Shreyas Nisal

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Experience

Hearty Adventures in Food and Play Research Lab, RMIT Mar 2023 – Jul 2023
Research Intern | PI: Dr. Rohit Ashok Khot *Remote*

- Develop a web-based game designed to encourage real-world activities that support gut health awareness and reflection, in collaboration with a PhD student.
- Second author on a research paper based on this game, published at CHI 2024, the top-ranked peer-reviewed conference in human-computer interaction.

Twilio Aug 2022 – Feb 2023
Software Engineer *Remote*

- Worked in the Auth team on the Role-Based Access Control (RBAC) platform.
- Developed internal tools and API endpoints that can be integrated with other Twilio products.

MIT Media Lab, Massachusetts Institute of Technology Feb 2022 – Jul 2022
Research Intern | PI: Prof. Pattie Maes *Cambridge, MA*

- Worked with the Fluid Interfaces group on the Joie project for anxiety management using Affective Brain-Computer Interfaces.
- Designed and developed a neurofeedback training protocol using electroencephalography, with a Python script for signal processing on data acquired through LSL and a Unity game to provide audio-visual feedback.
- Ran over 20 hours of participant studies to evaluate the neurofeedback protocol.
- Second author on a paper based on the study associated at UIST 2023 and third author on the demo at UIST 2023.

Exertion Games Lab, Monash University May 2021 – Dec 2021
Research Intern | PI: Prof. Florian 'Floyd' Mueller *Remote*

- 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.
- Led the development of tools required for studying the user experience associated with the EMS-driven social bodily game in collaboration with a PhD student.
- Conducted participant studies and post-study interviews, performed a thematic analysis of qualitative data from the interviews and wrote a research paper based on our findings.
- First author on a Work-in-Progress paper published at CHIPlay 2022 based on the study and third author on the paper based on the full study conducted by the PhD student based on the game concept.

Twilio Jun 2021 – Jul 2021
Software Engineering Intern *Remote*

- Contributed to the Role-Based Access Control (RBAC) platform using the Vaadin framework.
- Developed API endpoints for the access manager service (XMS).

Team Projects

DonuTilt Sept 2023 - Dec 2023
2D Mobile Platformer using Unity *SMU Guildhall*

- Worked in a team of five people consisting of two programmers, two level designers and one artist.
- Implemented tilt and tap controls, saving and loading of levels, UI systems, gameplay elements and effects.

Fastival Feb 2024 - May 2024
PC and Steamdeck Local Multiplayer Arcade Racer *SMU Guildhall*

- Worked as a programmer on a team of around 50 people to develop an arcade racing game.
- Contributed primarily to the multiplayer system, input system and Menu UI.
- Set up daily builds, enforced version control practices, fixed bugs and supported all programmers when necessary.

QLogic Jul 2021 - Aug 2021
Quantum Computing Puzzle Game

- Worked as the sole programmer on a team of three people consisting of a UI/UX designer and a level designer.
- Developed the quantum computing game for mobile devices using React Native and launched it on Google Play.
- Used data-driven code from JSON to support rapid level creation that allowed us to create 100 levels.

Personal Projects

Custom C++ Engine Jan 2024 - May 2024
SMU Guildhall

- Developing a game engine in C++ that uses D3D11 for rendering, FMod for Audio and stb for image loading.
- The engine contains rendering pipleline customization options, spritesheet and 2D animation support, audio, input from keyboard, mouse and up to 4 controllers, 3D model loading, a math and physics library, debug rendering, event system, dev-console, heat maps, file I/O functions and XML loading.

ReyTD May 2024 - Present
3D Tower Defense | Custom C++ Engine *SMU Guildhall*

- Developing a 3D tower defense game with 5 tower types, 9 enemy types and 6 levels.
- Created data-driven architecture to support new maps, environments, tower types, enemy types and levels.
- Used 3D model loading for environment, enemy models and towers, and billboarded sprite rendering for particles.
- Developing a UI system that supports buttons, popups and slides.

SimpleMiner May 2024 - Present
Voxel-based Infinite World | Custom C++ Engine *SMU Guildhall*

- Developing a voxel-based infinite, deterministic world.
- Adding support for indoor and outdoor lighting with light influence maps, lightning and glowstone flickering, day-night cycles and fog.
- Creating rivers and biomes including deserts, oceans, frozen water bodies and forests.

Doomenstein Jan 2024 - May 2024
First-Person Shooter | Custom C++ Engine *SMU Guildhall*

- Developed in my custom C++ engine with directional lighting and billboarded 8-facing sprites.
- Implemented 3D model loading to replace billboarded sprites and added shadow maps using HLSL shaders.

Education

Southern Methodist University (Guildhall) Aug 2023 - present
Master of Interactive Technology (MIT) in Digital Game Development *Specialization: Software Development*

Birla Institute of Technology and Science, Pilani - KK Birla Goa Campus Aug 2017 - Jul 2022
B.E. Computer Science and Engineering, M.Sc. Physics

Publications

DIS 2024 Paper ACM Digital Library

Shared Bodily Fusion: Leveraging Inter-Body Electrical Muscle Stimulation for Social Play

CHI 2024 Paper ACM Digital Library | YouTube

Go-Go Biome: Evaluation of a Casual Game for Gut Health Engagement and Reflection

UIST 2023 Paper ACM Digital Library

Joie: a Joy-based Brain-Computer Interface (BCI)

UIST 2023 Demo ACM Digital Library

Demonstration of Joie: A Joy-based Brain-Computer Interface (BCI) with Wearable Skin Conformal Polymer Electrodes

CHIPlay 2023 Paper ACM Digital Library | YouTube

Fused Spectatorship: Designing Bodily Experiences Where Spectators Become Players

CHIPlay 2022 Work-in-Progress ACM Digital Library — YouTube

TouchMate: Understanding the Design of Body Actuating Games using Physical Touch