Rahul Unniyampath

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Summary

Enthusiastic and goal-oriented Computer Science graduate from the University of Michigan with a strong foundation in game design, XR, machine learning, and UI/UX development. Proven track record in developing engaging and intuitive user experiences. Adept in a range of programming languages, game engines, and tools, and flexible enough to learn new skills on the fly. Committed to contributing to innovative and collaborative team efforts. Seeking a position in game design and development.

Education

- **University of Michigan - College of Engineering** — Ann Arbor, MI
  BSE in Computer Science; GPA: 3.65 — *Aug 2020 - May 2024*
  Courses: Game Design/Development, Machine Learning: Computer Vision, UI/UX Development, Data Structures and Algorithms, Linear Algebra

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 and Unreal Engine 4/5 in conjunction with OpenXR Toolkit to visualize environments and data in VR/AR.
    - Ensured project compatibility with a variety of XR hardware including Vive Pro, HoloLens Gen 1/2, and Quest Pro.
  - **Digital Production**:
    - Used Agisoft Metashape and operated a multi-cam array to scan 3D objects with photogrammetry.
    - Configured and operated motion capture camera array and Vicon Shogun to capture motion data.

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 all project documentation and ensured adherence to established style/technical guidelines. Managed task creation and distribution on Jira. Collaboratively created a new sprint each week with the team and updated project goals.
  - **Quick Time Events**: Designed and implemented the front and backend for all 3 quick time events used for various in-game scenarios. Created visuals in Photoshop and added haptic and visual feedback to the final version for polish and juice.
  - **Crafting System**: Designed and implemented a crafting system with easy access for developers to add, remove, and edit recipes through Unity's Visual Editor. Utilized a hash table for efficient validation and lookup of recipes at runtime.
  - **Tutorial Design**: Created the front and backend for a modular dialogue system used to guide players through the tutorial and introduce the game's mechanics. Made extensive use of the PubSub pattern for responsive dialogue. Designed tutorial's quest objectives to introduce game mechanics in a granular fashion. Created the "Bossman" character and other necessary sprites utilized in the tutorial to enhance player engagement and guidance. Wrote all tutorial dialogue.
  - **Disaster Event Queue**: Designed and implemented a disaster event queue that managed the semi-random occurrence of disasters in the game. Each disaster has an adjustable frequency and randomness that can be modified from Unity's Visual Editor. Included support for scripted disasters that can be triggered on command.
- **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 system Ackermann steering to replicate real driving physics. Designed a custom drifting system for higher momentum gameplay.
  - **UI/UX Design**: Used Cinemachine, C#, and Unity Animator to block out a dynamic, responsive start menu. Ensured proper scaling of UI across screen sizes and aspect ratios.
- **Metroid NES - Unity Remake** — rahulu.itch.io/metroid-nes-unity-remaster
  Metroid NES Remake with added bonus Developed in Unity over 3 weeks — *Sept 2023*
  - **Feature Analysis and Re-implementation**: Analyzed original game through extensive playthroughs and re-implemented original game mechanics. Translated source code from assembly to C# for more authentic re-implementation of mechanics.
  - **New Feature and Level Design**: Created all code and art used in added content including a new enemy, a new weapon, and novel puzzle mechanics. Designed a new level to guide players to discover new mechanics with minimal text guidance.
  - **Technical Animation**: Responsible for all animations in-game. Extensively used Unity Animator and some scripting.

Skills Summary

- **Languages**: C#, C++, Lua, Python, C, HTML, CSS, PHP, JavaScript, SQL
- **Tools**: Unity, Unreal Engine 4 & 5, Godot, Git, Perforce, 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.