Aseem Apastamb

Software Engineer

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Skills:
- **Languages:** C++, C#, Lua, C, GLSL, Python, Java
- **Other Software:** Unity, Unreal, RenderDoc, OpenGL

Summary:
Highly motivated software engineer with a strong foundation in object-oriented programming. Experienced in game development and graphics programming. A passionate and hard worker with excellent communication skills, and a deep desire for professional and personal improvement.

Projects:

Gameplay/Engine Programmer | 3D Game – "Drifty Thrifty Bang Bang"   **Aug '22 – Apr '23**
- Developed in a custom engine using C++, Lua, and OpenGL
- Programmed gameplay mechanics for physics-based car controller, gadgets, and enemy AI like obstacle avoidance
- Improved development iteration time by implementing a Lua scripting system for gameplay and behaviours
- Automated serialization of common data types by integrating a C++ type reflection system
- Prototyped screen-space motion blur post-processing effects to improve visual gameplay experience

Software Engineer | 3D Animation Framework   **Aug '22 – Dec '22**
- Engineered a C++ graphics framework that loads complex 3D models and animations
- Incorporated multiple features like soft body simulation and cloth simulation
- Developed a path following model that generates a Bezier curve from given control points
- Expanded usability by adding a quaternion library for inverse kinematics-based bone animations

Gameplay/Engine Programmer | 2D Puzzle Platformer – "Lights Out"   **Jan '22 – Apr '22**
- Designed player gameplay mechanics and implemented these features in the C++ engine
- Implemented key engine systems including input, physics, level editor and asset serialization
- Contributed to level design, and integrating an Entity-Component-System architecture pattern

AI Programmer | Behaviour Tree - Planning System Hybrid   **Jan '22 – Apr '22**
- Showcased advanced AI in games using C# scripts in a Unity3D framework
- Architected a hybrid of Behaviour Trees and Planning Systems for decision making
- Implemented the simplicity and control of Behaviour Trees with the flexibility of Planning Systems

Software Engineer | Facial Expression Recognition   **2020**
- Architected various deep learning models using CNNs to classify 7 different human expressions, incorporating multiple public datasets to train models
- Enhanced the project to work on static images and live video, with the results overlayed around subject's face to display the emotion
- Improved usability by deploying a web page using Flask
- Reduced model training time by employing OpenCV to perform data preprocessing, and CNNs using Python libraries like Pandas and Tensorflow for feature extraction

Game Programmer | Unity3D Personal Projects   **Dec '20 - Jan '21**
- Box Shooter – 3D FPS, demonstrated player input, interactive UI, basic scripting, and level design
- Roller Madness – 3D ball rolling game, showcased user input, physics-based movement, and enemy behaviour

Research Publication: Jun '21
Co-authored a paper on data analysis and machine learning called *Investigating the Impact of Data Analysis and Classification on Parametric and Non-Parametric Machine Learning Techniques: A Proof of Concept* – published for Springer's 3rd ICCNCT 2020

Education:

Master of Science in Computer Science (GPA: 3.92)   **Graduated Apr '23**
DigiPen Institute of Technology – Redmond, WA, USA

Bachelor of Engineering in Computer Engineering (GPA: 3.5)   **Graduated Nov '20**
Maharashtra Institute of Technology (Savitribai Phule Pune University) – Pune, Maharashtra, India