

EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
PhD	New York University	NA	2025-Present
B.Tech.CSE	Vellore Institute of Technology	8.7	2024

RESEARCH EXPERIENCE

- **New York University - Geometric Computing Lab** *September 2025 - Present*
New York, USA
PhD Student (Advisors: Daniele Panozzo, Denis Zorin)
– Currently doing research and coursework.
- **Indian Institute of Science - Visualisation and Graphics Lab** *October 2024 - April 2025*
Bangalore
Project Associate - 1
GitHub Link
– Modernized a decade-old C++ codebase for computing Morse-Smale Complexes: replaced Boost with modern STL, ensuring compatibility with latest C++ standards across modern systems.
– Complete overhaul of Python bindings using Pybind11 and updated OpenCL C++ bindings with modern implementations.
– Redesigned build system for cross-platform deployment on any hardware-compatible Linux or Windows machine.
– Developed automated Python test scripts and comprehensive documentation for installation, testing, and development workflows to increase usage and research reproducibility across the university.
- **Massachusetts Institute of Technology - Summer Geometry Initiative** *July 2024 - August 2024*
Remote
Research Fellow
– Collaborated with researchers from MIT, Stanford, and Delft on multiple geometry processing projects during this intensive 6-week research program.
– Developed analytical arc-length splines prototype maintaining continuity properties for efficient curve computation.
– Implemented GPU-accelerated geometry processing applications using RXMesh for mesh manipulation entirely on GPU. GitHub link
– Developed Global Intersection Analysis, a mesh intersection resolution technique, under mentorship of Zachary Ferguson (currently at CLO Virtual Fashion). GitHub link
– Built open-source Shadertoy and web viewer for Chladni Patterns visualization. GitHub link
- **Mimyik (IISc-incubated deep tech research company)** *January 2024 - July 2024*
Bangalore
Research Intern
– Implemented and verified from scratch a patented simulation technique in C++ combining FEM and XPBD methods for real-time soft body simulation in haptic applications, specifically formulated to achieve high FPS performance.

INDEPENDENT RESEARCH

- **GPU-Accelerated Geometric Multigrid Solver** *August 2024 - August 2025*
Remote
Independent Research (Mentor: Ahmed Mahmoud, Postdoc at MIT)
– Developed highly efficient GPU implementation of Geometric Multigrid solver for unstructured meshes, achieving 5-6x speedup over state-of-the-art CPU solutions.
– Studied theoretical foundations of sparse linear solvers with focus on multigrid methods, implemented v-cycle solver on voxel grids for foundational understanding.
– Analyzed and rewrote state-of-the-art research code as pseudocode to identify parallelization opportunities for GPU execution.
– Iteratively developed and optimized implementation over multiple development cycles, focusing on parallelization strategies and GPU optimization techniques.

WORK EXPERIENCE

- **DevLaunchers (Open Source)** *October 2021 - July 2022*
Remote
Game Developer for DevBots
– Developed modular ability system in Unity using Scriptable Objects, reducing development time from week-long to hour-long tasks and enabling rapid iteration on game design features.
– Built animation system and art asset pipeline for streamlined artist workflow and game integration.
– Extensively documented code architecture and usage patterns for designers and future contributors.
– Co-developed modular collision system for reusable gameplay features across the project.

- **Studio nCore Pvt. Ltd**

June 2022 - July 2022

Game Developer Internship

Remote

- Contributed to Disney-funded project development team.
- Designed extensible daily rewards system in Unity applicable across multiple game titles.
- Prototyped multiplayer game mechanics using Photon networking framework.

- **P1 (Open Source)**

June 2023 - December 2023

Game Developer Part Time

GitHub Link

- Researched and implemented mesh generation and rendering optimizations for large-scale dynamic voxel worlds.
- Debugged and resolved gameplay issues within large established codebase.
- Collaborated with artists to resolve model and UV mapping issues for shader development in Unity.
- Mentored and onboarded 20+ new contributors to the programming team.

PROJECTS

- **Narrative Engine - Custom C++ Game Engine:** Developing a game engine from scratch in C++ and OpenGL with scene management, multi-point lighting, ray-casting object selection using dynamic box SDFs, player mechanics, inventory system, customizable event scripting, and an integrated game builder/executor for compiling and running a developer's game.
- **Rasterizer:** C++ rasterizer which includes camera clipping, renders cubes at different orientations and transforms, matrix operations library.
- **Ray Tracer:** Wrote a C++ Monte Carlo path tracer from scratch. Can apply different materials on spheres such as metals, diffuse objects and semi-transparent objects. Includes point lights, area lights, shadows, and supports multiple lights in a single scene.

HONORS AND AWARDS

- **GSAS McCracken Fellowship:** Full scholarship funding for PhD at New York University.
- **IGDA-F Scholar Award:** Awarded to students demonstrating exceptional potential for game development careers (3% acceptance rate). Includes professional training and career development sessions. 2023
- **SIG Training Week:** Invited to MIT-hosted training week teaching geometry processing foundations. Subsequently accepted to full 2024 SIG program. 2023
- **VIT Chancellor's Special Achiever Award:** Awarded to top 0.01% of VIT students for outstanding achievement in extracurricular activities (competitive debating on social issues). 2021
- **IGDA-F Alumni GDC Scholarship:** Invited with all-access pass to Game Developers Conference 2024 through International Game Developer Association Foundation. 2024