PATRICK HUYNH

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Education

University of Waterloo
Waterloo, ON

Bachelors of Computer Science, Honours Co-op
Sept 2020 - Current

- Cumulative GPA: 3.9/4, President's Scholarship
- **Courses:** Object-Oriented Software Development, Data Structures and Data Management, Algorithm Design and Data Abstraction, Computer Organization and Design, Foundations of Sequential Programs

Work Experience

Software Engineer
Vaughan, ON

Martinrea Alfield Industries
Jan 2023 - Present

- Integrating a modified version of **ORB-SLAM3** with **C++** to an autonomous intelligent vehicle (AIV) which will eliminate manual delivery of goods and parts around the plant
- Collaborating with a team to test and debug the SLAM algorithm on **Intel RealSense Depth** cameras equipped with an **IMU**, so the AIV can support autonomous navigation
- Developing in a **Linux** environment which will be deployed on **NVIDIA Jetsons** using **CUDA** to handle various computer vision computations

Front-end Developer
Vaughan, ON

Martinrea Alfield Industries
May 2022 - Aug 2022

- Implemented a portable and scalable application in **HTML/CSS/JS/React** that unifies different parts of the plant by creating a digital representation of the factory that will be used by various stakeholders including managers, maintainers, integrators, and developers
- Integrated the **Django-based RESTful API** and designed an abstract state management structure using **Redux Toolkit** and **Axios** to manage device registration, map configuration, and user authentication
- Led the development of a maintainable interface for a self-driving autonomous intelligent vehicle (AIV) using advanced **JavaScript/React** design patterns **(HOC, Provider, Hooks)**

Full Stack Software Developer
Kitchener, ON

The Co-operators
Sep 2021 - Dec 2021

- Launched a Business Continuity Plan software using a **MERN** stack so clients can digitize **CRUD** operations of different plans including business model plans used by over **120** clients nation-wide
- Consolidated data from the frontend by centralizing the application state using **Redux** and storing it into the database with **MongoDB**
- Assisted in creating the front-end interface for an A.I. based chat bot using **React** and **JavaScript** frameworks that would autonomously provide customer service for clients and customers
- Collaborated in an **Agile workflow** using **Jira** for ticket management, **Bitbucket** for version control, and **Confluence**

Projects

Biquadris (Tetris)

C++ (OOP), Bash, X11

- Designed and implemented a 2-player Tetris-based game that supports local multiplayer functionality
- Built in **C++** using **OOP** concepts **(polymorphism, SRP)**, memory management principles **(RAII)** and various design patterns (observer, template, factory)

Inventory Stock Bot

Python, BeautifulSoup, Twilio

- Developed a **Python** program to determine product availability used regularly by **4** clients to buy high-demand items during the pandemic
- Accessed, scraped, and parsed the HTML website using the **Requests** and **BeautifulSoup4** library to determine the desired products stock availability every 60 seconds
- Implemented an SMS notification system using the **Twilio API** to notify users when the product is in stock

Skills

Programming   C/C++, Python (Pandas, NumPy), HTML/CSS, JavaScript (Node, React), MATLAB, R/R Studio
Certifications   **Coursera:** Algorithms Specialization (Stanford), Algorithms (Princeton), Data Science (IBM), MATLAB (Vanderbilt)
Miscellaneous   Shell (Bash/Zsh), Linux, Git, Microsoft Office