Wyatt Verchere

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EDUCATION

University of British Columbia — Vancouver, Canada
Bachelor of Science - Computer Science — *September 2015 - May 2019*

EXPERIENCE

Vybe Network — Vancouver
Software Engineer — *March 2024 -*
- Collaborated to develop high-performance APIs and WebSocket services using Rust (Actix Web) and Python (FastAPI), delivering real-time financial insights with millisecond-level latency for over 500 million records.
- Owned and implemented a high-throughput data ingestion pipeline utilizing Kafka, processing over 10,000 account update messages per second, ensuring millisecond-level synchronization between Solana account updates and availability in PostgreSQL.
- Designed and developed data pipelines in Apache Airflow to supplement data with prices and aggregation tables.
- Integrated large language models (LLMs) for natural language querying of extensive datasets, improving user accessibility and interaction with data.

Modrinth — Vancouver (Remote)
Founding Software Developer — *Feb 2023 - March 2024*
- Co-led development of a modern and performant modded Minecraft launcher using Rust and Vue.js (Tauri) that scaled to 180k monthly average users within 6 months of launch.
- Back-end development for Rust-based site API, using Actix and PostgreSQL. Added key features in collaboration with our front-end website team to grow monthly average users by 250% (4M to 14M) over the course of a year.
- Co-led a full API rewrite to improve flexibility to host more games and varieties data, as well as improve query performance in our hottest API routes by over 3x.

Pacific Parkinson's Research Centre — Vancouver
Software Developer, Data Scientist — *June 2019 - Feb 2023*
- Using Python, C++, and MATLAB, included designed and single-handedly implemented games and internal tools for millisecond-accurate data collection for studies involving EEG, MRI, galvanic vestibular stimulation and user response.
- Using Python's TensorFlow and Keras, designed and implemented several CNN, LSTM and GAN network solutions for the augmentation of Parkinsonian EEG data and analyzing the relationship between the Parkinsonian condition to the brain, gait, sweat/electrodermal activity readings, and vigour. This work contributed to a published paper and created pipelines for future research.

AltumView Systems Inc. — Vancouver
Software Developer Internship — *Apr 2018 - Aug 2018*
- Organized and created a Node.js-based cloud backend for a smart home camera (later called Sentinare), an Alexa and Google Assistant implementation, a database, and OAuth2 login implementation.
- Used Java with Google Assistant SDK to re-implement Google Assistant onto an Android-based robot (but with custom hotword and command handling) to allow voice control of its loaded software.
- Aided with app development for iOS/Android using Xamarin to create a prototype for a front end interface so clients could interact with specified smart home camera, and a React.js front-end for data visualization and testing.

Roadhouse Interactive — Vancouver
QA & Analytics Internship — *Summers 2015-2017*
- Designed smoke and regression tests on games for Iron Maiden, Red Bull, and Games Workshop
- Aided with analytics collection and analysis for Iron Maiden: Legacy of the Beast

SKILLS SUMMARY

- **Languages**:   Rust, Python, C++, JavaScript
- **Frameworks**:   Actix Web, Tauri, Django, FastAPI, Node.js, Vue.js, Svelte, TensorFlow
- **Tools**:   Git, PostgreSQL, Clickhouse, AWS, GCS, Docker

PUBLICATIONS & CONFERENCES

- Mirian MS, Kazemi A, Hussain R, Lee S, Verchere WD, Ward, RK, McKeown MJ. *Galvanic vestibular stimulation effects on LSTM-based EEG neuromarkers of motor vigor in Parkinson's Disease.* Brain Stimulation 14(6):1645, 2021
- Arasteh EH, Mirian MS, Verchere WD, Surathi P, Nene D, Allahdadian S, Doo M, Park KW, Somdattaa R, McKeown MJ. *An Individualized Multi-Modal Approach for Detection of Medication "Off" Episodes in Parkinson's Disease via Wearable Sensors.* J. Pers. Med 13(2):265, 2023
- Arani KS, Vahabie A-H, Soltanian-Zadeh H, Kazemi A, Verchere WD, Lee S, Mirian MS, McKeown M. *Microstate Resting State EEG Analysis for Evaluating the Effect of Electrical Vestibular Stimulation in Parkinson's Disease.* Iranian Conference on Biomedical Engineering