Maria Beatriz Silva

mariasilva@nyu.edu | *linkedin.com/in/mariabiasilva/* | *github.com/mariabeatrizsilva/* | (347) 634-1732

Education

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

- BA Computer Science, Minor in Mathematics, GPA: 3.96
- Relevant Coursework: Computer Graphics (*Prof. Ken Perlin*), Fundamentals of Machine Learning, Theory of Computation, Introduction to Computer Simulation, Operating Systems, Geometric Modeling (*graduate level, Prof. Daniele Panozzo*), Natural Language Processing (*graduate level, Prof. Eunsol Choi*), Augmented and Virtual Reality (*graduate level, Prof. Qi Sun*), Computer Vision for Science and Engineering (*graduate level, Prof. David Fouhey*)

Honors and Awards

Fulbright Open Study/Research Award, Finalist (Winner for Fulbright France) 2026
CRA Outstanding Undergraduate Researcher Award, Honorable Mention 2026
NCWIT Aspirations in Computing Collegiate Award, Honorable Mention 2026
Phi Beta Kappa Society, Member 2026
Heidelberg Laureate Forum, Selected Participant 2025
NYU Honors: Presidential Honors Scholar (2023–Present), DURF Grant Recipient (2024), Dean's List (all semesters)

Publications

*Kang, J., **Silva, M. B.**, 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). 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

- *Thesis Research*: Leading independent research on perceptual foundations of Temporal Anti-Aliasing (TAA) in collaboration with Intel researchers. Generated over 2,000 videos from 10 diverse scenes with 28 TAA parameter configurations and analyzed them using perceptual quality metrics to identify which parameters most impact perceived visual quality; designed and implemented video processing, rendering, and evaluation pipeline in Unreal and Python.
- *GeneVA Dataset Project*: Co-authored paper (accepted to WACV 2026) on a novel dataset capturing human perception of AI-generated video quality (16,451 annotations across 16,356 videos). Influenced critical design decisions that affected the study's design and the features our dataset captures. Engineered end-to-end data acquisition pipeline to process 2.7TB dataset; applied clustering to high-dimensional embeddings for diverse prompt sampling; built custom file mapping and extraction infrastructure for compressed archives; implemented dynamic storage management across HPC cluster to optimize resource utilization.
- *Lab Engagement*: Present research at weekly group meetings; contribute to discussions on computer graphics, applied perception, and human-computer interaction; provide feedback on ongoing lab projects.

Student Researcher, VIDA Center (NYU Tandon) 6/2023 – 5/2024

- Co-authored a paper on PaleoScan, a low-cost system designed to make fossil digitization more accessible; paper accepted to ACM CHI, the premiere international conference on Human-Computer Interaction.
- Collaborated with paleontologists in Brazil to ascertain system desiderata for PaleoScan and ensure it met the needs of resource-limited institutions; conceptualized the interface design for PaleoScan's data processing and annotation pipeline.
- Directed and produced video submission; co-presented the paper at ACM CHI 2024; enhanced technical-writing skills.

Software Engineering Intern, Design Accelerator Area, Duolingo 5/2025 – 8/2025

- Proposed and launched Duolingo's first experiment in AI-generated image evaluation by building a prompt adherence filter using GPT APIs, performing data augmentation for model testing, running statistical evaluations, and iteratively optimizing prompt performance.
- Re-implemented and redesigned Duolingo's internal animation preview tool. Enabled 400+ previously inaccessible animations to be visualized by animators, designers, and engineers; refactored legacy code and collaborated with designers to improve UI.
- Revamped Duolingo's component documentation platform by transforming the avatar preview page from a static, legacy interface to an interactive and fully design-system compliant experience; received positive feedback from users for improved developer usability.

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 5/2025

- 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 that constructs a two-level multi-resolution surface representation and uses naive Laplacian editing to deform it.
- Optimized performance by pre-factoring matrices using sparse Cholesky decomposition (`scikit-sparse`), achieving near real-time interaction on some meshes.

Context-Enhanced Dataset Descriptions — Final project for Natural Language Processing (Graduate level) 12/2025

- Developed system to generate richer dataset descriptions by extracting contextual usage information from scientific papers that cite those datasets; evaluated on 20 dataset-paper pairs using reference-based and reference-free methods.
- Adapted AutoDDG (an automated dataset description generator) infrastructure to integrate paper context into description generation pipeline; implemented LLM-as-judge coverage scoring system and explored 10+ prompting variations to optimize representation of dataset information from scientific literature.

Fine-Tuning Language Models — Course project for Natural Language Processing 11/2025

- Fine-tuned BERT on IMDB dataset for sentiment analysis; designed realistic OOD transformations (typo injection, synonym replacement, character substitution) to evaluate robustness; improved transformed data accuracy through targeted data augmentation.
- Fine-tuned T5-small to translate natural language flight booking queries into executable SQL statements; implemented tokenization and preprocessing for SQL output generation; conducted systematic hyperparameter tuning and error analysis across development set data.

Stochastic Epidemic Simulation Using Agent-Based Modeling — Course project for Intro to Computer Simulation 4/2024

- Developed a stochastic agent-based mathematical model to simulate disease spread among individuals; implemented the model in MATLAB along with dynamic visualizations showing agent movement and state transitions (susceptible, infected, recovered, dead).
- Improved the model's representativeness by incorporating mask usage and varying sociability levels among agents; validated results against a deterministic model with identical parameters, demonstrating similar epidemic trajectories

Murano Glass Cup Simulator — Course project for Computer Graphics 12/2023 – 1/2024

- Modeled a Murano glass cup's physical structure using parametric equations for cylinders and disks connected by triangle meshes; applied Perlin noise for procedural surface dimpling.
- Designed custom procedural textures replicating Murano glass's distinctive random color patterns across multiple variations, replicating the appearance of real-world examples.

Leadership and Professional Development

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

- Accepted to selective 18-month career-readiness program for underrepresented students; developed leadership, technical interviewing, and workplace communication skills through monthly coaching and professional development workshops.

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.
- Continue to mentor 3 former students through their college transition; recently advised a student conducting summer research at MIT on computer graphics by providing resources, research guidance, and feedback on her final paper; referred 4 students to Duolingo internship opportunities and provided application support.

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 40+ students, 70%+ were women.

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

- Participated in early research exposure program; implemented machine learning models for computer vision tasks and attended research seminars on ML fundamentals, AI impact, and future research directions.

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

- Selected for competitive mentorship program pairing students with Google researchers; gained exposure to research as a career field by discussing mentor's work; strengthened commitment to pursuing a research career academia or industry.

Additional Skills

Technical: iOS development (SwiftUI & UIKit), TypeScript, React, Java, C, LaTeX, Git, JavaScript, HTML, CSS, WebGL, Python, Pytorch, Matlab, Matplotlib, Pandas, Unix, Unity, Unreal.

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