JACOB MANDELBROT
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Education

Harvard College — *Cambridge, Massachusetts*   Expected Graduation Date: May 2026
Degree: Computer Science
Relevant Coursework: Linear Algebra and Differential Equations, Computer Graphics, Systems Programming and Machine Organization, Designing K-12 Computer Science Learning Experiences
GPA: 3.7

Middleton High School — *Middleton, Wisconsin*   Sep 2018-Jun 2022
SAT: 1540

Summary

I am a Harvard student studying Computer Science with a strong passion for all aspects of game development and a main focus in programming. 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 combining different mechanics, navigating through complex problems, and creating balanced enemy AI. Below is a link to a portfolio of 5 games that I made in Unreal and Unity which have been major learning experiences as well as great opportunities to design interesting games!

Portfolio: https://docs.google.com/drawings/d/1MuvlOKX3odCDVHhU4c1PsYTqMwfbpeVg9H-tVn51BPo/edit

Skills

- Game Engines: Unreal, Unity
- Expert: C/C++, Python, C# , Java,
- Proficient: HTML, SQL, Javascript, Swift
- Misc: OpenGL, 3D Modeling in Blender, Composing in FL studio

Experience

Harvard Indie Game Studio   Nov 2023-Present
Lead Programmer/Co-Lead Designer
- Founding member of Indie game studio at Harvard with 10 members.
- Created a game demo which became the basis for the game we are working on.
- Leads a 4 person team that designs and programs the combat system.
- Uses built-in Unreal AI behavior tree functionality for enemies and C++ to program character abilities.

                                    Sep 2023-Present
Harvard College Video Game Development Club:
Game Developer
- Gain practical game development experience by managing projects from the initial concept phase through to completion.
- Participate in game cons, workshops and game jams hosted by the club.
- Enhance technical skills by using the newest game development tools and software.
- Learn to work in diverse teams of programmers, designers, storytellers, and musicians to develop games.

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

Code Ninjas   Jun 2020-Dec 2021
Game Development/Programming Tutor
- 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 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.

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

Datamatch:
Matchmaking Algorithm Programmer   Sep 2022- Feb 2023
- Harvard matchmaking organization that hosts events with over 50,000 participants from several colleges and universities.
- Use data analysis and machine learning techniques to improve the matchmaking algorithm.

Music Organizations: Jan 2013-Present
Clarinetist
- 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.