

# Zachary Kelly

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## EDUCATION

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### Purdue University

*Bachelor of Science in Computer Science*

May 2028

## TECHNICAL SKILLS

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**Languages and Frameworks:** Java, Java Swing, JavaScript, Python, C, C++, R, HTML/CSS, JUnit, Cypress.io

**Developer Tools:** Git, Jira, Bitbucket, VS Code, Vim, Cursor, MacOS, Bash, OpenAI API, Robot Operating System

## EXPERIENCE

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### Undergraduate Data Science Researcher

*The Data Mine, Purdue University*

August 2025 - May 2026

*Indianapolis, IN*

- Collaborated with Cummins on analyzing data of engine fault codes pertaining but not limited to the type of fault, how long the engine was running prior to the fault, and amount of time between an engine fault and repair.
- Compiled and visualized data with Databricks and Power BI to communicate findings.

### Marines Sergeant

*Singapore Armed Forces*

August 2022 - August 2024

*Singapore*

- Led a team responsible for the operation of the General Purpose Machine Gun in the Guards formation, an elite infantry unit specializing in amphibious and heliborne operations, considered equivalent to the US Marines.
- Enforced the safety and discipline of platoon members during training sessions, assuming the role of safety officer to monitor the temperature and potential hazards in the surrounding area of the training grounds.
- Cultivated fitness, resilience, and camaraderie in a high-pressure military environment to ensure mission success.

### FIRST Robotics Competition Backend Developer

*FIRST Team 4817*

September 2021 - February 2022

*Singapore*

- Developed Java code collaboratively using WPILibrary to program a robot to play basketball against other robots.
- Programmed a swerve drive system enabling simultaneous omnidirectional movement and rotation.
- Integrated LiDAR to detect reflective strips on the hoop rim, directing the input to a computer vision model via ROS, allowing the robot to aim and shoot autonomously and allowing the pilot to focus on other game aspects.

### Automation Testing Intern

*Teamie*

September 2021 - November 2021

*Singapore*

- Designed and implemented test automation scripts using JavaScript and Cypress.io to allow the company to run automated tests to push updates quickly, rather than relying solely on their team of remote manual testers.
- Created a reusable template to build tests for future web pages, removing the bottleneck of manual testing and moving towards an automated system, allowing manpower to focus on more important areas of the application.
- Trained manual testers to write tests with Cypress.io, saving Teamie a significant amount of money and manpower.

## PROJECTS

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### Pokémon ROM Hack | *Hexadecimal Editing, Low-Level Scripting*

April 2022 - May 2022

- Developed a Pokémon ROM hack by finding free space with a read only memory (ROM) file using hexadecimal editing programs and inserting scripts to make use of existing sprites and maps to create an original game.
- Delivered a fully playable game with original maps, battles, events and dialogue to make a new game with multiple hours of gameplay to experience on top of the base game.

### GPT-3 Research | *Python, OpenAI API, NLP*

February 2022 - April 2022

- Fine-tuned a GPT-3 model to generate Reddit posts using a 35,000+ post dataset across multiple Subreddits.
- Conducted a survey with 30+ participants, finding a 52% accuracy in distinguishing AI from human content.
- Demonstrated the ease of fine-tuning an NLP model to imitate human social media posts across different contexts with the use of different Subreddits, i.e. generating posts about legal advice or memes.
- Highlighted the increasing accessibility and potential of NLP models, predicting that AI tools would rapidly become more consumer friendly with tools like ChatGPT, Grok, and Gemini rising in popularity.