SHREYAS NISAL

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PERSONAL PROJECTS

Custom C++ Game Engine | C++ | DirectX 11   **Aug 2024 - Present**
- Developing a custom game engine with a DirectX-11 rendering pipeline supporting 2D and 3D rendering.
- Using 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 | Custom C++ Game Engine   **Aug 2024 - Present**
- Integrated OpenXR with my custom C++ game engine to support development of VR games.
- Developing a first-person Virtual Reality (VR) platformer with an in-game level editor.
- Implementing a level editor for Entity creation, translation, cloning, rotation and scaling using intuitive VR controls.

Custom JavaScript Game Engine | JavaScript | WebGL   **Jan 2025 – Present**
- Developing a custom game engine with a WebGL rendering pipeline supporting 2D and 3D rendering.
- Using the game engine for projects including a 3D demo scene and a top-down 2D game.

ReyTD | Custom C++ Game Engine   **May 2024 – Jul 2024**
- Developed a complete 3D tower defense game with 9 enemy types, 5 tower types and 6 levels.
- Created data-driven architecture to add new maps, environments, tower types, enemy types and levels.
- 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 | Custom C++ Game 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.
- Added VR support using OpenXR.

Doomenstein | Custom C++ Game Engine   **Jan 2024 – May 2024**
- Developed a first-person shooter with billboarded 8-facing sprites and directional lighting.
- Implemented 3D model loading and shadow maps and added VR support using OpenXR.

SHIPPED TITLES

Imvi: Echoes of Harmony | Unreal Engine 5 | Lead Programmer | Steam   **Jul 2024 – Dec 2024**
- Worked in a team of 23 developers including programmers, producers, level designers and artists.
- Contributed to milestone delivery documents, task planning and stakeholder presentations.
- Assisted programmers with math and code.
- Contributed to UI development using the Advanced Menu System.

Fastival | Unreal Engine 5 | Programmer | Steam   **Jan 2024 – Jun 2024**
- Worked as the sole support programmer for most of the development.
- Set up daily builds, enforced perforce practices, fixed bugs and assisted programmers where necessary.
- Implemented the multiplayer system and contributed to the input system and menu UI.

EXPERIENCE

Hearty Adventures in Food and Play Lab | Research Intern   **Melbourne**   **Mar 2023 – Jul 2023**
- Developed a smartphone game designed to encourage real-world activities that support human gut health.
- Contributed to the design of the app in accordance with the research goals.

Twilio | Software Engineer 1   **Bengaluru**   **Aug 2022 – Feb 2023**
- Worked in the Auth team on the Role-Based Access Control (RBAC) platform.
- Contributed to an internal tool and API endpoints that can be integrated with other Twilio products.

MIT Media Lab, Fluid Interfaces | Research Intern   **Cambridge**   **Jan 2022 – Jul 2022**
- Worked on the KALM project for anxiety management using Affective Brain-Computer Interfaces.
- Designed and developed a neurofeedback training protocol using electroencephalography.

Exertion Games Lab | Research Intern   **Melbourne**   **Jul 2021 – Dec 2021**
- Explored Electrical Muscle Stimulation (EMS) for novel interactions between users and systems.
- Designed social bodily games using EMS to study shared agency between multiple users and the EMS system.

Twilio | Software Engineering Intern   **Bengaluru**   **Jun 2021 – Jul 2021**
- Contributed to the Role-Based Access Control (RBAC) platform using the vaadin framework.
- Developed API endpoints for the access manager service (XMS).

EDUCATION

Southern Methodist University, Guildhall   **Aug 2023 - Present**
Master of Interactive Technology, Software Development
Birla Institute of Technology and Science, Pilani   **Aug 2017 – Jul 2022**
Master of Science, Physics
Bachelor of Technology, Computer Science

PUBLICATIONS

Shared Bodily Fusion: Leveraging Inter-Body Electrical Muscle Stimulation for Social Play | ACM Digital Library   **DIS 2024**

Go-Go Biome: Evaluation of a Casual Game for Gut Health Engagement and Reflection | ACM Digital Library | YouTube   **CHI 2024**

Joie: A Joy-based Brain-Computer Interface (BCI) | ACM Digital Library | YouTube   **UIST 2023**

Demonstration of Joie: A Joy-based Brain-Computer Interface (BCI) with Wearable Skin Conformal Polymer Electrodes | ACM Digital Library   **UIST 2023**

Fused Spectatorship: Designing Bodily Experiences Where Spectators Become Players | ACM Digital Library | YouTube   **CHIPlay 2023**

TouchMate: Understanding the Design of Body Actuating Games using Physical Touch | ACM Digital Library | YouTube   **CHIPlay 2022**

SKILLS

C, C++, C#, Java, JavaScript, HTML/CSS, Python, OpenGL, DirectX11, WebGL, GLSL, HLSL, Perforce, Visual Studio, RenderDoc, Unreal Engine (Blueprint/C++), Unity, OpenXR, NodeJS, React, React Native, Flutter, Arduino