

# George Harris

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## EDUCATION

### University of North Carolina at Chapel Hill

Chapel Hill, NC

*B.S. Computer Science; B.A. Mathematics — GPA: 3.79/4.00*

*Aug 2022 – May 2026*

- **Courses:** Machine Learning; Advanced Linear Algebra for ML; Probability; Data Structures & Algorithms; Computer Networks; Discrete Math; Real Analysis; Linear Algebra
- **Awards:** ACM SenSys 2025 Demo Abstract; MongoDB Next-In-Tech Invitational Summit

### Universidad Carlos III de Madrid

Madrid, Spain

*Study Abroad — Courses: Differential Equations; Statistics; Computer Networks; Formal Languages*

*Aug 2024 – Dec 2024*

## PROFESSIONAL EXPERIENCE

### Software Engineer Intern

New York, NY

*MongoDB*

*June 2025 – Present*

- Architected the first **recurring load-testing framework** for Atlas (template for future cloud integrations); executed spike/soak tests with **JMeter** at  $\geq 100$  req/s to validate service performance for greenfield partner integration.
- Automated nightly test orchestration via **Evergreen**, MongoDB's distributed CI system; developed secure, internal **authentication workaround** for load-testing in partnership with IAM.
- Built extensive **Bash/JavaScript/Python** tooling to derive plan parameters for load test from rate limit props, generate spoofed auth/user tokens, build valid request bodies, and parse/visualize results.

### Undergraduate Researcher

Chapel Hill, NC

*UNC Embedded Intelligence Lab*

*Dec 2023 – May 2024*

- Designed an **agentic system** to operate Android devices over **ADB** using **OpenAI & Gemini** APIs; measured strategy adherence via **cosine similarity** between embedded instructions and model outputs. **Demo accepted (ACM SenSys 2025)**.
- Built analytics dashboard and data processing for **AURA**; deployed in clinician trials at **FSU & UTSA**.

### Software Engineer Intern

Knoxville, TN

*Momentum Technologies*

*May 2024 – Aug 2024*

- Prototyped the company's first **semantic search/RAG** experiment (**Python, Semantic Kernel, OpenAI, Qdrant**) enabling natural-language search across **75k+** events.
- Migrated frontend **Vue 2**  $\rightarrow$  **Vue 3** serving **60k+** clients; authored **Vitest/Jest** tests, **Dockerfiles**, GitHub Actions, and POCs for composable-based global state. Refactored PDF processing and editing services in **Javascript** with Handlebars.

### Software Engineer Intern

Carrboro, NC

*TradePending*

*May 2023 – Aug 2023*

- Shipped **6+** features on a React dashboard for **5k+** dealership clients; implemented role-based access, billing/contracts, settings, and dynamic menus.
- Built **RTK Query** APIs backed by **MongoDB**; improved data access patterns and global state with Redux Toolkit.

## PROJECTS

### MathRouter — Cost-Aware LLM Router | [Details](#) | *Python, TensorFlow, NumPy, Pandas, OpenAI API* Spring 2025

- Processed **5,000+** problems; trained a difficulty-tier **neural network** and built a **4-tier LLM router** (unsolvable, GPT-4.1-mini, GPT-4.1, o4-mini) to select the **cheapest capable model**. Implemented solve  $\rightarrow$  **structured-output** grading (custom rubric)  $\rightarrow$  **cost analysis** to quantify accuracy/latency/cost trade-offs.

### AURA — Research Project | [Github](#) | *Next.js, Chart.js, Vercel, Heroku, MongoDB*

Jan 2024 – May 2024

- Built patient-analytics frontend and data pipeline; designed an API handling **28,800** data points in **3 s**. Deployed for clinician trials at **FSU & UTSA** with the [UNC Embedded Intelligence Lab](#).

## LEADERSHIP AND INVOLVEMENT

### President; former VP of Education; Founder, CS+SG Labs

Chapel Hill, NC

*CS + Social Good (UNC)*

*Jul 2024 – Present*

- Rebuilt operations and recruited **5** exec leaders; secured corporate partners to drive engagement.
- Taught **50+** students (**JavaScript, Next.js, SQL**); launched **Labs** program for market-aligned special projects.

### Founding Data Analyst

Chapel Hill, NC

*Biokind Analytics (UNC)*

*Aug 2023 – May 2024*

- Analyzed marathon-runner datasets in **Python**; delivered visuals and insights that boosted participant retention by **12% YoY**.

## TECHNICAL SKILLS & AWARDS

**Languages/DBs:** Java; Python; JavaScript/TypeScript; Bash; SQL; C; MongoDB; Qdrant

**Frameworks/Tools:** React; Vue; Next.js; Node.js; **PyTorch**; TensorFlow; scikit-learn; Pandas; NumPy; Matplotlib; Chart.js; Docker; Git; JMeter; Postman; Jupyter; Mongoose; Semantic Kernel; OpenAI API

**Awards:** ACM SenSys 2025 Demo Abstract; MongoDB Next-In-Tech Invitational Summit; HackNC 2023 Best Junior Hack