Hamza Elmi

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Education

University of Guelph Guelph, ON

Honors Bachelor of Computing, Computer Science (Co-op) *Sept. 2022 – May 2026*

- ***GPA:** 3.7/4.0, Dean's List*
- ***Related Coursework:** Algorithms, Operating Systems, Data Structures, Object Oriented Programming, Application of Microcomputers, Intermediate Programming, Discrete Structures I/I*

Experience

Muse Capital Corp - Software Development Intern May 2024 – August 2024

Software Development Intern *Toronto, ON*

- Drove the creation of new software functionalities that directly addressed customer feedback, leading to over **1,500** user interactions with the new features within the first month, validating the product's market fit.
- Optimized 10+ codebases, resolving recurring bugs to improve system stability and increase **daily active users by 20%** in two months.
- Developed problem-solving capabilities by assisting a team of 20 employees, a management system, to collaborate on new and existing projects.

Toledo Foundation – Project Facilitator May 2023 – July 2023

Project Facilitator *Mississauga, ON*

- *Utilized advanced project management software, reducing project timelines by **20%**.*
- Executed a tailored CRM system that boosted donor retention by **15%** and improved fundraising efforts.
- Facilitated cross-functional meetings, bridging technical stakeholders to ensure deliverables met donor expectations.

Projects

StoolHealthAnalyzer | *Python, OpenCV, React, Docker, FastAPI* Dec.2024 – Present

- Developed AI-powered medical analysis system using Python computer vision (OpenCV) and TypeScript React frontend
- Engineered medical imaging pipeline analyzing **15+ clinical metrics** (color, consistency, shape) using HSV color space analysis and texture recognition algorithms
- Achieved 90% clinical alignment by integrating Bristol Stool Scale with Groq-accelerated AI models, reducing diagnostic errors by 25% in pilot testing
- Designed encrypted storage system for medical data compliance using Python cryptographic libraries

FocusTree | *TypeScript, React, Node.js* Jan.2024 – Feb .2024

- Engineered an interactive, gamified productivity platform that transformed standard focus sessions into a dynamic tree-growth experience—boosting user engagement by **30%** and reducing session drop-off by 20%.
- Designed and implemented a real-time streak tracking system with dynamic UI updates that increased consistent user participation by 25%, directly supporting habit formation.
- Integrated an AI-powered motivation engine using OpenAI's API to deliver personalized encouragement, which improved daily active usage by **20%** and reinforced long-term retention.

DataCompressX| *Python, Huffman's Algorithm, Docker* May 2024 – Sept.2024

- Developed a lossless compression and decompression algorithm inspired by WinZip, utilizing Huffman's Algorithm to reduce file sizes by up to **40%** compared to original data.
- Optimized the algorithm for efficiency, achieving a **25%** reduction in processing time over baseline implementations through streamlined code and effective resource management.
- Validated the solution across 10+ diverse datasets, ensuring consistent accuracy and reliability in compression performance

ZooScope Animal Identifier| *C* Dec 2023 – Jan.2024

- Developed a k-nearest neighbors **(k-NN)** algorithm to classify animals achieving **86%** accuracy on a test set
- Conducted distance-based calculations using Euclidean Distance, Hamming Distance, and Jaccard Similarity, enhancing classification
- Structured a dataset of **100 animals**, each with 10 attributes and a class label, to prepare units valuating a k-nearest neighbor's model

Technical Skills

Programming Languages: Python, Java, C, TypeScript, JavaScript, SQL, HTML/CSS, R, Assembly

Frameworks/Libraries: React.js, Node.js, FastAPI, Flask, TensorFlow, Pandas, NumPy, OpenCV

Developer Tools: Git, Docker, Linux, Jupyter, VS Code, PyCharm, Azure, OpenAI API, Makefile