CHLOE HALLAERT

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EDUCATION

Honours Bachelor's Software Engineering — **University of Waterloo**
Coursework: Data Structures and Algorithms in C and C++ — 2024-Present
· Awarded University of Waterloo **International Student Scholarship** - one of 20 recipients
· Received University of Waterloo **President Scholarship**

TECHNICAL SKILLS

Languages Python, C, HTML, C++, JavaScript
Technologies Docker, PyTorch, AWS, TensorFlow, Git, pandas, ROS2, MILVUS, YOLOv5, FluidSynth API

EXPERIENCE

AI and Software Developer — 2024-Present
NuanceEdge - WAT.AI Design Team — Ontario, Canada
· Developed a generative AI chatbot for a top consulting firm leveraging **LLaMA** and **Cohere models** on **AWS**
· Developed a Retrieval-Augmented Generation **(RAG) pipeline** and set up a data server using **MILVUS** and **Docker**, implementing CRUD operations on vector databases to enhance efficiency and decrease upload time by **70%**
· Designed and deployed an abstract retrieval **API** in **Python**, integrating advanced AI models to enhance semantic search functionality into a web-based platform, improving the accuracy and context-awareness of search results by **35%**

Rover Challenge Team Lead — 2021-2022
NASA — *Washington, DC., USA*
· Led a team of 8 in designing a rover capable of withstanding Martian terrain, overseeing the engineering process, delegating tasks, setting deadlines, and ensuring safety for NASA's Human Exploration Rover Challenge
· Presented our project and comprehensive design review to NASA engineers, receiving positive feedback.

PROJECTS

Navi | *Python, PyTorch, TensorFlow, ROS2, YOLOv5, pandas*
· Developed an advanced object detection program using **Python**, **PyTorch**, **TensorFlow**, and **ROS2**, during the AI4ALL Summer Program at the University of Maryland to enable **autonomous robotic navigation**.
· Built a **neural network** and implemented **YOLOv5** for real-time object detection and adaptive navigation, integrating sensor and visual input data with **pandas** to streamline data manipulation
· Presented the project to postdoctoral researchers to demonstrate its feasibility for real-time autonomous navigation in complex environments and its application to ground manipulators for increased precision and adaptability

Synthesizer and Musical Keyboard | *C, Raspberry Pi, FluidSynth API*
· Collaborated with a 6-person team to develop a one-octave musical keyboard using a **Raspberry Pi Zero 2 W** and **FluidSynth API**, enabling real-time audio playback via GPIO pins and custom 3D-printed case.
· Implemented GPIO interrupts in **C** to improve software reliability and responsiveness

LEADERSHIP

Assistant Director & Math and English Tutor — 2022-2024
Kumon Math and Reading Center of Bethesda - Kenwood — Maryland, USA
· Led one-on-one tutoring sessions for 80+ math and English students, monitoring and adjusting individual learning plans based on progress and needs to ensure tailored instruction
· Communicated regularly with clients, gave progress updates, addressed concerns, and offered advice for improvement

AWARDS, PUBLICATIONS AND CERTIFICATION

Published Author of 2 children's educational books - avaliable on Amazon — 2020-Present
Brown University - Mathematical Modeling of Finance: An Introduction to Quantitative Analysis — 2021
Awarded International Baccalaureate Bilingual Diploma - with additional higher level subject — 2024
First Honors - received award for academic excellence every semester of Washington International School — 2020-2024