Maria Beatriz Silva

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Education

New York University, Courant Institute of Mathematical Sciences 5/2026

- BA Computer Science, Minor in Mathematics, GPA: 3.95
- Honors: Presidential Honors Scholar, Dean's List (all semesters), DURF Grant Recipient
- Relevant Coursework: Data Structures, Computer Systems Organization, Basic Algorithms, Computer Graphics, Fundamentals of Machine Learning, Discrete Mathematics, Calculus II, Linear Algebra, Probability & Statistics, Introduction to Computer Simulation

Hunter College High School, New York 9/2016 – 7/2018, 9/2019 – 6/2022

- Awards: National Hispanic Scholar Recognition Award, Gold Medal and Ranked 4^{th} in National French Contest

Technical Skills

TypeScript, React, Java, C, LaTeX, Git, JavaScript, HTML, CSS, WebGL, Python, Matlab, Matplotlib, Pandas, Unix

Publications

PaleoScan: Low-Cost Easy-to-Use High-Volume Fossil Scanning. In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems, pages 1 – 16.

- Enhanced technical-writing skills by co-authoring a paper submission alongside a team of researchers to the 2024 ACM CHI Conference, the premiere international conference on Human-Computer Interaction.
- Helped conceptualize the interface design for PaleoDP, the data processing and annotation pipeline proposed by the paper.
- Directed and produced the video submission; co-presented the paper at ACM CHI 2024.

Work Experience

Incoming Software Engineering Intern, Duolingo 5/2025 – 8/2025

Software Engineering Thrive Intern, Duolingo 6/2024 – 8/2024

- Selected as 1 of 19 students nationwide for Duolingo's Thrive internship on the software engineering track.
- Co-developed a full-stack web application where Duolingo Music users can practice skills on a virtual piano.
- Enabled functionalities for users to "freeplay" on the piano, compose original songs, and share their creations with friends, fostering a creative, stress-free, and social learning environment.
- Designed and built custom digital assets, including an interactive virtual keyboard, using TypeScript and React.
- Refactored and optimized the codebase for modularity to enhance asset reusability and code clarity.
- Engineered a unique database schema using DynamoDB to enable efficient song saving and sharing.

Projects

Stochastic Epidemic Simulation Using Agent-Based Modeling 4/2024

- Created a stochastic agent-based model to simulate disease spread and explored the impact of mask usage during an epidemic by adjusting model parameters.
- Enabled dynamic visualization of the epidemic's progression and individual states (susceptible, infected, recovered, dead) and generated summary graphs to facilitate comprehensive data analysis.
- Improved the model's representativeness of real-life scenarios by incorporating factors such as mask usage and varying sociability levels among agents; validated the model's results by comparing them to results from a deterministic model with the same parameters.

Binary Star System with a Non-Circumbinary Planet 2/2024

- Developed a mathematical model to simulate the motion of a binary star system with an orbiting planet by: deriving the governing equations of motion for the stars and the planet, discretizing the equations using Euler's method, and visualizing the results dynamically using MATLAB plots.
- Conducted a parametric study to analyze the stability of the system, which is known to be quite volatile in real life.

Murano Glass Cup Simulator, New York University 12/2023 – 1/2024

- Developed a 3D model of a Murano glass cup using procedural techniques to replicate the geometry and texture of a real-world example.
- Modeled the physical structure by combining parametric equations for cylinders and disks, connecting them with a triangle mesh to simulate thickness, and applying Perlin noise to generate surface dimples.
- Designed a custom procedural texture to replicate the distinctive, random color patterns of Murano glass-blowing techniques, and extended it across multiple color variations.

Acronym Expander, Courant Institute, New York University 6/2020 – 9/2020

- Contributed to the development of a learning-based system to perform automatic expansion of acronyms in 5 languages by: porting the system from Linux to MacOS, evaluating the effectiveness of methods, and annotating 5.9 GB of Portuguese and Spanish data sets.
- Learned Python, library dependency management, version control management, and UNIX systems programming.

Leadership and Professional Development

Career Preparation Fellow, Management Leadership for Tomorrow 2/2024 – Present

- Accepted to a selective 18-month program centered around developing leadership skills and technical career readiness for high-achieving students from underrepresented backgrounds in tech.

Education Fellow, Emerging Leaders in Technology and Engineering (ELiTE) 9/2023 – 6/2024

- Utilized effective teaching strategies to help instruct a weekly 5-hour course on programming in C++ and Arduino to high-school students from underrepresented backgrounds.
- Facilitated office hours to enhance student understanding and guide them in building programming project portfolios.

NYU AI School, New York University 5/2023 – 6/2023

- Explored machine learning (ML) fundamentals and research through labs, workshops, and discussions with ML experts.

Computer Science Research Mentorship Program Scholar, Google Research 3/2023 – 5/2023

- Met with a Google mentor and a pod of peers to: broaden understanding of research practices in academia and industry, gain exposure into research trends and methodologies, and explore possible directions for our own work.

Additional Skills

English (Native), Portuguese (Native), French (Fluent), Spanish (Proficient), Italian (Beginner)