Ghanem Ghanem

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SKILLS

- **Programming Languages:** Python, Java, C, C++, HTML/CSS, TypeScript, Bash.
- **Frameworks:** FastAPI, Flask, GTK4, React, CDK.
- **Software Tools/Other:** AWS, Azure, Docker, Git, Gitlab CI/CD, PostgreSQL, REST APIs, Unix, Jira, Confluence, JetBrains

EDUCATION

University of Windsor   **Windsor, ON**

Bachelor of Science Honours Computer Science with Software Engineering Co-op (Minor in Mathematics)

EXPERIENCE

Associate Software Engineer   **London, ON**

CARFAX   *Dec 2023 – Present*

- Collaborating with a team of developers utilizing **Agile** methodologies to deliver AI/ML-driven services for CARFAX.
- Design and develop full-stack applications leveraging **React**, **Python** and **FastAPI**, incorporating various Large Language Models (**LLMs**) for chat functionality and summarization features
- Deploy and maintain cloud-based applications on **AWS** using services such as **ECS**, **Lambda**, **Route 53**, **RDS**, **Neptune**, and **S3**.
- Architect and develop a video generation application in **Python** and **AWS**, using a microservices architecture to generate 100K automated videos daily. System is containerized using **Docker** to enable parallel processing on **ECS fargate**.
- Develop AWS **Lambdas** to fetch images and generate Text-to-Speech (TTS) via **Azure OpenAI** services for video generation.
- Optimize video generation workflows by leveraging **ECS Fragate**, **ECS Tasks** and **Lambdas** services to parallelize processes, as well as implement multi-threading in **Python**. These Optimizations reduce video generation time from 288 seconds to 80 seconds, resulting in an 80% cost reduction.
- Develop Infrastructure-as-Code (**IaC**) using **AWS CDK** in **Typescript**, enabling efficient, repeatable deployments of cloud infrastructure and managing cross-stack dependencies for improved scalability and maintainability
- Implement **CI/CD** pipelines for continuous integration and deployment, ensuring automated builds of **React** artifacts, testing (for both front-end **React** and back-end **Python/FastAPI**) and streamlined deployments

Software Developer (co-op)   **Waterloo, ON**

Clearpath Robotics   *Jan 2022 - Sept 2022*

- Developed a web server using **Sanic**, a **Python** asynchronous web framework (similar to **Flask**).
- Web-server was used to present comprehensive logs and data associated with ROS/C++ packages. This helped senior engineers in identifying issues within their **ROS** or **C++** packages, significantly expediting the troubleshooting process, enhancing the overall efficiency of the team.
- Implemented **Gitlab CI** pipelines for end-to-end testing making sure all endpoints were working.
- Implemented a **Docker** image and **Bash** Script that would create a minimal container for aws-fleet accounts to deploy robot simulations.

Web Developer (co-op)   **Windsor, ON**

University of Windsor   *May 2021 – Sept 2021*

- Collaborated with educators and students to publish Ebooks and Open educational resources (**OER**).
- Published a website using **HTML, CSS** and **JavaScript**. Site was used to upload Ebooks and Open educational resources(**OER**) to help keep students engaged in learning during the pandemic.

PROJECTS

Python Blockchain PHR System   *Github link*

- Developed a blockchain using **Python** and **Flask** for a PHR system (Personal health record). **Flask**, **Javascript**, **HTML** and **CSS** was used to create a web application for users to create and store records.

Multi-threaded C Video Decoder   *Github link*

- Developed a multi-threaded video and audio decoder leveraging **C**, **FFmpeg**, **PulseAudio Simple API**, and **GTK4**.