

# Emmanuel Axel Ndayiragije

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## EDUCATION

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### University of Ottawa

Ottawa, Canada

*Honors Bachelor of Science Mathematics*

*Expected: 2028*

**CGPA:** 9.5/10.0

**Relevant Coursework:** Calculus, Linear Algebra, Probability, Statistics, Data Structures and Algorithms, Discrete Mathematics, Mathematical Analysis, Algebra

### University of Johannesburg

Johannesburg, South Africa

*Bachelor of Science in Applied Mathematics and Computer Science*

*Feb. 2022 – Sep 2023*

**Credits:** Completed 180 out of 360 credits

**GPA:** 3.79/4.00

**Relevant Coursework:** Mechanics, Statics, Ordinary Differential Equations, Object Oriented Programming, Design Patterns

**Awards:** Top 10 Performing Student in Computer Science I (Class of 300) (2022)

## EXPERIENCE

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### Mathematics Instructor

Mar. 2023 – Present

*Mathnasium*

*Ottawa, Canada*

- Tutored math to students from grades 1 to 12, remotely and in-person
- Employed both Socratic Questioning and Direct Teaching methods to engage with students.
- Focused on building an intuitive foundation and fostering "mathematical sense" in students from an early stage.

### Calculus Tutor

Feb. 2023 – Sep. 2023

*University of Johannesburg*

*Johannesburg, South Africa*

- Facilitated effective learning as a university calculus tutor for classes of 60-70 students, all first-years.
- Evaluated and scored assignments, underscoring meticulous attention to detail and accuracy.

## PROJECTS

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### Portfolio Website | *JavaScript, React, CSS*

Designed and developed a dynamic portfolio website, providing a personalized and interactive platform to showcase my skills and projects. Key features include:

- **Responsive Design:** Ensured optimal viewing experience across a wide range of devices, emphasizing accessibility and user engagement.
- **Interactive Elements:** Integrated interactive elements, such as smooth scrolling, animated transitions, and a user-friendly navigation menu, to enhance the overall user experience.

### Conway's Game of Life with boundaries | *Java, JavaFX*

Engineered an interactive simulation of Conway's Game of Life. This project presents a unique take on the classic cellular automaton, encapsulated within a graphical user interface. Key features include:

- **Dynamic Cell Evolution:** Implemented Conway's four rules of cell evolution to simulate life cycles. Cells update state according to the rules of the game in real time.
- **Real-Time User Interaction:** Facilitated real-time interaction with the grid, allowing users to modify cell states on the fly and observe the impact on the game's evolution.

### Simple Mail Transfer Protocol Client | *Java, JavaFX*

Developed a GUI-based mail client to interact with a Papercut SMTP server. Key features include:

- **File Attachments:** Implemented support for file attachments, leveraging Java's `InputStreamReader` class and the MIME protocol. This allows users to include attachments seamlessly.
- **Built from Scratch:** The entire application was built from the ground up. No external APIs were utilized, demonstrating a comprehensive grasp of core Java programming and network programming concepts.

## TECHNICAL SKILLS

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

**Frameworks:** React, Node.js, JavaFX