TAKUDZWA CLIVE MUTOMBO

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EDUCATION

Dartmouth College, Hanover, NH   **June 2026**
Bachelor of Arts, Major in Computer Science & Mathematics
- **Relevant Coursework:** Introduction to Programming and Computing, Problem-Solving: Data Structures and Algorithms, Software Design and Implementation, Discrete Math in Computer Science, Calculus II and III, Vector Calculus, Differential Equations, Linear Algebra, Probability, Machine Learning and Statistical Analysis * Fall 2024
- **Honors/Awards:** Citation for Academic Excellence in Multivariable Calculus, Certified Great Issues Scholar, National Mathematics Olympiad Bronze medalist (2019)

RESEARCH EXPERIENCE

Dartmouth Computer Science and Math Department, Hanover, NH   **March 2024 - Present**
Undergraduate Research Excellence Award with Prof. Mohammad Javad Latifi
- Tasked with addressing object detection challenges in autonomous vehicles.
- Develop a method to improve object detection accuracy by simulating ice particles to represent noise points on radar.
- Utilized DBSCAN, shape encoding, and probabilistic analysis to distinguish true object clusters from trivial noise in data.
- Enhanced object detection accuracy by 20%, contributing to safer autonomous vehicle navigation.

RELEVANT WORK EXPERIENCE

Sponsors for Educational Opportunity (SEO)   **June - July 2024**
* Incoming Tech Developer
- Complete 300+ hours of rigorous computer science and software engineering training focused on data structures, algorithms, and full-stack web development.
- Gain software development skills by working in SCRUM-like teams to design, test, and implement full-stack applications using Python (Flask), MySQL, HTML, JavaScript, CSS, and API integrations.
- Participate in long-term career preparation and mentorship programs to develop professional skills.

Data Structure Analysis Hub, Harare, Zimbabwe   **June 2023 - Present**
Startup Co-Founder and Lead Tutor
- Founded a summer coding school to support underprivileged kids
- Developed a curriculum, fixed 500+ bugs in C, Bash, and Makefile code, and utilized tools like gdb & valgrind
- Successfully advanced over 100 students' programming skills and significantly improved their problem-solving abilities.

SIDE PROJECTS

Sparrow| Unity Game Engine, C#
- Developed a fully functional 50-line endless runner game with background looping, Asset Store sprites, and collision detection using Unity 2D and C#, as part of my work on a simplified-creation gaming startup

PROJECTS| DARTMOUTH COLLEGE

Tiny Search Engine| C, Bash, Git, Valgrind
- Develop three components: crawler, indexer, and querier.
- Coded 2000 lines of code, optimized with regression testing scripts.
- Built a robust search engine prototype, enhancing coding and debugging skills.

Parts-Of-Speech (POS) tagging algorithm using Hidden Markov Models (HMM) and Viterbi Algorithm| Java
- Engineered a machine learning algorithm to accurately tag parts of speech (POS) in English sentences, featuring an interactive console interface for user engagement
- Implemented HashMaps, Viterbi machine learning algorithm, and backtracking to train the model with +100,000 words
- Achieved a 97 % accuracy in identifying the POS using the Brown Corpus document as a training model

LEADERSHIP, SERVICE & ACTIVITIES

Great Issues Scholars, Hanover, NH   **September 2022 - May 2023**
In-Residence Scholar
- Selected from 500+ applicants for a prestigious program to enhance leadership skills.
- Participated in discussions on AI, Diversity, Inclusion, and World Health.
- Gained valuable insights and enhanced skills, preparing for future challenges.

Activities: Colorstack, Dartmouth African Students Association (DASA), Codepath, NSBE, EduUSA, Higherlife Foundation

SKILLS & INTERESTS

Technical: Python, Java, C, C#, Bash, Valgrind, HTML, CSS, Javascript, React, Unity 2D, React, Visual Studio
Languages: English (fluent), Shona (Native)