

# Nicholas Channg

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## EDUCATION

### Cornell University

Ithaca, NY

B.A. Computer Science, Minors in Artificial Intelligence, Data Science | GPA: 3.72/4.0

Expected Graduation, May 2027

- **Awards:** Y Combinator AI Startup School (1 of 2,500 selected), 3x Hackathon Winner

- **Coursework:** Data Structures, OOP, Algorithms, Databases, NLP, Data Science, Functional Programming

## TECHNICAL SKILLS

**Languages:** Java, Python, TypeScript, JavaScript, SQL

**Frameworks:** Flask, FastAPI, Node.js, Express.js, React, Next.js

**Libraries:** Scikit-learn, NumPy, Pandas, OpenAI API, TailwindCSS

**Tools/Technologies:** Git, AWS, Redis, Spark, PostgreSQL, CI/CD, Docker, Postman, Jira, Confluence

## EXPERIENCE

### Amazon

New York, NY

Software Development Engineer Intern – Amazon Ads

Sep 2025 – Present

- Engineered distributed backend infrastructure for Amazon's new Sponsored Products Video ads ( $0 \rightarrow 1$  initiative) using Java, Python, and AWS, powering large-scale video generation and AI-driven ad insights for 1M+ monthly videos
- Built an ECS microservice that invokes AWS Bedrock to generate AI-driven video analysis, perform quality-check moderation, and produce optimized text descriptions, storing outputs in DynamoDB for downstream services
- Developed a serverless Lambda-triggered ECS workflow to orchestrate video assembly by merging clips and text overlays, enabling cross-service and cross-account access to S3 and DynamoDB for asset generation

### Tesla

Fremont, CA

Software Engineer Intern – Charging Team

May 2025 – Sep 2025

- Engineered scalable backend infrastructure and REST APIs for the Tesla Mobile App using Node.js, Express.js, and TypeScript, improving Charging feature reliability and performance for 3.4M daily users
- Optimized Supercharger data pipelines (congestion, pricing, location) by caching Spark API results in Redis, reducing repeated mobile app requests and improving response latency by 10%
- Integrated microservice APIs via a Python orchestration layer, enabling a QA automation AI agent to execute testing workflows and improve QA efficiency by 25%

### Flow

Remote

Software Engineer Intern

Jan 2024 – May 2024

- Developed REST APIs using Flask and Python to retrieve and process data from Flow's AI models, automating customer prospecting and increasing sales representative call volume by 300% ( $30 \rightarrow 120$  calls/day)
- Reduced model inference latency by 15% by optimizing PostgreSQL queries; replaced nested SELECTs with JOINs, added B-tree indexes on high-cardinality columns, and batched execution to minimize database calls
- Integrated backend services into CI/CD pipelines using GitHub Actions, ensuring automated testing and deployment

## PROJECTS

### ElectAI | Python, Scikit-learn, Flask, React, TypeScript, TailwindCSS, NumPy, Pandas

Jan 2025

- Engineered a full-stack ML web app to predict voter turnout across U.S. states using a Flask REST API to retrieve data from the model and a React frontend to dynamically display the prediction on a U.S map
- Built a data preprocessing pipeline with Python, NumPy, and Pandas to clean 20 years of election data, enabling accurate regression modeling with Scikit-learn and achieving high accuracy (RMSE: 5.35, MAE: 4.22)

### MathGPT | Microsoft Phi-3 API, React, TypeScript, HTML, CSS

July 2024

- Built an AI Math Tutor Chrome extension using Microsoft's Phi-3 LLM, React, and TypeScript that provides personalized math tutoring to 100+ students, featuring structured prompts and step-by-step AI solutions
- Reduced latency by 67% ( $30\text{s} \rightarrow 10\text{s}$ ) by dynamically adjusting user input via prompt engineering and implementing conditional API calls, eliminating redundant requests to the LLM and timeout issues