

# Ali Elnagmi

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## EDUCATION

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### University of Waterloo

*Bachelor of Computer Science*

Waterloo, ON

*Sep 2024 – Present*

## EXPERIENCE

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### Assistant Researcher

March 2023 – January 2024

*University of Waterloo Data Systems Group*

*Waterloo, ON*

- Collected data on various commercial **Relational DBMS** performance, analyzing metrics to determine efficiency and reliability
- Developed a relational query optimizer in **C++** emulating **SQL** syntax, **enhancing query processing speed by 30%**
- Gained in-depth understanding of research paper components and creation processes, with a particular focus on graph databases and the **Neo4j DBMS**
- Created and managed a comprehensive database using **SQL** and **MongoDB** to store and retrieve experimental data, facilitating easier access and analysis

### Web Developer & Organizer

Sep. 2022 – Sep. 2023

*RythmHacks*

*Waterloo, ON*

- Contacted, and had meetings with various companies leading to **\$12000+** in sponsorships
- Sponsored by **MLH** as the **second largest** in-person high school hackathon in Canada
- Developed a website dashboard using **React/TypeScript/SupaBase** to handle hacker applications and announcements
- Coordinated all aspects of hackathon planning, securing an overnight venue for over **100 students**
- Reviewed applications, conducted interviews, and prepared on-boarding documents

### Python Teacher

April 2023 – July 2024

*Code Ninjas*

*Milton, ON*

- Thoroughly taught students ages 7-14 **Python** programming
- Re-structured and designed a curriculum for students of all levels, with over 40 hours of content
- Assisted and taught students how to think, code, and problem solve by viewing issues from a different perspective
- Created an in-house site for the learning centre using **React** and **Tailwind**

## PROJECTS

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### Bedstats | *JavaScript, Hypixel API, Heroku, Git, discord.js*

- Developed a Minecraft game statistics bot using **discord.js** and the **Hypixel API**, providing real-time Bedwars stats to users
- Deployed on a **Heroku** virtual environment serving over **600,000 users** across **5000** discord servers
- Employed **Git** for version control and collaborative development, maintaining a well-documented codebase
- Implemented efficient data retrieval methods from the Hypixel API, optimizing response times and reducing API call limits
- Continuously updated and improved the bot based on user feedback, ensuring consistent performance and functionality

### Motus | *Python, C++, Arduino, AdHawk API*

- Created a wheelchair that is controlled by an early access **research model** of the **AdHawk** eye-tracking glasses
- Developed software calibration between eye inputs and chair movements through Arduino serialization in **C++** and the **AdHawk API**
- Completed circuitry and concept design of the chair, including math involved with DC motor torque on wheels

## TECHNICAL SKILLS

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

**Frameworks/Libraries:** ReactJS, Node.js, Flask, MongoDB, OpenCV, discord.js

**Developer Tools:** Git, Docker, AWS, Google Cloud, VS Code, RestAPI, PyCharm, Azure, Linux