Carolyn Yang

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Education

Carnegie Mellon University Pittsburgh, PA
Bachelor of Science in Electrical and Computer Engineering *May 2025*

- **Relevant Coursework:** Machine Learning, Statistical Computing, Linear Algebra, Reasoning with Data, Probability Theory, Data Strucures & Algorithms, Computer Systems, Web Development

Experience

General Motors **Jul 2025 – Present**
Data Scientist *Warren, MI*

- Built and deployed a Databricks app (Dash/Flask) with an automated SQL backend to generate ML-driven forecasts for a $\sim$ \$120M prototype and tooling budget, aiding vehicle managers in strategic resource allocation.
- Applied regression and clustering models using scikit-learn to estimate per-unit vehicle component costs, achieving within 85% accuracy when comparing predicted spend to historical vehicle program data.

General Motors **May 2024 – Aug 2024**
Software Engineering Intern *Milford, MI*

- Developed Python scripts using Selenium and Regex to automate manual software setup for 5+ teams, converting a multi-step initialization process into a repeatable routine later integrated into the CI/CD pipeline.
- Presented automation tools to 100+ engineers to facilitate knowledge sharing and drive adoption across teams.

Hubbell Incorporated **May 2023 – Aug 2023**
Embedded Software Developer Intern *Avon, CT*

- Implemented Rust firmware to collect and process real-time sensor data from inputs, ensuring reliable readings.
- Designed concurrent, interrupt-driven routines and optimized Rust code for real-time performance on a MCU.
- Validated system integrity via TDD and benchmarking, comparing Rust and C to optimize for maintainability.

Projects

Carnegie Mellon Capstone: Cyclify | *Swift* **Jan 2025 – May 2025**

- Created an iOS application to analyze and detect poor cycling posture using pressure sensor and biometric data.
- Constructed time-series visualizations using Swift Charts to illustrate biking form performance through heatmaps and trend graphs, supported by a persistent SQLite-backed relational store via SwiftData.
- Recognized with 3rd place out of 50 teams by judges and faculty in Carnegie Mellon's ECE Capstone Showcase.

Modular Neural Network Framework | *Python, NumPy* **October 2024**

- Orchestrated a multi-layer neural network from scratch in NumPy by manually deriving and implementing forward and backpropagation logic for Linear, Sigmoid, and Softmax-Cross-Entropy layers.
- Developed a modular class-based system to manage forward and backward passes, utilizing vectorized NumPy operations to optimize matrix multiplications and improve training performance on high-dimensional data.

Yelp Sentiment Analyzer | *Python, NumPy, NLP* **September 2024**

- Engineered a text classification pipeline to categorize restaurant reviews by sentiment using Logistic Regression and GloVe word embeddings to map unstructured text into a semantic vector space.
- Implemented a custom SGD optimizer to manage gradient updates and optimize for model convergence.

Journey Jotter | *Python, JavaScript, AWS, Django, Gemini API* **Mar 2024 – Apr 2024**

- Designed a full-stack trip-planning app with Django backend, supporting real-time collaborative itinerary sharing.
- Integrated Google OAuth, Google Maps API, and Gemini API for AI-powered travel recommendations.
- Secured the app against XSS, CSRF, and SQL injection; utilized Django with MVC architecture deployed via AWS.

Technical Skills

Languages: Python, SQL, R, JavaScript, HTML, CSS
Frameworks & Technologies: Pandas, NumPy, scikit-learn, PySpark, Databricks, PyTorch
Additional Technologies: AWS, Django, React, Node.js, Express.js, Flask, MongoDB