

Richard Yin

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Education

University of Maryland - College Park August 2023 - December 2026
Bachelor of Science in Computer Science, Minor in Mathematics College Park, MD

- **Coursework:** Algorithms, Data Structures, Data Science (Python, SQL), Operating Systems, Object-Oriented Programming, Statistics, Linear Algebra, Calculus 2 & 3 (Multivariable)
- College Park Scholars: Science Technology and Society

Experience

Children's National Hospital September 2024 - May 2025
Software Engineer Intern

- Collaborated through my university's App Development Club to develop a mobile app and backend system to monitor breathing tube effectiveness in children with tracheostomy. The app leverages real-time CO2 level analysis, reducing emergency response time for nurses and parents.
- Engineered a Raspberry Pi-based real-time data pipeline using Python, NumPy, and TimescaleDB, achieving 1,000x faster queries and 40% faster data ingestion over PostgreSQL.
- Developed a Flutter-based mobile app for real-time monitoring and an admin web portal (Next.js, Tailwind) to streamline patient management for nurses and doctors.
- One of 10 selected from 1,000+ applicants to collaborate on this project.

Tramona September 2024 - December 2024
Software Engineer Intern

- Built a full-stack web platform for Tramona, a startup optimizing Airbnb rental vacancies, using Next.js, TypeScript, tRPC, Prisma, TailwindCSS: <https://www.tramona.com/>
- Optimized performance, cutting page load times by 50% using memoization and lazy loading..
- Designed and implemented a calendar feature for hosts to block/unblock specific dates for reservations.

App Development Club March 2024 - Present
Software Engineer College Park, MD

- Member of a university programming club collaborating with Fortune 500 companies (Amazon, MITRE, CNH, etc.).
- Contributed to rebuilding the club's website using React. <https://appdevclub.com/>

Projects

Testudo Match – Bitcamp 2025 Hackathon | *Google Gemini, LangChain, HuggingFace, Next.js*

- Developed a course-matching web app that generates tailored class schedules from natural language queries. Considers major requirements/prerequisites and General Education requirements. <https://devpost.com/software/testudo-match>
- Leveraged Google Gemini API to extract intended course difficulty and level (e.g., 400-level) from user input.
- Implemented similarity search using HuggingFace Sentence Transformers and LangChain's MemoryVectorStore to match course descriptions with user interests.
- Integrated school APIs to enrich recommendations with live course info, professor ratings, and grade distributions.
- Designed backend logic to generate best 5 schedules, fitting in as many of the best ranked courses as possible.

GradeHelper Mobile App | *React Native, TypeScript, Expo, SOAP API*

- Built a mobile app with 100+ downloads, simplifying grade calculations and providing clear academic insights as a better alternative to existing official apps.
- Integrated the school district's SOAP API to retrieve and analyze student data.
- Integrated Sentry for real-time error monitoring, reducing debugging time and improving app stability.
- Reduced app size by 40% by transitioning from APK packages to Android App Bundles.
- Published on the Apple App Store and Google Play Store, releasing the app to my school district.

Skills

Programming Languages: TypeScript, JavaScript, Python, Java, SQL, HTML, CSS, C, Rust, R, Ocaml
Frameworks & Libraries: React, React Native, Node.js, Flutter, Next.js, TailwindCSS
Tools & Technologies: Git, Google Gemini, HuggingFace, LangChain, PostgreSQL, MongoDB
Other Skills: AI/ML, NLP, Algorithms, CI/CD, Data Science, Data Structures