfortable working in R&D settings or development settings, that require analytical thinking, correctness, and clean, maintainable design. Previously worked in C# and actively transitioning core geometric concepts to modern C++ .

Technical Skills

Programming Languages
C# (strong), C++ (foundational)

Mathematics & Geometry
Linear Algebra, Coordinate Geometry, Vector Mathematics, Affine Transformations, Computational Geometry

Visualization / CAD
CAD customization, geometric modeling concepts

Engineering Practices
Object-Oriented Design, Design Patterns (basics), Problem Solving, Code Refactoring

Tools
Visual Studio, VS code, Git, WSL (Windows SubSystem for linux)

Professional Experience

Member of Technical Staff — CCTech

Jan 2024 – Jun 2025 | Pune, India

- Developed and customized CAD-related software features using C#, in Revit 2024
- Implemented math-driven logic, applying coordinate geometry and vector-based reasoning.

- Worked on rule-based modifications to CAD models (e.g., piping and layout constraints), ensuring consistency with engineering standards.
- Collaborated with senior engineers to analyze requirements and translate them into robust, maintainable implementations.
- Gained hands-on exposure to engineering software development practices used in CAD/CAE environments.

Software Engineer Trainee — Cognizant

Jun 2022 – Mar 2023

- Trained in .NET application development and maintenance.
- Built foundational understanding of enterprise software development, debugging, and code quality practices.
- Contributed to small feature enhancements and maintenance tasks under supervision.

Selected Projects (Geometry & Mathematics)

Line–Triangle Intersection

Technologies: C++, CMake, Linear Algebra, Computational Geometry

- Designed and implemented algorithms to compute intersections between lines, planes, and triangles in 3D space.
- Output displayed in desmo3D
- Demonstrated correctness by validating intersection points and ensuring numerical stability.

Affine Transformations & Composite Matrix Pipeline

Technologies: C#, Linear Algebra, Geometry

- Designed and implemented 2D affine transformations including translation, rotation using homogeneous coordinates.
- Built a reusable transformation pipeline by composing multiple transformations into a single matrix.
- Demonstrated the effect of transformation order and validated correctness through visual output.
- Cleanly separated mathematical logic from rendering logic to improve extensibility.

Education

Bachelor of Technology (B.Tech) – Mechanical Engineering
Shri Shankaracharya Technical Campus, Bhilai | 2018 – 2022
Percentage: 78%