Zack Murry

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EDUCATION

University of Missouri   Aug. 2023 – May 2027
B.S. Computer Science and Mathematics, Honors   GPA: 4.0/4.0
- Relevant coursework: Computer Networking, Algorithm Analysis, Computer Organization, Databases, OOP, Differential Equations, Combinatorics, Software Engineering, and Digital Logic

EXPERIENCE

Undergraduate Research Assistant   Aug. 2023 – Present
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 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 distributed system on 6 Raspberry Pis to measure rural wireless network speeds across 5G radio links using the NSF-funded Agricultural and Rural Wireless testbed
- Deployed Hadoop cluster on 5G devices using Docker and K3s and measured performance using benchmarks
- Integrated GPS-based time synchronization to ensure sub-microsecond error, increasing precision by 4,000x
- Created a publisher-subscriber data collection/visualization pipeline with Mosquitto, InfluxDB, and Grafana
- Presented poster and write-up at the ACM Student Research Competition in Atlanta, GA

Software Developer, Contract   April – May 2024
Godoco   *Remote*
- Worked alongside the CEO and experienced engineers in a dynamic startup environment to improve feature development and meet project milestones
- Designed and implemented a responsive toolbar for an LLM-based document editor using Figma, React.js, TypeScript, and Slate.js to enable intuitive text formatting
- Integrated the LanguageTool API to develop an automated spelling and grammar checker with in-text feedback

PROJECTS

Nodecode | *C#, TypeScript, React, Kotlin, Spring*
- Created a visual, compiled programming language for beginners using a node structure with a partner
- Engineered an LLVM-based compiler with 20+ statement types, including classes, arrays, and system calls
- Implemented and deployed a responsive package management and documentation site using React.js and Spring

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 complex document-object model (DOM) interaction for 15+ features and matching documentation
- Over 7,500 weekly active users and a 4.8-star rating with over 60 reviews

ChesSRS | *TypeScript, React, Kotlin, GraphQL, Spring*
- Adapted spaced-repetition system (SRS) flashcard method to studying chess openings through responsive web app
- Created an interactive chessboard with global state management using React Redux and a GraphQL backend
- Integrated with Lichess API to import users' previous games for analysis and for OAuth2 single sign-on (SSO)

TECHNICAL SKILLS

Languages: Java, Python, TypeScript, JavaScript, C++, Kotlin, C#, C, HTML, CSS, Bash
Tools: Java Spring, Docker, React (Next.js, Remix, and Redux), Linux, LLVM, Hadoop, NGINX, SQL, Git