Zack Murry

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Education

University of Missouri August 2023 – May 2027

B.S. Computer Science, B.S. Mathematics GPA: 4.0/4.0

- Relevant coursework: Data Structures & Algorithms, Computer Networking, Computer Architecture, Databases, OOP, Differential Equations, Graph Theory & Combinatorics, and Software Engineering

Experience

Software Engineering Intern May – August 2025

Garmin *Olathe, KS*

- Engineered scalable Java Spring microservice endpoints for a new health tracking feature in the Garmin Connect API, enabling smartwatch users to monitor wellness metrics across a system handling 2.4 B+ daily requests
- Built a batch-processing service for efficient writes to HBase with Protobuf, decreasing processing time by 63% by leveraging a custom data structure to track changes in fitness settings and goals over time
- Implemented device gateway APIs with Spring Cloud Hystrix for resilient smartwatch-to-server communication, reducing payload size by 40% to improve performance on memory-constrained devices
- Created an aggregation system for HBase, SQL, and third-party data to provide context-aware search results
- Designed robust unit tests using JUnit and Mockito and collaborated with QA teams to ensure reliable releases

Undergraduate Research Assistant August 2023 – May 2025

University of Missouri *Columbia, MO*

- Developed a deep Q-learning reinforcement learning (RL) algorithm using PyTorch and OpenAI Gym to generate network-aware routes for a truck-drone hybrid package delivery system
- Experimentally validated package delivery system using a physical drone testbed and a simulated digital twin
- Compared performance of network security algorithms in resource-limited drone missions for a DoD-funded project
- Co-authored three papers at IEEE INFOCOM, IEEE ICNC, and the International Conference on Supercomputing

Software Research Intern May – August 2024

University of Chicago *Chicago, IL*

- Planned and built a Hadoop cluster on 6 Raspberry Pis to measure the performance of distributed computing across rural 5G radio links using the NSF-funded Agricultural and Rural Wireless testbed
- Integrated GPS-based time synchronization to ensure sub-microsecond clock error, increasing precision by 4,000x
- Created a publisher-subscriber data collection/visualization pipeline with Mosquitto, InfluxDB, and Grafana

Projects

ChesSRS | *Kotlin, Spring Boot, GraphQL, TypeScript, React, PostgreSQL* `chessrs.zackmurry.com`

- Adapted spaced-repetition system (SRS) flashcard method to studying chess openings through interactive web app
- Integrated with Lichess API to import users' games, view 100k+ studies, and allow OAuth2 single sign-on (SSO)
- Orchestrated an auto-scaling Stockfish engine analysis service using Docker and Kubernetes with a Redis cache
- Implemented an interactive chessboard with global state management using React Redux and GraphQL

Canvas Sync for Notion | *TypeScript, Express.js, RabbitMQ, React, Stripe, TypeORM* `canvas-sync.com`

- Built a tool for students to automatically synchronize school assignments from Canvas to Notion databases
- Created an asynchronous worker using RabbitMQ to update Notion pages with content from the Canvas API
- Implemented subscription management with Stripe webhooks to support paid tiers with restricted access

Docs Hotkey | *TypeScript, React, Next.js* `docs-hotkey.zackmurry.com`

- Developed an open-source Chrome extension for adding custom keyboard shortcuts to Google Docs
- Implemented intricate document-object model (DOM) interaction for 15+ features and matching documentation
- 8,000+ weekly active users and a 4.6-star rating with over 75 reviews

Technical Skills

Languages: Java, Python, JavaScript, TypeScript, Kotlin, C++, C#, HTML, CSS, Bash
Tools: Spring Boot, React, Docker, Kubernetes, Linux, Hadoop, HBase, NGINX, RabbitMQ, LLVM, SQL, Git