Jacob Barbulescu

jrbarbulescu@gmail.com | (973) 670-5954 | Hoboken, NJ (US Citizen) | /in/jacob-barbulescu/ | 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, Systems Programming, Permutation and Combination, Computer Human Interaction, Differential Equations and Modelling, Mobile Development, OOP, Computer Architecture

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

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

PROJECTS & RESEARCH

AI-powered Postpartum Hemorrhaging Diagnosing Application | *HeraHealth* **September 2025 – Present**

- Collaborate within a team of 6 to develop an Android app capable of detecting postpartum hemorrhaging in new mothers.
- Train an AI model to detect blood-loss in pictures of menstrual pads via computer vision and warn doctors accordingly.
- Store user photos and metrics via MongoDB with requests handled by Express. Prioritizing user information security through data encryption, need-to-know access principles, and leveraging local storage on user devices.
- Perform outreach with online communities of mothers to inform design philosophy and recruit for user studies.
- Delegate tasks among the team and coordinating actionable timelines to improve team efficiency.

LLM-based Mental Health Peer Support Coaching | *Stevens Department of Computer Science* **June 2025 – August 2025**

- Designed PECO, an AI-powered mental health peer support coaching system that provides dynamic feedback based on professional support strategies.
- Architected a chat system where the user converses with an AI-simulated support seeker pulling from 106 cognitive models based on Cognitive Behavior Therapy and receives dynamic feedback from AI system trained on support strategies.
- Developed model training scripts with Python, utilizing libraries such as HuggingFace Transformers, PyTorch, and Pandas.
- Compared various AI training methodologies, including model fine-tuning and Retrieval-Augmented Generation (RAG) Pipelines.
- Leveraged Stevens' high-power computing (HPC) clusters to expedite training for a faster, iterative design approach.
- Presented the project at the Next-Gen Healthcare Innovators Symposium 2025.

Automated Dynamic Soundtrack for Oregon Road 83 | *Stevens Department of Computer Science* **June 2024 – August 2024**

- Integrated an FMOD-powered adaptable audio system that dynamically combined the musical motifs of 34 player companions.
- Collaborated with a cross-functional team of 12 members to develop a moderately scaled, multidisciplinary video game.
- Helped delegate 62 SFX and music events to members of the audio team and met with them weekly to maintain progress.
- Used GitHub to organize workflows and version control, ensuring seamless integration of contributions and project milestones.

WORK EXPERIENCE

Mathnasium

Assistant Center Director **September 2025 – Present**

- Create and manage student accounts, assessing progress and developing custom learning plans for over 300 active students.
- Manage the performance, satisfaction, and shifts of a team of over 30 instructors, including training and leading new employees.
- Communicate student progress and learning plans with parents through in-person chats, Zoom meetings, and email.

Lead Instructor **September 2023 – September 2025**

- Conducted membership sales with prospective clients and registered new student accounts.
- Organize community events to promote community outreach, increase public awareness, and attract new clients.

The Climate Reality Project | *Lead Website Developer* **May 2021 – September 2021**

- Developed an online article database containing educational climate change education resources for schools.
- Integrated TinyMCE to support rich text editing for article creation, implemented Node.js to handle article creation and retrieval.

SKILLS AND CERTIFICATIONS

Programming Languages: Python, JavaScript, HTML, CSS, Java, C, C++, C#, SQLite, OCaml, Bash

Developer Tools: Node.js, MongoDB, Android Studio, Three.js, TinyMCE, OpenGL, SDL2, PowerPoint, FMOD, Unity, FL Studio

Technical Skills: AI Development, Object-Oriented Programming, Data Management, Mobile/Web Development, Audio Production

Certifications: Excel Essential Training (LinkedIn Learning), Github Essential Training (LinkedIn Learning), Three.js Essential Training (LinkedIn Learning), Unity Specialist (LinkedIn Learning)