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 real-time performance KPIs were used to validate network performance and directly determined the **percentage-based payments** from airline customers (ex: Delta).
- 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 data throughput by **10x** to 20 CO2 values per second and providing sufficient real-time data for accurate breathing 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 initial 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 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.

Technical Skills

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