

SHREYAS NISAL

VR, Gameplay and Tools Engineer

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SKILLS

C++, Unreal Engine, C#, Unity, Java, OpenXR, Perforce, Git, Visual Studio, Python, OpenGL, GLSL, HLSL, JavaScript, WebGL, React, React Native, HTML/CSS, Object Oriented Design, Design Patterns, Data Structures, 3D Graphics

SHIPPED TITLES

Lead Engineer ([Imvi: Echoes of Harmony](#)) | *SMU Guildhall* | *Unreal 5.4* | *Team Size: 23* **Jul 2024 – Dec 2024**

- Imvi is an open-world space exploration game with orbiting mechanics and arbitrarily oriented floating islands.
- Collaborated with programmers on challenging math and code problems through whiteboard conversations.
- Contributed to milestone delivery documents, task planning and stakeholder presentations.
- Contributed to UI development using the Advanced Menu System.

Tools Engineer ([Festival](#)) | *SMU Guildhall* | *Unreal 5.3* | *Team Size: 50* **Jan 2024 – Jun 2024**

- Festival is an arcade racing game with up to 4-player split-screen local multiplayer.
- Supported cross-discipline teams as a floating programmer on urgent and high-priority tasks.
- Maintained code health through daily builds using a python script on a build server and good perforce practices.
- Implemented the multiplayer system and contributed to the input system and menu UI.

Gameplay Engineer ([DonuTilt](#)) | *SMU Guildhall* | *Unity* | *Team Size: 5* **Sep 2023 – Dec 2023**

- DonuTilt is a tilt-based 2D side-scrolling platformer for android devices.
- Contributed to Unity scripts for game mechanics, UI and animation.
- Contributed to the game's design through brainstorming sessions and rapid iteration through player feedback.

INDIVIDUAL PROJECTS

Rey Engine: C++ Game Engine | *C++* | *DirectX 11* | *OpenXR* **Aug 2024 – May 2025**

- Developed a custom game engine with a DirectX-11 rendering pipeline supporting 2D and 3D rendering.
- Added support for math and physics utilities, 2D sprite animations, 3D model loading from OBJ files, specular, gloss and emissive rendering using Blinn-Phong shading, audio system using FMod and VR system using OpenXR.
- Used the game engine for several projects including a VR level editor and a 3D tower defense game.

ArchiLeap: VR Platformer with an In-game Level Editor | *Rey Engine* **Aug 2024 – May 2025**

- Engineered a reusable system for VR support using OpenXR in my custom engine.
- Implemented a VR level editor to allow map creation using intuitive VR controls.
- Implemented a custom binary file format for saving/loading maps with in-game perforce integration.
- Polished the editor experience through iterations with designers.

Rey Web Engine: JavaScript Engine | *JavaScript* | *WebGL* | *WebXR* **Jan 2025 – May 2025**

- Developed a custom game engine with a WebGL rendering pipeline supporting 2D and 3D rendering.
- Used the game engine for projects including a 3D demo scene with immersive VR support and a top-down 2D game.

Throttle Ball: Top-Down 2D Rocket League | *Rey Web Engine* **Jan 2025 – May 2025**

- Developed a top-down 2D game that can run in a browser with realistic collision physics.
- Implemented support for Xbox controllers with up to 4-player shared-screen local multiplayer.
- Created a GitHub workflow for automatic versioning by parsing commit messages.

ReyTD: 3D Tower Defense Game | *Rey Engine* **May 2024 – Jul 2024**

- Developed a 3D tower defense game with data-driven architecture with 9 enemy types, 5 tower types and 6 levels.
- Created menus with a polished UI and a save/load system using a custom binary file format.
- Implemented an event-driven UI system for the game with support for buttons and sliders.
- Implemented CPU-driven billboarded particles for wind simulated using Perlin noise.

SimpleMiner: VR Minecraft World Generator | *Rey Engine* **May 2024 – Jul 2024**

- Developed a voxel-based infinite, deterministic world generation system.
- Added support for lighting using influence maps, glowstone flickering, day-night cycles and fog.
- Created rivers and biomes including deserts, oceans, frozen water bodies and forests using Perlin noise.
- Used Run-Length Encoding (RLE) for saving and loading modified chunks by world seed.

Doomenstein: VR First-Person Shooter | *Rey Engine* **Jan 2024 – May 2024**

- Developed a first-person shooter with 8-facing billboarded sprites.
- Added support for 3D model loading from OBJ files, shadow maps and VR support using OpenXR.

EXPERIENCE

Researcher | *HAFP Lab, MIT Media Lab, Exertion Games Lab*

Jul 2021 – Jul 2023

- Developed a web-based social mobile game designed to encourage gut-health awareness and reflection.
- Researched neurofeedback training protocols for anxiety management using Brain-Computer Interfaces.
- Worked on a Python script for signal processing of electroencephalography data received over the Lab Streaming Layer.
- Developed a 3D Unity game for audio-visual feedback and neurofeedback training.
- Explored Electrical Muscle Stimulation (EMS) for social games involving shared agency between users and systems.
- Developed prototypes, performed user studies including interviews and qualitative and quantitative analysis.

Software Engineer | *Twilio*

Aug 2022 – Feb 2023

- Worked in the Auth team on the Role-Based Access Control (RBAC) platform and the Access Manager Service (XMS)
- Contributed to an internal tool and API endpoints that can be integrated with other Twilio products.
- Worked on real-time distributed applications with a microservices architecture in Java with unit and cluster tests.

PUBLICATIONS

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|---|--------------|
| • Shared Bodily Fusion: Leveraging Inter-Body Electrical Muscle Stimulation for Social Play | DIS 2024 |
| • Go-Go Biome: Evaluation of a Casual Game for Gut Health Engagement and Reflection | CHI 2024 |
| • Joie: A Joy-based Brain-Computer Interface (BCI) | UIST 2023 |
| • Demonstration of Joie: A Joy-based BCI with Wearable Skin Conformal Polymer Electrodes | UIST 2023 |
| • Fused Spectatorship: Designing Bodily Experiences Where Spectators Become Players | CHIPlay 2023 |
| • TouchMate: Understanding the Design of Body Actuating Games using Physical Touch | CHIPlay 2022 |

EDUCATION

Southern Methodist University, Guildhall

Master of Interactive Technology in Digital Game Development, Software Engineering

Birla Institute of Technology and Science, Pilani

Master of Science, Physics

Bachelor of Technology, Computer Science