Melanie Foltak

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SKILLS

Languages: Python, C++, C, SQL, ROS, Swift, Java, VB.NET, JavaScript, C#, TypeScript, HTML, CSS
Tools: AWS Cloud Services, Pandas, Swift Playground, BeautifulSoup, React.js, Unity, Raspberry Pi, Arduino, Git

EXPERIENCE

Hamburg University of Technology | AI Robotics Engineer May 2024 - August 2024

- Engineered a **PyTorch-based computer vision model** for real-time detection and classification of electrical ports on quadruped robots, using model tuning and GPU acceleration to **reduce construction safety inspection time by 50%**
- Created a Python navigation system using **ultra-wideband sensors** and ROS for **quadruped robot motion tracking**, achieving **10 cm positioning accuracy** and enabled precise collision avoidance for automated multi-robot operations

Toronto Dominion Bank | Conversational AI Developer January 2023 - December 2023

- Automated comparison of training and test data in Python with chi-squared test, **reducing manual workload by 8 hrs**
- Optimized performance summary generation process for **13 chatbots** by incorporating **data extraction and manipulation** methods resulting in transitioning a monthly human-driven activity to a **30 mins automated workflow**
- Developed a Python script to parse resumes using **NLP** for candidate ranking, achieving an **86% success rate**
- Leveraged Pandas to create custom pivot tables, **analyzing data for 94,000 employees** to summarize FinTech trends
- Designed 4 VR training exercises using C# and Unity, implementing 3D game mechanics to improve onboarding

Toronto Transit Commission | Software Developer May 2022 - August 2022

- Architected a VB.NET script to **remotely automate Microsoft updates** and deployed improvements company-wide
- Employed a new object-oriented design to integrate parallel processing **improving performance speed by 41%**

Operating System Power Saving Club | Technical Project Manager January 2024 - April 2024

- Led a team of 15 undergraduate researchers**,** achieving a **25% reduction in timelines** through agile project planning
- Developed **SQL scripts** for database management and analysis, creating tables and executing queries to drive data-driven decisions, leading to **extending computer battery life by 1 hour** through power-saving C-Groups

Women in Computer Science Club | Co-Chair December 2021 - April 2024

- Organized bi-weekly events for **1600+ women in computing** while **leading 11 undergrad committee** members
- Maintained and updated the club's website, increasing accessibility by implementing engaging features with React.js
- Ran 26 events promoting diversity and inclusion while **increasing participation by 300%** from previous semesters

PROJECTS

Plannect | AI Social Media Connector

- Created an AI-powered platform built using Autocode to make requests to **OpenAI(GPT-3), Typeform API,** and **Mapbox API** to match nearby individuals with similar interests based on geographical location
- Leveraged **React.js** and custom **CSS** to build a responsive and accessible front-end to deliver seamless experience
- 'Best Use of AI' Ellehacks 2023 Award

All in Good Waste | AI Garbage Sorter

- Developed an image analysis feature using **machine learning** with Lobe.AI to categorize recycling with **94% accuracy**
- Programmed a **Raspberry Pi** and camera attached to stepper motors in **Python** to create a robotic arm that automates the sorting and disposing procedure; included LED and LCD display to provide real-time feedback

Track That | Monthly Expense Tracker

- Developed a **Google Sheets add-on in JavaScript** for automating expense tracking with custom front-end formatting
- Designed a rewards management system in **Python** to optimize and calculate monthly earned credit card points

EDUCATION

University of Waterloo | Bachelor of Software Engineering September 2021 - May 2026