

Carey Manwa

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Education

Cornell University, Bowers CIS

Bachelor of Science in Information Science (Data Science)

Ithaca, NY

Expected May 2026

Work Experience

Founder & Lead Engineer — MathMentor (mathmentor.academy) | Remote Sept 2024 - Current

- Built and deployed an AI tutoring platform enabling teachers to train adaptive teaching agents from their own materials that adapt to student learning pace and report progress to instructors.
- Developed analytics pipelines that detect individual student learning gaps and adapt agent instruction to address them (Python, FastAPI, PostgreSQL).
- Deployed the platform using Docker and cloud infrastructure across 10 high schools in low-resource settings, reaching 3,000+ students and securing \$5,000 in KCB Foundation funding.

Software Engineer | Cornell Lab of Ornithology – K-12 Education | Lansing, NY

Sept 2025 - Current

- Engineered distributed data pipelines combining drone imagery and bioacoustic recordings to create classroom-ready avian datasets for K-12 inquiry-based science, improving processing throughput by 45%.
- Optimized CNN - and Transformer-based species detection models in PyTorch with GPU acceleration, enabling near-real-time feedback for student exploration of bird identification and habitats.
- Deployed containerized ML workflows using Docker, Prefect, and CI/CD to ensure reliable model outputs for educator-facing platforms at classroom scale.

Undergraduate Researcher | Bowers Undergraduate Research Experience | Ithaca, NY

May 2024 – Mar 2025

- Built Python-based data pipelines to process and analyze large-scale scientific text corpora (arXiv, bioRxiv, SSRN) to study how AI is used in research workflows.
- Implemented LLM-based and statistical methods to detect AI-assisted writing and hallucinated citations across scientific papers.
- Developed evaluation scripts and metrics to compare AI-generated and human-written text for reproducible analysis; awarded a competitive \$7,000 BURE research grant to support summer research.

Data Science Intern | Ministry of Education | Nairobi, Kenya

May 2023 – Aug 2023

- Built and cleaned nationwide teacher staffing datasets covering 100% of counties and core subject areas, standardising records previously siloed across sources.
- Developed multivariate regression models controlling for county, school size, and enrollment to identify 40% higher STEM staffing deficits in schools serving informal settlements relative to national averages.
- Ran scenario and allocation simulations evaluating alternative deployment strategies, demonstrating potential 15 - 20% reductions in staffing imbalance under revised assignment policies.

Webmaster | Prof. Christopher Barrett Research Group | Ithaca, NY

Sept 2023 - Current

- Initially hired to maintain the Barrett Research Group website; expanded role to lead the development and launch of the Cornell Collaboration for International Development Economics Research website.
- Migrated legacy code into a modern, maintainable platform and built custom researcher-facing tools, including a hiring and recruitment system, improving workflows for 30+ researchers.
- Ensured accessibility compliance and university web standards while implementing automated backup and recovery systems to maintain 99%+ uptime.

Teaching and Leadership

Teaching Assistant | Cornell University | Ithaca, NY

Jan 2023 – Current

- Served as a Teaching Assistant across multiple semesters for **Practical Tools for OR, ML, and Data Science**; **Introduction to Data Science**; and **Introductory Design and Programming for the Web**
- Graded programming assignments and exams, providing detailed technical feedback to students.
- Led weekly discussion sections and office hours (3 hours/week) covering Python, statistical modeling, and web design, earning perfect 10/10 teaching evaluations across all terms.

Cornell Data Strategy | Director of Technology

Aug 2024 – Sept 2025

- Led technical strategy for 25+ developers across three pods, delivering four production-grade platforms.
- Standardized CI/CD and on-call workflows, cutting incident resolution time by 40%.
- Set backend architecture standards and mentored engineers on version control and deployment.