Noah Yacowar

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Skills

Languages: Python, C, C++, C#, Java, VHDL, HTML/CSS
Frameworks: PySide, PyTorch, ROS, Arduino, .NET Core, React
Software: Git, Jenkins, Unity, Linux, Github, KiCad, SolidWorks, Microsoft Office, JIRA/Confluence
Tools: Multi-meters, Oscilloscopes, Soldering

Work Experience

Software Developer September 2024 - December 2024
Exo Insights Corp.

- Created an android app using **Unity** and desktop app using **PySide** for monitoring workers in high-risk environments.
- Developed a robust **audio streaming system** using **UDP** to transfer 8 real-time voice communication channels.
- Created plugins for managing Android services in **Java**, enhancing system stability.
- Produced a system for collecting and transferring live heart rate data, for real-time exertion and stress monitoring.
- Designed a **general messaging system** to facilitate dynamic communication between clients and servers.
- Implemented the Baevsky equation to calculate live stress levels, improving stress accuracy by 20%.

System Quality Assurance January 2024 - April 2024
Virtek Vision International

- Spearheaded development of an automated testing system, using **Python** and Test Complete automation software.
- Submitted 9 different automated tests which reduced the original manual testing time by **95%**.
- Collaborated with another developer to build testing infrastructure from scratch.
- Created API testing scripts to ensure reliability and functionality with the API system.
- Led manual QA testing for new motorized mount product, identifying over **20** substantial defects and needed changes.

Research Assistant May 2023 - August 2023
Defence Research Development Canada

- Developed a VR test-bed in **Unity** using **C#**, to simulate military equipment.
- Integrated **networking** using Unity's Netcode system. Synced player events with RPC calls, for real-time updates.
- Implemented **shaders** using unity's shader graph system and scripting, including thermal imaging goggles simulation.
- Produced a HUD system to integrate simulated AR overlays; including a mini-map and compass.
- Collaborated with military professionals to ensure simulations accurately replicated real-world scenarios.

Projects

Real-Time Operating System September 2024 - December 2024

- Designed a custom **RTOS** for the ARM Cortex-M4 processor in **C** for use in future projects.
- Implemented cooperative and preemptive **scheduling** to manage multiple threads effectively.
- Developed a **stack management system** to allocate and organize memory for thread stacks.

Multiplayer Game January 2024 - April 2024

- Created a cooperative horror experience using Unity's Netcode for GameObjects, for up to **5** players.
- Established player state syncing mechanisms to maintain consistency among all players during game-play sessions.
- Implemented disconnection handling mechanisms to gracefully manage player exits and ensure uninterrupted game-play.
- Implemented RPC calls for seamless player data synchronization across clients.
- Designed and implemented a lobby system to streamline player matchmaking and game setup.

Pong Game AI July 2023 - August 2023

- Built the game 'Pong' using **python** and pygame to deploy an AI to play against.
- Implemented **reinforcement learning** using the NEAT algorithm, which trains itself based on game-performance.
- Found the trained AI maintained a **50%** lead over a competent opponent, demonstrating effectiveness.

Education

BASc in Mechatronics Engineering September 2022 - Present
University of Waterloo - President's Scholarship