

BRADLEY MULWENGE

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**SOFTWARE ENGINEER | IDEATION | PROBLEM SOLVER | LEADER | STRATEGIC | ANALYTICAL |
CRITICAL THINKER | INDIVIDUALIST | COMPETITIVE |**

College Senior Computer Science Major & Studio Art Minor with a passion for software development. I aim to leverage my problem-solving, critical thinking, and leadership skills to contribute to innovative software solutions that improve outcomes for organizations and stakeholders. I am seeking a position as a Software Engineer that allows me to collaborate with a team to build impactful software solutions.

Trilingual: English, Swahili, and Luo.

TECHNICAL SKILLS

- **Languages:** Python, Java, JavaScript, C++, PHP, HTML, CSS, SQL, Assembly, C#.
- **Frameworks/Web:** React, React Native, Node.js, Express, EJS, Flask, UI/UX.
- **Cloud & DevOps:** Cloud Computing (GCP), Docker, Kubernetes (k8s), MySQL, SQLite.
- **Design & Engineering:** 3D Modeling & Design, Visual Communication Design, Photography.

EDUCATION

Principia College | Elmhurst, IL

- **Bachelor of Science in Computer Science | Minor in Studio Art**
- 2022 - 2026 | Honor Roll

KCA University | Nairobi, Kenya

- **Bachelor of Science in Information Technology**
- 2020 - 2022

COURSEWORK AND SPECIAL PROJECTS

COURSEWORK:

- **Computer Science & Math:** Introduction to AI, Discrete Mathematics, Data Structures and Algorithms, Object-Oriented Programming, Cloud Computing, Web Development, Web Design, Introduction to Programming, Programming Languages, Computer Hardware Architecture, Computer Software Architecture, Software Engineering, Calculus 1, Computer Networking, Introduction to Statistics, Linear Algebra, Database Management Systems, Computer Issues Seminar.
- **Engineering & Design:** Mechanical Engineering Student Design, 3D Technology and design, Visual Communication Design, Drawing 1 and Photography as a Fine Art.
- **Business, Law, & Humanities:** Discovering Business, The Legal Process, Russia and the FSU, World History 2, Survey of Contemporary Art, Intro to Art History, Pathways to Art, Pre-Modern China, Survey of Asia/Africa/Americas, Business Analysis, Western Art:1400-present, Survey of Contemporary Art

PROJECTS:

STUDY SYNC | Web Application:

- Designed and developed a collaborative study platform allowing students to synchronize notes and study materials in real-time.
- Focused on user experience (UX) to facilitate seamless peer-to-peer knowledge sharing and academic organization.

AUTOMATED BALL BEARING SORTER | Mechanical Engineering Design:

- Designed and prototyped a visual sorting system capable of identifying and categorizing ball bearings based on color, size, and material.

- Integrated physical hardware with software logic to automate quality control and material handling processes.

LOCUS – LUXURY TRAVEL WEBSITE | Visual Design & Wireframing:

- Designed a high-end luxury travel website, "Locus," inspired by the aesthetic of Teju Cole, focusing on sophisticated typography and color palettes.
- Conducted full-scale wireframing and UI/UX design to create a visually immersive and intuitive user journey.

GRAB N GO | Business Concept & Strategic Presentation:

- Co-founded and developed a comprehensive business model for a ride-sharing service concept, "Grab n Go," as part of a startup simulation.
- Conducted extensive market research and financial analysis to validate the business's viability and competitive positioning.
- Synthesized core business concepts into a professional presentation delivered to mock investors, focusing on scalability and operational strategy.

ZENITH E-commerce Data-Driven Platform | Node.js, Express, MySQL, EJS:

- Designed and developed a comprehensive e-commerce platform with user authentication, product browsing, and order management features, enabling businesses to track customer behavior through a MySQL database.
- Implemented server-side rendering with EJS templating for dynamic content delivery, with Express.js handling RESTful API endpoints and business logic.
- Utilized MySQL for efficient data storage and retrieval, integrating product management, shopping cart functionality, and order processing within a secure environment.
- Incorporated session management for persistent user data alongside encryption for secure password handling, creating a robust and secure online shopping experience.

STRATEGY GAMES | Java & Object-Oriented Design:

- Engineered a comprehensive Strategy Games framework implementing multiple board games (Reversi, Center Rush, Beehive) with unified architecture following SOLID principles and design patterns.
- Developed game-specific rule engines with move validation, game state management, win condition detection, and player turn tracking within a consistent interface-based architecture.
- Implemented advanced board game mechanics, including piece capturing, multi-directional movement validation, and special move processing using inheritance and polymorphism.
- Created a flexible game driver system supporting interactive gameplay, move history tracking, save/load functionality, and automated testing capabilities for quality assurance

Security Management Web Application | PHP & SQL

- Designed & Developed front and backend of a web-based security management application.
- Utilized PHP for backend logic and SQL for database management, adhering to best practices for security and data integrity.
- Implemented features for real-time tracking and reporting, significantly improving operational efficiency

Tic Tac Toe | Java:

- Developed a two-player Tic Tac Toe game using Java, highlighting skills in Java programming and game development.

ISBN Verifier | Python:

- Developed a program in Python that verifies the validity of International Standard Book Numbers (ISBNs), displaying skills in Python programming and algorithm design.

Expense Tracker | Python Flask App & SQL

- Developed a feature-rich web application using Python's Flask framework and SQLite. The application allows users to track, categorize, and visualize their daily expenses, offering detailed reports and interactive charts for budget analysis.

Math as a Service | Python Flask App:

- Created a highly scalable RESTful API using Python and Flask, specifically hosted on Google Cloud Platform. The service is capable of handling various mathematical calculations and serves as a computational backend for other applications.

Shopping List | Docker, k8s, GCP, Python Flask App:

- Designed and implemented a robust shopping list application with three different deployments: Docker, Kubernetes (k8s), and Google Cloud Platform (GCP). Leveraged containerization and orchestration tools to optimize scalability and availability across different platforms.

Cloud Tic Tac Toe Web Application | Python Flask App:

- Engineered a real-time, multiplayer Tic Tac Toe game using WebSocket for instantaneous updates. The backend is hosted on a cloud server, ensuring high availability and seamless gameplay.

Build a Medusa 8-bit Computer:

- Conceived and assembled an 8-bit computer from the ground up, adhering to the Medusa architecture. Developed low-level software in Assembly to ease basic computational tasks and designed a rudimentary user interface.

EXPERIENCE

SWE Intern | PC40 Interactive | May 2024 – Aug 2024

- Collaborate with a cross-functional team to design, develop, and deliver engaging content and user experiences for websites, web applications, and a mobile application.
- Leveraged technical solid writing, editing, and SEO skills to optimize content for search visibility and user engagement.
- Maintain and update existing client-facing content, ensuring accuracy, brand consistency, and adherence to technical specifications.
- Foster positive client relationships through effective communication, proactive problem-solving, and technical support.

PHP Developer | Principia College | Jan 2023 - Present

- Develop and maintain the college's website, ensuring the site's design, functionality, and content meet the institution's needs.
- Collaborate with other departments to ensure the website accurately reflects the college's values and offerings.
- Utilized skills in HTML, PHP, and MySQL to deliver high-quality web solutions.

LEADERSHIP AND COMMUNITY OUTREACH

SYLVERSTER HOUSE PRESIDENT | Student Government | Principia College | 2024 - 2025

IT & CAREERS REPRESENTATIVE | Student Government | Principia College | 2023 - 2024

INTERNATIONAL REPRESENTATIVE | Student Government | Principia College | 2022 - 2023

STUDENT LIFE REPRESENTATIVE | Student Government | 2023-2023

VARSITY TRACK AND FIELD – Division 3 Athlete | Principia College | 2023 – 2025

ENVIRONMENTAL PREFECT | Maranda High School | 2015 – 2018

ENVIRONMENTAL CAPTAIN | Maranda High School | 2018 – 2019

VICE-CAPTAIN ST. JOHN'S AMBULANCE | Maranda High School | 2018 - 2019

