

# Nick McCullough

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## Education

### Iowa State University

Ames, IA

B.S. Software Engineering, 3.37 GPA

12/2025

- Awards: Arthur A. Collins (Engineering Leadership) | John Hoyt Chaloud (Engineering) | Dean's List multiple semesters
- Coursework: Data Structures, Algorithm Analysis, Software Dev Practices, Software Architecture, Operating Systems

## Professional Experience

### RTX, Collins Aerospace

Cedar Rapids, IA

Software Engineer | Part-Time | Military Avionics and Helicopter Engineering Department

08/2024 - Present

- Debugged several existing embedded Ada software issues identified during ad-hoc testing by collaboratively analyzing root causes and potential solutions, enhancing safety-critical software of fixed-wing and rotary-wing aircraft worldwide
- Developed scalable Python test automation for CH-47F avionics, enabling single and multi-sensor GPS validation across distributed systems, ensuring test procedures aligned with SQL database updates, improving test coverage and efficiency
- Developed and fixed hundreds of Python avionics test procedures to identify bugs, ensuring requirements are met

Software Engineer | Co-Op | Flight Management App | Navigation and Guidance Team

01/2024 - 08/2024

- Collaborated with principal software engineers in a team to develop, maintain and upgrade Ada avionics flight software
- Designed in-air guidance pattern algorithms to optimize flight paths for military aircraft mission safety and efficiency
- Implemented satellite WAAS compatibility updates for navigation software, enhancing GPS solution accuracy and integrity
- Increased CH-47F program bidding accuracy 36% by creating a Python-based HTML parser using efficient algorithms to find logical Ada code blocks, prioritizing complexity over line count, ensuring accurate time needed for failed test reviews
- Served as the sole intern on the military navigation and guidance software scrum team, supported these aircraft programs: E-3 Sentry, UH-60 Blackhawk, MH-6 Little Bird, E-2D Hawkeye, KC-135 Tanker, HC-144 Sentry, CH-47 Chinook

### John Deere

Ames, IA

Software Engineer | Intern | Product Engineering, Large Square Balers | GPS Sensor Team

07/2022 - 04/2023

- Collaborated with senior engineers to develop and optimize L340/L341 tractor baler software using C/C++ in Agile sprints
- Optimized GPS algorithms, boosting bale location accuracy by 15%, delivering significant time/cost savings for farmers
- Automated data analysis and visualizations for management decision-making by developing Python/MATLAB scripts

## Software Engineering Projects

**Movie Magnet - Android App** | Java, Spring Boot, Maven, MySQL | [GitHub](#) | [Video](#) | [Awards](#)

08/2023 - 12/2023

- Developed a movie-lovers social app with theater finder, age groups, reviews, real-time chatting and admin features
- Spearheaded back-end development by integrating Spring Boot, Maven, Web Sockets and MySQL with REST APIs
- Managed version control using Git & team software development with GitLab for code reviews, CI/CD & testing
- Played a crucial role in driving the project from idea to completion, balancing coding and leadership responsibilities

**Music Merchandise Full-Stack Website** | React, Node, Express, MySQL | [GitHub](#) | [Video](#) | [Commendation](#)

11/2023

- Built a dynamic music merchandise storefront with React, featuring advanced filtering, ratings, and a seamless cart system
- Integrated RESTful APIs with MySQL for efficient data retrieval and CRUD operations, enhancing UI functionality
- Developed a dynamic, responsive front-end with React & TailwindCSS, with advanced filtering, ratings & cart features

**HackIowaStateV2 - Hackathon Project** | JavaScript, Bootstrap, Firebase | [GitHub](#)

09/2023

- Developed an agriculture-tailored networking website to simplify the hiring process for both ag companies and applicants
- Enabled resume uploads for applicants, designed a dedicated view for companies to browse and contact potential hires

## Technical Skills

### Programming Languages

Python, JavaScript, Java, C, C++, Ada, SQL, Linux

### Frameworks/Libraries

git, React.js, Node.js, Express.js, Spring Boot, TailwindCSS

## Leadership

### Iowa State Tech Discord Community Server

June 2023 - Present

- Founded tech-focused Discord community to help 125+ Iowa State students with coursework, internships, career growth
- Directly assisted more than 10 students in securing software engineering internships, indirectly assisted many more