

# Gabriel Castillo

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## Education

**Cornell University, College of Arts and Sciences**

*Ithaca, NY*

BA in Computer Science *GPA: 3.83*

*Expected May 2027*

**Relevant Courses:** OOP & Data Structures (Honors), Discrete Math, Intro to Analysis of Algorithms, Intro to ML

## Technical Skills

**Languages:** Python, Swift, Java, TypeScript, JavaScript, OCaml

**Skills:** LangChain, SQLAlchemy, PyTorch, Firebase, UIKit, JavaFX, Expo, React Native, React, Bootstrap, AWS S3

## Experience

**Cornell University — uTech Lumeo (AQI-Aware Navigation App)**

*Ithaca, NY*

*iOS Developer & Researcher*

*Feb 2025 – Present*

- o Collaborated with 4 devs to build an iOS app with Google Maps SDK and Firebase for real-time AQI-aware navigation.
- o Optimized Pareto-efficient algo to process 19,000+ AQI data points, generating routes that balance time and pollution.
- o Helped implement Google Air Quality API heatmap overlay with 16 zoom levels, visualizing real-time pollution data.
- o Extended routing logic to support 3 transport modes (drive, walk, bike), to minimize commuter pollution exposure.

**rapStudy — US DoE-funded Musical Ed-Startup**

*Remote*

*Full-Stack Software Engineer Intern*

*May 2025 – Aug 2025*

- o Refactored a 5,000+ line React codebase, improving page load times by 30% and increasing customer satisfaction.
- o Resolved major Firebase syncing issues, increasing data throughput by 40%, fixing 6 bugs in the process.
- o Delivered 3 new features that enhanced platform usability and demo success, expanding user engagement.
- o Automated testing suite and deployment system to reduce release and update cycle times by 20%.

**Blue Pond Group Ltd. — Hatch Blue Backed Startup**

*Chiang Mai, Thailand*

*Full-Stack Software Engineer Intern*

*May 2024 – Aug 2024*


- o Built, launched the company website and blog using HTML, CSS, and JS, and automated posting system.
- o Developed an iOS app for shrimp farmers using Swift and Firebase with a beta user base of over 30 people.
- o Boosted profits by 15% through product placement analysis with Python, enhancing operational decision-making.
- o Generated key user analytics and technical documentation required for due diligence from Hatch Blue.

## Projects

**Harbor – Cornell Dating App** 

*Jun 2025 – Present*

- o Launched a campus-wide dating app, acquiring 40+ active users in the first week of beta testing.
- o Spearheaded full stack development with React Native (Expo), TypeScript and Firebase.
- o Built secure photo reveal system with an intermediate consent screen using GCloud Storage Signed URLs.
- o Engineered an advanced AI recommendation system that learns from a users profile and who they swipe on.

**HSPorter – AI-Powered HS Code Classification System** 

*Oct 2025 – Dec 2025*

- o Built AI classification system achieving 75-80% accuracy across 19,000+ HS codes for import classification.
- o Implemented RAG pipeline reducing 1,264 headings to top 15 candidates, cutting LLM token costs by 98.8%.
- o Developed multi-path tree traversal algorithm with confidence-based branching for parallel classification.
- o Architected multi-LLM layer supporting 4 providers (OpenAI, Anthropic, Groq, Gemini) with hot-swappable config.

**Odyssey – Interactive OCaml Theorem Prover** 

*Mar 2025*

- o Worked with 3 others to build propositional logic theorem prover with SAT solving and tautology check.
- o Implemented recursive descent parser and AST interpreter in OCaml with 5 logical operators.
- o Developed interactive CLI with ANSITerminal for colored output and step-by-step proof visualization.
- o Added CNF conversion, DIMACS export, and LaTeX document generation for academic compatibility.

**LockedIn – iOS Swipe-Based Networking App** 

*Dec 2024*

- o Won best UI (out of 28 teams) at AppDev's Hack Challenge building a LinkedIn-Tinder hybrid native iOS app.
- o Developed frontend with Swift and UIKit; integrated Firebase for auth and real time messaging and notifications.
- o Helped create and design REST API with Flask, SQLAlchemy; used AWS S3 for image hosting.

**Artificial Life Evolution Simulator**

*Aug 2024 – Dec 2024*

- o Led a team of four to develop a creature evolution simulation modeling food, reproduction, and mutation.
- o Implemented a custom parser and AST interpreter featuring advanced fault injection capabilities for system testing.
- o Engineered a high-performance simulation engine and JavaFX GUI to enable seamless real-time user interaction.
- o Enabled large-scale simulations of billions of ticks to emulate evolutionary behavior with advanced statistical tracking.