Edmond Nzivugira

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Education

Colgate University, Bachelor of Arts — Hamilton, NY
Major in Computer Science and Math, Minor in French — *Aug. 2023 – May 2027*

Codepath — remote
Web Development — *Sept. 2024 – Nov 2024*

Experience

Undergraduate Research Assistant — Aug 2023 – Aug 2024
Colgate University — *Hamilton, NY*

- Designed and tested algorithm to compute all possible poset structures of a bipartite graph with n vertices to prevent the degree of its h-polynomial from being the same as its independence number.
- Used Graph Theory to develop and study the patterns in the degrees of different h-polynomials.
- Collaborated with team to create and edit Latex files to ensure efficient organization of our findings.

Technical Events Assistant — Aug 2024 – Present
Colgate University — *Hamilton, NY*

- Coordinate all technical aspects for at least 3 live events every week, addressing critical audio-visual needs to elevate attendee experience during weekly streamed lectures and church services without any downtime or disruptions.
- Assess and troubleshoot sound and video systems in auditoriums and rooms around campus

Software Developer Program Supervisor — June 2024 – Aug 2024
Jackal Tech — *remote*

- Led a team of 10 software developers in creating a Typing Master App.
- Presented weekly team progress to the CEO of the company.
- Analysed and criticized the technologies like programming languages, frameworks, and designing tools to be employed in the project.

Projects

Java Spelling Bee | *Java, GUI Development, DSA* — Mar 2024 – Apr 2024

- Developed an algorithm for randomizing game letters, ensuring a playable configuration by generating valid sets from a pool of 1000+ words; validated game conditions with a fail rate of less than 2%
- Implemented game logic for a Java version of Spelling Bee, managing input validation, word evaluation, and scoring metrics for a user base of 100+ students.

Java Scrolling Game | *Paddle API, Java, OOP, AI logic, Geometry and Algebra* — Apr 2024 – May 2024

- Integrated Java-based backend with a pre-built GUI, supporting interactive gameplay by processing real-time user inputs, which handled over 500 game interactions per test cycle with no unhandled exceptions.
- Applied OOP to manage game states and processes

Paddle/Ping Pong Game | *AI, Java, OOP* — May 2024 – June 2024

- Designed and implemented class hierarchies using inheritance, abstract classes, and polymorphism for different game elements.
- Created AI behaviors, like ball trajectory prediction, for computer-controlled paddles with varying difficulty levels, including basic, challenging, and advanced.

Technical Skills

Languages: Java, Python, JavaScript, SQL (Postgres), HTML/CSS
Frameworks: Django, Tkinter
Developer Tools: Git, VS Code, Visual Studio, PyCharm, Eclipse
Libraries: Pandas, NumPy, Matplotlib
Design: Figma, Canva, CapCut, Adobe Photoshop
AI Tools: Illuminate, NotebookLM, ChatGPT