Rahul Unniyampath

Linkedin: linkedin.com/in/rahul-unniyampath
Portfolio: rahulu1.github.io/portfolio

Email : rahul.unniyampath@gmail.com
Mobile : +1-805-312-0291

Education

- **University of Michigan - College of Engineering** — Ann Arbor, MI
  BSE in Computer Science; GPA: 3.65 — *Aug 2020 - May 2024*
  Courses: Computer Game Design and Development, ML and Computer Vision, User Interface Development, Data Structures and Algorithms

Work Experience

- **Duderstadt Center - Visualization Studio** — Ann Arbor, MI
  VR/AR/XR Consultant — *Oct 2022 - Present*
  - **XR Software Development**:
    - Assisted staff and students with specialized software and engines to develop XR applications for entertainment and research.
    - Utilized Unity, Unreal Engine 4, and Unreal Engine 5 in conjunction with the OpenXR Toolkit to model spaces and visualize data in virtual and augmented reality.
    - Ensured project compatibility with a variety of XR hardware including the Vive Pro, HoloLens Gen 1/2, and the Quest Pro.
  - **Digital Production**:
    - Helped staff and students utilize photogrammetry and motion capture hardware and software for use in digital production.
    - Used Agisoft Metashape and operated a multi-cam array for photogrammetry purposes.
    - Configured and operated motion capture camera array and Vicon Shogun to capture motion data for a variety of projects.

Projects

- **Rent-A-Bot (2nd Place 2023 UM + EMU Games Showcase)** — bossmanstudios.itch.io/rent-a-bot
  Local Co-op Party Game Developed in Unity by 4-person Studio over 6 weeks — *Nov - Dec 2023*
  - **Project Lead**: Created and organized all project documentation and ensured adherence to established style and technical guidelines. Also managed task creation and distribution on Jira.
  - **Quick Time Events**: Designed and implemented a variety of quick time events for various scenarios in the game. Created visual assets in Photoshop and added haptic feedback in final version to add polish and juice.
  - **Crafting System**: Designed and implemented a flexible crafting system with easy access for developers to add, edit, and remove recipes through Unity's Visual Editor. Utilized hash table for efficient validation and lookup of recipes at runtime.
  - **Tutorial Dialogue System**: Created frontend and backend for a modular dialogue system to guide players through the tutorial and introduce game's mechanics. Made extensive use of PubSub pattern for responsive dialogue. Designed "Bossman" character and other necessary sprites utilized throughout the tutorial to guide the player.
  - **Disaster Event Queue**: Designed and implemented a disaster event queue that managed the semi-random occurrence of various disasters in the game. Each disaster has an adjustable frequency and randomness that can be modified from the Unity Visual Editor, and scripted disasters can be triggered on command.
  - **UI/UX Design**: Ensured proper scaling and positioning of all UI elements across a variety of display sizes and aspect ratios.

- **TiltShift KnockOut! (2-week Rapid Prototype)** — rahulu.itch.io/tiltshift-knockout
  Local Co-op Party Game Developed in Unity by myself over 2 weeks — *Nov 2023*
  - **Vehicle Physics and Control Design**: Implemented a raycast-based wheel simulation system to replicate vehicle driving systems. Implemented Ackermann steering and a custom drifting system.
  - **UI/UX Design**: Used Cinemachine, C#, and the Unity Animator to block out a cinematic start menu with dynamic camera movements and responsive menus to visually entice and guide the player.

- **Metroid NES - Unity Remake** — rahulu.itch.io/metroid-nes-unity-remaster
  Metroid NES Remake Developed in Unity — *Sept 2023*
  - **Feature Analysis and Re-implementation**: Extensively analyzed original game by playing it to understand its feel and features. Translated decompiled source code from assembly to C# for more authentic implementation of finer details of original game, e.g. lava damage, jump physics, and i-frames.
  - **Original Content Design and Implementation**: Designed and created all art and code assets used in original bonus content, including the new enemy, the added weapon, and the novel puzzle mechanics.
  - **Technical Animation**: Responsible for all animations present in game. Extensively used Unity Animator and some scripted animations. Utilized Sprite Libraries to effectively swap player skin.

Skills Summary

- **Languages**: C#, C++, Python, C, SQL, PHP, JavaScript
- **Tools**: Unity, Unreal Engine 4 & 5, Godot, Git, Jira, Matlab, XCode

Honors and Awards

- Won Second Place out of nearly 20 teams in the 2023 UM + EMU Games Showcase with Rent-A-Bot.