**JACOB MANDELBROT**
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## Link To Portfolio Website: https://jacobmandelbrot.github.io/portfolio/

### Summary

I am a Harvard student studying Computer Science with a strong passion for making games. Although I have a demanding course schedule, I find time to devote to game development and improve my skills with Unreal Engine and Unity. My strengths as a game developer are creating complex and balanced enemy AI, building out player mechanics and abilities, and breaking down and solving difficult problems. At Harvard, I started my first professional journey into video game creation, working as part of a small indie studio alongside fellow students from various disciplines to develop and release a professional game. Through this experience, I have grown significantly as a developer, and it has deepened my passion for making games.

### Education

Harvard University — *Cambridge, Massachusetts*                    Expected Graduation Date: May 2026
Degree: B.A. in Computer Science. GPA: 3.67.
Relevant Coursework: Creating Video Games, Designing Virtual Worlds (XR/VR), Computer Graphics, Linear Algebra and Differential Equations.

### Skills

- Game Engines: Unreal, Unity
- Expert: C/C++, Python, C# , Java,
- Proficient: HTML, SQL, Javascript, Swift
- Version Control: Perforce, Github
- Misc: Unity VR development, OpenGL, 3D Modeling in Blender, Composing in FL studio, Art in p5.js

### Related Experience

Harvard Indie Game Studio
*CTO/Lead Programmer*                                                         Nov 2023 - Present
- Recruit, train, and mentor the programming team while working closely with the art team (ten members total).
- Set the technical vision for the game projects, including choosing the right game engines, tools, and technologies to bring the creative vision to life.
- Establish and enforce coding standards, ensuring the codebase is maintainable, efficient, and bug-free.
- Created the backbone for all the major game systems and mechanics.
- Work on major aspects of the game such as player abilities and enemy behavior.

Harvard College Video Game Development Club:
*Vice President*                                                                    May 2024 - Present
- Help manage multiple group projects from concept/prototyping to completion.
- Organize game jams and other club events
- Teach Unity and Unreal engine tutorial workshops.

*Game Programmer*                                                              Sep 2023 - May 2024
- Enhanced technical skills by using the newest game development tools and software.
- Implemented and optimized AI behavior systems and physics-based mechanics
- Worked in diverse teams of programmers, designers, storytellers, and musicians.

Code Ninjas
*Game Programming Tutor/Game Developer*                            Jun 2020 - Dec 2021
- Coached students in designing and building their own games using the Code Ninjas engine. Role was integral to maintaining the quality of their work and a smooth advancement in their skills, transforming them into better game developers and programmers.
- Led summer classes with over 20 students, delving into specialized subjects like C#/C++ game development and python programming. During the classes, gave comprehensive lectures and created engaging additional lesson material to reinforce the students' knowledge and inspire their creativity.

### Additional Experience

Massachusetts General Hospital:
*Research Intern/Artificial Intelligence Programmer*                    Jul 2023 - Jan 2024
- Developed machine learning model using medical data from multiple imaging modalities to segment tissue infarction.
- Created model using U-Net architecture that has a similar accuracy to manual lesions drawn by experts.
- Used advanced linear algebra libraries within MATLAB to process, partition, and train models on 3D medical imaging data

Harvard Data Analytics Group:
*Case Team Analyst*                                                              Sep 2024 - Present
- Working on data science project for Fortune 500 company
- Conducting exploratory analysis on first-party data on cardholders and non-cardholders.
- Designing a stand-alone model to simulate the impact of hyper-targeted advertisement on credit card applications using various machine learning models.
- Building out a data-pipeline for this stand-alone model if time permits.

Harvard Undergraduate Machine Learning Organization:
*Applied Projects Programmer*                                                Sep 2021 - May 2023
- Learned how to apply machine learning tools to multiple disciplines
- Created machine learning projects with a small team and studied machine learning techniques..
- Developed website with a team that recommends courses to Harvard students using natural language processing.

Music Organizations:
*Clarinetist*                                                                          Jan 2013 - Present
- Harvard Radcliffe Orchestra: oldest continuously active symphony orchestra in the United States, providing professional-quality performances to the Harvard and Cambridge community every year.
- Wisconsin Youth Symphony Orchestra: statewide musical organization, performing several concerts each season, doing outreach in Wisconsin communities encouraging students to learn classical music, and touring nationally or internationally approximately every other year.
- Interlochen Music Festival: intensive clarinet camp, studying with internationally renowned musicians and greatly improving clarinet playing and performing skills.