Aime Cesaire Mugishawayo

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EDUCATION

Bachelor of Arts in Computer Science and Mathematics, Amherst College   *Expected May 2025*
GPA: 3.9/4.0

- **Relevant Courses**: Data Structures, Algorithms, AI, ML, Systems, Networks, Security, Number Theory, Abstract Algebra, Real Analysis.

Study Abroad Semester, Sorbonne Université   *Jan 2024 - May 2024*

EXPERIENCE

IT Service Desk Technician, Amherst College   *Sep 2022 - Present*

- **Resolved 2000+ incidents** in SolarWinds ServiceDesk by troubleshooting and routing cases while directly resolving 1000+ software and hardware issues through systematic analysis and proactive problem-solving.
- **Manage 8+ public printers**, ensuring operational efficiency by promptly fixing jams, monitoring supply levels (e.g., toner, drum cartridge), and replacing printer supplies as needed to minimize downtime and maintain productivity.
- **Installed and configured 40+ network devices** (e.g., access points, optical network terminals), ensuring reliable connectivity and optimal performance across the network.

Math Grader, Amherst College   *Jan 2024 - Present*

- **Providing constructive and detailed feedback** on Advanced Algebra assignments for 11 students, to enhance student understanding and support the professor's instructional goals.

Technology Operations Specialist, Amherst College   *Summer 2023, Summer 2024*

- **Conducted 30+ Wi-Fi surveys** using Ekahau Analyzer for residence halls, collaborating with a network engineer to design and implement a new network structure, resulting in improved connectivity and user satisfaction through the installation of new access points.
- **Played a key role during the CrowdStrike outage**, restoring functionality to 40+ computers both in-office and across campus, ensuring minimal downtime and continuity of operations through rapid troubleshooting and repairs
- **Imaged 210+ returned computers**, ensuring systems were reset to operational status and ready for redeployment, contributing to increased efficiency in the hardware return process.
- **Supported audio-visual needs for 50+ events**, ensuring seamless execution and enhancing participant engagement by coordinating equipment setup and swiftly troubleshooting issues in real-time.

PROJECTS

- **Created cryptanalysis tools** to attack various encryption systems, including Vigenère, Caesar, DHM (using the Baby Step Giant Step algorithm), and RSA (using Wiener's attack), successfully deciphering 100% of provided ciphertexts—Python
- **Achieved a 100%-win rate in** test games by implementing classical (Breadth-First, Depth-First, Uniform Cost, A-star) and adversarial (Minimax, Expectimax with alpha-beta pruning) search and developing both non-generalizing and generalizing Q-Learning Pacman agents—Python
- **Built a full-stack video conferencing web application** with integrated chat features, utilizing ExpressJS for server-side functionalities, PeerJS for peer-to-peer capabilities, SocketIO for real-time communication, EJS and CSS for dynamic front-end—TypeScript
- **Developed a fully functional Brick Breaker game**, leveraging Object-Oriented Programming principles and UnityEngine namespace functions, and implemented game mechanics, collision detection, and scoring system through MonoBehavior base class—C#
- **Achieved 100% error correction** on large data transmissions (40MB+) by coding cyclic redundancy checks and Positive Acknowledgement with Retransmission functionalities in a simulated network —Java
- **Accurately predicted rankings** for a testing set of three soccer seasons by developing and validating machine learning models (symbolic regression, random forest regression, and logistic regression) on a dataset of eight soccer seasons, deriving insights into how playstyle influences performance—Python
- **Developed a steganography detection tool**, successfully identifying and extracting concealed information from various image files employing RGB, BGR, W/RGB, and RGB/W color encodings—Java
- **Successfully modified program behavior** by conducting in-depth analysis of Assembly code in C programs using GDB, identifying vulnerabilities in functions like memcpy(), and crafting malicious inputs to execute stack attacks and buffer overflows—x86-64 Assembly.
- **Enhanced memory management efficiency** by implementing pointer-bumping heap allocation, best-fit heap allocation, mark-sweep garbage collection, memory address translation, and best-fit paging in a simulated address space—C

SKILLS

- **Technical:** Python, Java, ReactJS, HTML, Tailwind CSS, C++, Git/GitHub, GNU Debugger, Azure
- **Interpersonal**: Collaborative problem-solving, mentorship and tutoring, French.

LEADERSHIP

Community Advisor, Amherst College   *Jan 2023 - Jun 2023*

- **Enhanced community wellbeing in residence halls** by conducting regular assessments, advising and engaging with 24 residents, administering policies as needed, and assisting with opening and closing operations at the beginning and end of semesters and breaks.

Team Leader, Artificial Intelligence in the Liberal Arts   *Sep 2022 - Jun 2023*

- **Led a team in developing the organization's website** and established social media outreach strategies to foster respectful debate on AI; collaborated with college staff and faculty to organize 6 events on AI.

Computer Science Tutor, Amherst College.   *Sep 2022 - Dec 2022*

- **Elevated the final grades of 3 college students from B to A** by providing 9 hours of weekly mentorship, offering tailored feedback and custom practice materials on Object-Oriented Programming, Java Collections, and Java Graphics libraries.