

# Zack Murry

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## EDUCATION

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### University of Missouri

Columbia, MO

*Bachelor of Science in Computer Science and Mathematics*

Aug. 2023 – May 2027

- 4.0 GPA; Awarded National Merit Scholarship covering full tuition and housing
- Volunteer at local FIRST Robotics tournaments and with STEM Cubs to teach STEM concepts to K-8 students
- Placed first in annual hackathon with an automatic system for converting YouTube videos to short-form content

### Central High School

Springfield, MO

*International Baccalaureate (IB) Diploma*

Aug. 2019 – May 2023

- 4.0 GPA; 36/36 ACT; 41/45 points in IB Diploma with 7/7 in higher-level math and chemistry
- Varsity athlete in soccer and tennis; Judd Whittinger Scholar-Athlete of the Year Award
- Completed extended research project in computer science on tree-based spatial data structures

## EXPERIENCE

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### Undergraduate Research Assistant

Aug. 2023 – Present

*Virtualization, Multimedia, and Networking (VIMAN) Lab*

Columbia, MO

- Designed and executed realistic drone networking experiments for NSF-funded research on last-mile package delivery and DoD-funded work on video analytics protocols using a remote drone testbed
- Implemented custom security management measures and assessed their performance and resilience
- Critically analyzed existing scientific work to apply ideas and find places for improvement
- Co-authored accepted workshop paper for IEEE Computer and Networking Experimental Research using Testbeds

### Lead Software Engineer

Nov. 2021 – May 2023

*Central High School Robotics*

Springfield, MO

- Collaboratively created a complex autonomous system for a state-finalist FIRST Technology Challenge team
- Developed and optimized an algorithm for curved movement paths using Bezier curves for quicker robot navigation
- Created a custom computer vision algorithm for object position detection using homography and linear algebra
- Mentored two local middle-school robotics teams to teach fundamentals of programming through LEGO robots

### International Business Immersion Intern

Jan. 2023 – July 2023

*Askinosie Chocolate*

Mababu, Tanzania

- Studied direct trade, profit sharing, and intercultural business first-hand through the lens of chocolate making
- Worked with Brewer Science to collect and inventory soil, cocoa bean, and water samples for toxic metal testing

## PROJECTS

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### Docs Hotkey | *TypeScript, React, Next.js* | [docs-hotkey.zackmurry.com](http://docs-hotkey.zackmurry.com)

July 2022 – Present

- 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 2,500 weekly active users and a five-star rating with 25 reviews

### Nodecode | *C#, React, Kotlin, Spring, Next.js, TypeScript, PostgreSQL, NGINX*

Jan. 2023 – June 2023

- Worked with a partner to create a visual, compiled programming language for beginners using a node structure
- Created a complex LLVM compiler with 20+ types of statements, including classes, arrays, and system calls
- Implemented and deployed a responsive package management and documentation site using React.js and Spring
- Placed 5th nationally in the Technology Student Association Software Dev. competition of 500+ competitors

### ChesSRS | *React, Kotlin, TypeScript, GraphQL, Spring* | [github.com/ZackMurry/chessrs](https://github.com/ZackMurry/chessrs)

June 2021 – Jan. 2022

- Applied spaced-repetition system (SRS) flashcard technique to studying chess openings through daily reviews
- Created an interactive chessboard with global state management using React Redux and a custom GraphQL API
- Integrated with Lichess API to import users' previous games for analysis and for OAuth2 single sign-on (SSO)

## TECHNICAL SKILLS

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**Languages:** Java, TypeScript, JavaScript, Python, C++ Kotlin, C#, C, HTML/CSS

**Tools:** Git, Java Spring, React.js, Next.js, Linux, Vim, LaTeX, Maven, Gradle, Node.js, CMake, LLVM, NGINX