

# Richard Yin

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## EDUCATION

### University of Maryland - College Park

College Park, MD

*Bachelor of Science in Computer Science, Minor in Mathematics*

*August 2023 – May 2027*

- **Courses:** Machine Learning, Data Science, Operating Systems, Multivariable Calculus, DSA
- **Activities:** App Development Club; College Park Scholars: Science, Technology & Society (Selective Program)
- GPA: 3.51

## EXPERIENCE

### Software Engineer Intern

June 2025 – August 2025

*Echostar*

*Germantown, MD*

- Increased contract revenue by replacing a legacy Python airplane network monitoring system, which **eliminated a 10% billing data loss rate and reduced CPU usage by 50%**.
- Developed a completely reworked network monitoring system in **Go** to ensure **SLA compliance**, performing in-flight connectivity tests (latency, browser, upload, etc) across **200+ flights daily**.
- System's KPIs were used to directly determine the **percentage-based payments** from airline customers.
- Built a data pipeline to compress and upload **800,000+ files daily** of test results to GCP for flight diagnostics.

### Software Engineer Intern

September 2024 – May 2025

*Children's National Hospital*

*College Park, MD*

- Built a real-time medical monitoring system with researchers (partnership with club) to detect tracheostomy decannulation and breathing anomalies, **preventing respiratory emergencies**.
- Optimized BLE data streaming from ESP32 to Raspberry Pi by replacing polling with a notification listener approach, increasing CO2 data throughput by **10x** to transmit enough data for accurate anomaly detection.
- Developed a mobile Flutter app delivering instant emergency alerts to parents and nurses.

### Software Engineer Intern

January 2025 – May 2025

*Relentless Returns*

- **First engineering intern** at an SEC-registered investment management startup; implemented the KYC onboarding form in React, ensuring client verification aligned with Alpaca broker compliance requirements.
- Automated the generation of monthly client statements and real-time trade confirmations by developing a backend service using express.js to aggregate financial data from Supabase and Alpaca APIs.
- Collaborated **directly with founders** in weekly sprints, contributing to early product development decisions.

## PROJECTS

### AI Schedule Matcher/Generator | *Google Gemini, LangChain, HuggingFace, Next.js*

- Created a website that uses machine learning to generate complete class schedules based on a single text input (e.g., "I want hard ML classes and a easy US history gen ed"). **<https://github.com/yyrichy/scheduleit>**
- Engineered a semantic search pipeline across 200+ classes using HuggingFace Sentence Transformers and LangChain, enabling intelligent course matching from text input to across 200+ classes.
- Used Google Gemini NLP API to determine user's desired major course level and difficulty from text input.

### Professor Rating Predictor | *Python, Scikit-learn, SentenceTransformers, NLP*

- Predicted ratings for 1,637 professors from 26,713 reviews using NLP features (sentiment, text length, embeddings)
- Trained Ridge, Random Forest, and MLP models; MLP had MAE 0.282 and  $R^2$  0.841, explaining 84% of variance.
- Analyzed feature importance, concluding review text sentiment and expected grade as strongest predictors.

### Discord Chat Bot | *JavaScript, Node.js, API, Heroku*

- Developed a gaming community Discord chat bot for **2000+ active users** throughout multiple servers.
- Achieved 99% up-time hosting with Heroku, processing **50+ daily requests** and **1000+ daily chat messages**.

## TECHNICAL SKILLS

**Programming Languages:** TypeScript, JavaScript, Python, Java, Go, C, SQL

**Frameworks & Libraries:** React, Node.js, Flutter, Next.js, TailwindCSS

**Tools & Technologies:** Git, AWS/GCP, PostgreSQL, MongoDB, Docker

**Machine Learning:** PyTorch, scikit-learn, LangChain, Hugging Face, Pandas, NumPy, Matplotlib