Eric Alfaro

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EDUCATION

Massachusetts Institute of Technology May 2027

Bachelor of Science (B.S.), Computer Science and Engineering, GPA: 5.0/5.0

EXPERIENCE

MIT Edgerton Center February 2024 - Current

Undergraduate Researcher

- Designed and optimized signal processing algorithms to measure a user's mental state via mobile phone hardware sensors in C#, then incorporated them into a user-friendly meditation app with dynamic fractal visuals and responsive sound.
- Created a C++ API for EEG headbands, then utilized it to design a 3D fractal visualization that reacts to a user's brain waves and an EEG recording program to assist other researchers with brain experiments.

MIT Computer Science & Artificial Intelligence Laboratory January 2024

Undergraduate Researcher

- Developed an interactive 3D visualization app for protein function prediction, utilizing artificial intelligence and machine learning models to map spatial information to biological mechanisms.

PROJECTS

- **Sand Spoon (Game):** Created a physics simulation sandbox game that uses LLM AI to infinitely generate new interactable content/elements from the player's text input.
- **Woof Wizard (Game):** Designed a role-playing video game with a resolution limit of 64x64 pixels in Godot for the 2023 LOWREZ Game Jam Contest. Achieved the Best Game Award out of 300 entries.
- **Sand Slide (Game):** Built a physics simulation mobile game utilizing C++ features in Godot, then launched it globally for the Google Play Store. Achieved 300+ downloads and 1000+ online plays.
- **Night Shuriken (Game):** Developed a first-person thriller game in Godot for the 2022 Texas Game Jam, hosted by the University of Texas at Austin. Achieved the Best Game Award out of 39 entries.
- **Evolution Simulation:** Created a biological simulation to illustrate concepts of natural selection and emergence through an interactive design. Programmed an efficient grid based physics engine in Java that can support thousands of colliding bodies in real time. Designed a user interface and text editor to allow users to input their own creations and experiment with the simulation.
- **Fractal Fish (Website):** Launched an interactive website that renders high definition 3D fractals in real time using Godot and OpenGL Shading Language.

SKILLS

- **Languages:** Python, Java, ASM, C, C++, C#, Javascript, OpenGL Shading Language
- **Frameworks:** Nginx, Gunicorn, Flask, OpenGL, Godot, Git, HTML/CSS
- **Design:** User Interface and Experience, Sound Design, Music, 3D Modeling, Digital Art, Animation
- **Hobbies:** Cooking, Archery, Game Development, Competitive Programming