Alex Yang

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EDUCATION

B.S. in Computer Science, University of Illinois at Urbana-Champaign May 2026
- **GPA**: 4.0
- **Relevant Coursework**: Distributed Systems, Data Structures, Algorithms, System Programming, Database Systems, Operating Systems, Computer Architecture, Probability & Statistics for CS, Combinatorics

EXPERIENCE

Course Assistant (System Programming), UIUC Aug 2024 - Current
- Providing individualized guidance on topics including memory allocation, multithreading, networking, and file systems
- Conducting weekly office hours and assisting in lab sessions to reinforce course concepts and troubleshoot coding issues

Software Engineer Intern, **Capital One** Jun 2024 - Aug 2024
- Integrated a predictive model for optimal contact times into a Spring Boot Java SMS/Push fulfillment service, enhancing daily interactions for over 600,000 customers
- Designed a RESTful Python API to expose the prediction model, leveraging pickle, pytest and AWS S3
- Deployed said API with auto-failover by using AWS Lambda, AWS Route 53, and AWS ALB, achieving 99.9% uptime
- Developed a food location search website utilizing Next.js, Go, SQLite, and a GraphQL API to filter company food options based on users' nutritional needs and dietary restrictions

Computer Science Instructor, **CoderDojo** Mar 2022 - Apr 2023
- Instructed a classroom of 15+ students in the fundamentals of programming, problem solving, and algorithm design
- Guided students in building their own applications and projects using Scratch and Python

LEADERSHIP AND ACTIVITIES

Software Developer - API Lead, **HackIllinois** Sep 2023 - Current
- Leading a team of 4 developers in building a TypeScript API for HackIllinois (UIUC's signature student-run hackathon)
- Reduced annual costs by 98.5% by redesigning database schemas and transitioning from a microservices architecture to a monolith architecture
- Achieved a 94% reduction in bandwidth by utilizing presigned S3 URLs for uploading/downloading applicants' resumes

Software Engineer - Infrastructure, **Reflections Projections** Feb 2024 - Sep 2024
- Oversaw and managed infrastructure for the Midwest's largest student-run tech-conference
- Deployed API servers on a Linux EC2 instance with 0% downtime during updates by leveraging blue-green deployment
- Developed a robust, custom API CI/CD pipeline using AWS Code Deploy, AWS Code Pipeline, and Github Actions
- Achieved 96.55% testing coverage, ensuring reliable, seamless CI/CD by developing testing framework using Jest

PROJECTS

Distributed Failure Detector | *Golang*
- Developed a failure detection system inspired by the PingAck SWIM protocol
- Built in Go with UDP-based socket programming, resulting in minimal network load and low-latency communication
- Supported operations including join, leave, enabling/disabling suspicion, and comprehensive logging
- Implemented a custom group membership protocol with gossip, piggybacking on pings/acks to reduce network load

Grocery Deal Finder | *Python, Selenium, GeoPY, JavaScript, React, Next.js*
- Developed a comprehensive web application to help users discover the best grocery store deals in their area
- Leveraged Selenium to dynamically scrape weekly grocery deals, handling for a multitude of grocery website formats
- Integrated GeoPY and the Google Maps API to deliver personalized, location-based results

AI Chinese Chess | *C++*
- Created a player vs computer, CLI version of Chinese Chess in C++
- Implemented the AI player using a minimax algorithm with alpha beta pruning on a game tree, and a Zobrist hashing based transposition table for increased performance

TECHNICAL SKILLS

Languages: C/C++, Python, Java, JavaScript, TypeScript, HTML, CSS, Golang, SQL, GraphQL
Technologies: Node.js, React, Next.js, Express, Flask, MongoDB, AWS, Jest, Github Actions, Spring Boot, Numpy, Pandas, OpenCV, Flask, Valgrind, GDB, Docker