CHLOE HALLAERT

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TECHNICAL SKILLS

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

TECHNICAL EXPERIENCE

AI and Software Developer 2024-Present
NuanceEdge - WAT.AI Design Team Ontario, Canada

- Collaborated with an 8-person AI design team to develop a generative AI chatbot for Wilson and Wilbur, a consulting firm that bridges the gap between evidence and practice, leveraging **LLaMA** and **Cohere models** on **AWS**
- 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
- Developed a **Retrieval-Augmented Generation (RAG) pipeline** and set up a data server using **MILVUS**, implementing CRUD operations on vector databases to enhance efficiency

NASA Challenge Team Lead 2021-2022

- 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 efficient **C code** to handle GPIO interrupts, improving software reliability and responsiveness.

TEACHING EXPERIENCE

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+ students focusing on mathematics and English
- Monitored and adjusted 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

EDUCATION

Honours Bachelor's Software Engineering **University of Waterloo**
Coursework: Data Structures and Algorithms in C and C++ Expected Graduation: 2029

- Awarded University of Waterloo **International Student Scholarship** - one of 20 recipients
- Received University of Waterloo **President Scholarship**

AWARDS, PUBLICATIONS AND CERTIFICATION

Published Author of 2 children's educational books - avaliable on Amazon 2020-Present
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