

# Jacob Barbulescu

jrbarbulescu@gmail.com | (973)-670-5954 | Hoboken, NJ (US Citizen) | www.jacobbarbulescu.com

## EDUCATION

**Stevens Institute of Technology** | Hoboken, NJ

**Expected December 2026**

*Bachelor of Computer Science | Lawrence T. Babbio '66 Pinnacle Scholar*

**Relevant Coursework:** Data Structures and Algorithms, Discrete Structures, OOP, Computer Architecture and Organization

**Awards:** Reno Del Ben 1958 Endowed Scholarship, Edwin A. Stevens Scholarship, Stevens Presidential Scholarship

**GPA:** 3.97 | **Involvement:** Stevens Game Development Club, Pinnacle Scholar Peer Advisor

## PROJECTS

### Deck Thrower

**October 2024**

- Unity-based 2D rogue-like card throwing game built with C#, featuring multiple enemy and weapon types with distinct behaviors that utilized angle calculations, rigid body physics, and collision-handling.
- Implemented a random, wave-based spawning system and a dynamic inventory system to facilitate endless, unique gameplay.
- Utilized object-oriented programming principles to organize the distinct objects into highly modular, modifiable collections of components. Leveraged this organization to have different objects combine the same components in unique ways to generate unique behaviors with minimal resource creation. This heavily improved the development time of the game.
- 2<sup>nd</sup> place winner at a game development competition and published on Itch.io.

### Fruity Catcher

**April 2023**

- Unity-based fruit catcher clone. Incorporated a timer and save system to record high scores to promote high-energy, risky play.
- Designed game managers to separately manage and abstract each system, significantly reducing interdependent code and increasing development speed via high-level, modular system control. Developed a dynamic powerup system built upon these managers to alter players speed and size, gravity, and item spawn rates efficiently.
- Incorporated FL Studio and Aseprite into the project to create original pixel art and sound assets.

### Pong-Pong

**April 2022**

- SDL2, OpenGL, and C++ based Pong clone. Developed custom rendering, collision, and input code to run the game.
- Utilized pointers and classes to incorporate object-oriented programming into the project, resulting in streamlined object management and easily modifiable game properties that allowed for dynamic powerups that would resize the window, alter audio output, and modify player properties.
- 1<sup>st</sup> place at a game development tournament with its source code published on GitHub.

## WORK EXPERIENCE

**Stevens Institute of Technology** | *Undergraduate Research Assistant for Oregon Road 83* | Hoboken, NJ

**June 2024 – August 2024**

- Integrated an FMOD-powered adaptable audio system that automatically adjusts to player choices and game states.
- Helped delegate SFX and music events to members of the audio team and met with them weekly to maintain progress.
- Collaborated with a cross-functional team of 12 members to achieve a unified theme for the game.
- Used GitHub to organize workflows and version control, ensuring seamless integration of contributions and project milestones.

**Mathnasium** | *Lead Instructor* | Hoboken, NJ

**September 2023 – Present**

- Assess, enroll, and train new instructors to maintain company values. Delegate tasks and tutoring sessions to instructors.
- Organize student information through an in-house data management system. Manage student accounts, implement new accounts, and collaborate with schools to develop a seamless learning model for students.
- Facilitated a custom GPT model's implementation into the instructor workflow to improve tutoring accuracy and efficiency.

## VOLUNTEERING

**Digital Climate Resource Library** | Sparta, NJ

**May 2021 – September 2021**

- Developed an online article database for the Climate Reality NJ Youth Chapter where members could create and upload educational climate change resources and users could search for, filter, and read the content.
- Integrated TinyMCE to allow Climate Reality members to write and save content on the website itself, organizing multiple workflows and allowing for continuous, automatic updates to the website from each individual member.
- Utilized Node.js to facilitate all user-server interactions, from content searching to content creation.

## SKILLS AND CERTIFICATIONS

**Programming Languages:** C++, Python, C#, HTML, CSS, JavaScript, Java

**Developer Tools:** Unity, Excel, GitHub, FMOD, Node.js, FL Studio, Aseprite, GameMaker Studio, OpenGL, SDL2, TinyMCE, PowerPoint

**Technical Skills:** Object-Oriented Programming, Data Management, Audio Production

**Certifications:** Unity Specialist (LinkedIn Learning), Excel Essential Training (LinkedIn Learning)