

# Danvi Sai Sapthasw Reddy, Simhadri

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## EDUCATION

### Purdue University

*M.S. in Computer Graphics Technology*: **Key Focus**: Graphics Programming/Game Development, **GPA**: 4.00/4.00

West Lafayette, Indiana

Aug 2023 – Dec 2025

### Koneru Lakshmaiah University

*B.Tech. in Computer Science and Engineering*: **Key Focus**: Cyber Security and Blockchain, **GPA**: 9.40/10.00

Hyderabad, India

Aug 2019 – May 2023

## SKILLS

**PROGRAMMING**: C, C++, Python, **OpenGL**, Graphics Programming, Scripting (C#, Python), Shader Development (GLSL), CUDA, 3D Rendering Techniques, Virtual Reality (VR) Development, Game Engine Development, JAVA, HTML, CSS, Solidity

**DESIGN SKILLS**: Gameplay Systems, VR/AR Design, Interactive Systems, Gameplay tuning, Iterative Prototyping, Playtesting, Accessibility Design, Spectator Perspective, Player Empathy, Collaborative Design, Git

**SOFTWARES**: MS Suite, Adobe After Effects, Photoshop, Visual Studio, Unity, Unreal Engine

## EXPERIENCE

### PURDUE UNIVERSITY

*Instructor, Scientific Visualization*

West Lafayette, Indiana

Aug 2025 – Current

- Taught gameplay-centric visualization methods using real-world health and scientific datasets (e.g., MRI, CFD)
- Focused on systems thinking and storytelling through data—relevant to **spectator experiences** in tactical games
- Instructed **20+ undergraduate students** in scientific visualization techniques using ParaView and VTK
- Led **16+ labs and assignments**, covering scalar, vector, and tensor field data interpretation in medical, physics, and fluid dataset
- Delivered lectures on volume rendering, streamlines, glyph-based rendering, and visualization pipelines
- Supervised lab assignments and projects involving real-world datasets in atmospheric science, medical imaging, and physics

### PURDUE UNIVERSITY

*Graduate Teaching Assistant*

West Lafayette, Indiana

Jan 2025 – Current

- Mentored 50+ students per semester, providing one-on-one support during office hours on development, optimization, and debugging
- Assisted students in leveraging D3 to build dynamic, interactive data visualizations for real-world applications
- Coordinated with professors and led review sessions to improve student engagement and success

### ASEDA SCIENCES

*VR Developer Intern*

West Lafayette, Indiana

May 2024 – Aug 2024

- Refactored Unity(C#) codebase for **Oculus Quest** compatibility, optimizing performance for immersive user experience
- Collaborated with colleagues to deliver pilot code with documentation to allow simple on-boarding of other developers
- Translated a web application's functionality into an interactive 3D environment, ensuring feature parity and user engagement.
- Actively tested and evaluated user experience across prototypes to inform **iteration and gameplay balance**
- Authored clear documentation and coding guidelines to onboard new developers, facilitating smooth handoff of the VR project

### ICONIC ENGINE

*VR Developer*

West Lafayette, Indiana

Aug 2023 – Dec 2023

- Developed a specialized **VR game utilizing Unity3D**, integrating sensory-friendly design elements, spatial organization challenges, and interactive tasks to promote cognitive engagement and enhance spatial cognition for individuals with autism
- Prototyped rapidly various VR interactions and spatial puzzles, refining through user testing and feedback sessions
- Collaborated with designers and artists in agile **sprints to iterate on gameplay mechanics, integrating feedback** and ensuring smooth UX in VR
- Led the adoption of Git for version control among a team of 5, establishing branch workflows and code review practices to maintain code quality

## PROJECTS

### Valorant Culturalization & Narrative Analysis Project

*Game Researcher & Design Strategist*

- Conducted an in-depth study on cultural representation in Valorant, analyzing agent voice lines, accents, backstories, and in-game communication triggers
- Evaluated both tangible (agent design, attire, map elements) and intangible (localization, colloquialisms, belief-based lines) aspects of character design and player experience
- Identified gaps between narrative intent and player engagement; proposed new story-based game modes to improve immersion without disrupting competitive balance
- Developed recommendations inspired by live-service games like Fortnite to improve aesthetic refresh cycles and increase story relevance to gameplay
- Advocated for cross-cultural design principles, emphasizing player identity, representation, and inclusivity, aligning with Riot's mission of global community building

### Advanced Lighting Models

*Developer*

- Implemented four advanced lighting models (Ashikhmin-Shirley BRDF, Cook-Torrance, Strauss, and Lommel-Seeliger) **in C++ using OpenGL and GLSL shaders**
- Integrated models into a **custom rendering pipeline**, testing visual fidelity and frame rates

### Game Engine

*Developer*

- Built a modular game engine from scratch in C++ and OpenGL. Implemented core engine systems including a rendering pipeline, entity-component system, input handling, and a basic physics/collision system
- *Developed engine features such as A\* pathfinding for AI, BSP tree partitioning for rendering optimization, and an in-engine level editor with debug overlays*

## PUBLICATION

**Current Research Focus**: Designing a pipeline that leverages **Signed Distance Fields (SDFs)** and **diffusion-based generative models** to synthesize high-quality 3D meshes of buildings, streets, and terrain from 2D map inputs and silhouette images.