

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: 3.94
- Honors: Presidential Honors Scholar, Dean's List (all semesters), DURF Grant Recipient
- Relevant Coursework: Computer Graphics, Fundamentals of Machine Learning, Theory of Computation, Introduction to Computer Simulation, Operating Systems, Geometric Modeling (*graduate level*), Natural Language Processing (*graduate level, in progress*), Augmented and Virtual Reality (*graduate level, in progress*)

Publications

Kang, J., **Silva, M.**, Sangkloy, P., Chen, K., Williams, N., & Sun, Q. (2025). *GeneVA: A Dataset of Human Annotations for Generative Text to Video Artifacts*. *arXiv preprint* (Accepted to WACV 2026)

Silva, C., Piadyk, Y., Rulff, J., Panozzo, D., **Silva, M. B.**, ... (2024, May). *PaleoScan: Low-Cost Easy-to-use High-Volume Fossil Scanning*. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems* (pp. 1-16).

Work Experience

Research Assistant, Immersive Computing Lab (NYU Tandon)

1/2025 – Current

- *GeneVA Dataset Project*: Co-authored paper (in submission to WACV) on a novel dataset that captures human perception of visual quality in AI-generated videos; individual contributions included implementing end-to-end data pipeline to acquire videos using Hugging Face APIs and developing a custom file mapping infrastructure, conducting literature review, and owning the related works section.
- *Thesis Research*: Leading a research project for Honors thesis on perceptually-guided temporal antialiasing (TAA) techniques; currently defining project scope by conducting preliminary experiments on relationship between TAA parameters and perceptual quality metrics.
- *Lab Engagement*: Present research at weekly group meetings; contribute to discussions on computer graphics, applied perception, and human-computer interaction; provide feedback on ongoing projects at the lab.

Student Researcher, VIDA Center (NYU Tandon)

6/2023 – 5/2024

- 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.
- Collaborated with paleontologists in Brazil to understand their workflows, ascertain system desiderata, and evaluate system effectiveness to ensure the system met the needs of resource-limited institutions.
- 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.

Software Engineering Intern, Design Accelerator Area, Duolingo

5/2025 – 8/2025

- Redesigned Duolingo's internal animation preview tool, enabling 400+ previously inaccessible animations to be visualized by animators, designers, and engineers; refactored legacy code and improved UI in collaboration with design team.
- Revamped Duolingo's component documentation platform by making the avatar preview page interactive and fully design system compliant; significantly improved developer usability and alignment with internal design standards.
- Led and launched Duolingo's first experiment in AI-generated image evaluation by building a prompt adherence filter using GPT APIs; generated synthetic data for model testing, ran statistical evaluations, and iteratively optimized prompt performance.

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 in a creative, stress-free, and social learning environment by "freeplaying," composing songs, and sharing their creations with friends.
- 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

Geometry Remesher — Final project for Geometric Modeling

05/2025

- Implemented an adaptive remeshing pipeline in Python with `libigl`, based on the algorithm from Alliez et al. 2002, that produces higher-quality meshes influenced by the geometric properties of the original input and user settings.

Laplacian Mesh Deformer — Course project for Geometric Modeling

5/2025

- Implemented a shape deformation algorithm for triangle meshes (based on the procedure defined here).
- Optimized performance by pre-factoring matrices using sparse Cholesky decomposition (`scikit-sparse`), achieving near real-time interaction on some meshes.

Stochastic Epidemic Simulation Using Agent-Based Modeling — Course project for Intro to Computer Simulation

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 — Course project for Intro to Computer Simulation 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 — Course project for Computer Graphics 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.
- Participate in monthly career coaching, professional development workshops, and a yearly national conference; enhanced technical communication skills and strategic job search approaches.

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

- Led weekly 5-hour course for approximately 20 high-school students from underrepresented backgrounds on programming in C++ and Arduino.
- Facilitated office hours to enhance student understanding and guide them in building programming portfolios; shared experiences in research and industry to expose students to different CS career pathways.
- I continue to mentor several former students as they transition into college. Recently, I advised a student conducting summer research at MIT on computer graphics, providing resources, research pointers, and feedback on her final academic paper. I also host occasional meetings to share insights from my experiences in both industry and academia, share relevant opportunities as I come across them, and assist with applications when students express interest.

Duolingo Campus Ambassador at New York University 9/2024–5/2025

- Organized and hosted an information session on life and internships at Duolingo in partnership with NYU's Women in Computing Club, drawing on my experience as a 2-time Duolingo intern.
- Connected NYU students with internship opportunities at Duolingo, providing application advice and a Q&A session.
- Specifically targeted outreach to women and students of color to enhance representation in software engineering roles, achieved attendance of over 70 % women.

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

- Selected for competitive mentorship program pairing students with Google researchers; explored research practices, in academia and industry, current trends in research, and potential research directions for our own work through structured discussions between mentors and a pod of peers.

Additional Skills

Technical: iOS development (SwiftUI & UIKit), TypeScript, React, Java, C, L^AT_EX, Git, JavaScript, HTML, CSS, WebGL, Python, Pytorch, Matlab, Matplotlib, Pandas, Unix

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