

# Maira Molina

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## EDUCATION

**Barnard College** | New York, NY

**Expected May 2026**

B.A. in Mathematics and Computer Science | GPA: 3.54 / 4.00

- Relevant Coursework: Deep Learning for Computer Graphics, Data Structures, Advanced Programming
- Honors and Awards: Hispanic Scholarship Fund STEM Summit participant, Point Foundation BIPOC Scholarship

**Danish Institute for Study Abroad (DIS)** | Copenhagen, Denmark

**August 2025 - December 2025**

- Relevant Coursework: Artificial Intelligence, Game Development, Entrepreneurship Practicum

## TECHNICAL SKILLS

**Programming:** Python, Java, C, MATLAB, SQL, HTML, CSS,

**Frameworks/Libraries:** Pandas, NumPy, Matplotlib, PyTorch, scikit-learn, SQLAlchemy, FastAPI

**Tools:** Linux, Git, SVN, Google Apps Scripts, Microsoft & Google Suite

## PROFESSIONAL EXPERIENCE

**Backend Engineering Intern** | MESH AI, Harvard Medical School | Remote

**June 2025 - Present**

- Generalized Flask backend infrastructure to support multiple LLM providers (e.g., ChatGPT-4, Claude, Gemini), improving flexibility in model selection
- Designed **SQLAlchemy** database to track user-specific LLM interactions, enabling future training optimization
- Improved latency and reliability via API routing, Flask Blueprints, and infrastructure tuning

**Artificial Intelligence Research Assistant** | The GILM Lab | New York, NY

**May 2024 - July 2025**

- Developed a **Pytorch**-based Neural Network model (PatchTST + Autoformer) to extract temporal patterns from **16M+** neural signals, reducing MSE by **73%** on long-horizon predictions
- Presented findings to ~100 faculty and researchers and informed architectural decisions for future implementations
- Spearheaded interdisciplinary with Columbia neuroscience researchers, producing novel insights that influenced long-range forecasting design and data strategy for neural signal prediction

**Project Manager** | CM Construction LLC | Westchester, New York

**March 2020 - Present**

- Oversaw **\$200k+** in projects and streamlined 6-person team communication, improving delivery by **40%**
- Built interactive dashboards in Google Apps Script to track key performance indicators (KPIs) such as labor hours, cost vs. revenue, and profit trends, enabling data-driven operational decisions
- Delivered insights that contributed to 30% revenue growth and improved job costing precision

## PROJECTS

**AI-Based Image Restoration & Colorization** | TensorFlow, CUDA, U-NET, GAN

- Designed a 3-stage **ML pipeline** (U-Net, ResNet, GAN) to enhance and colorize historical portraits, reducing training loss by **~90% over 15 epochs**
- Evaluated image realism using PSNR and SSIM metrics and presented findings via academic paper

**Website Cloning Tool (AI Agent)** | Next.js, FastAPI, LLMs

- Engineered a modular architecture using Next.js (frontend) and FastAPI (backend) for real-time user input and website preview rendering
- Built a Puppeteer-based scraping pipeline to extract DOM structure, stylesheets, and images for design context
- Optimized prompt strategies across LLMs to improve data extraction from scraped web interfaces