Alvin Sen Yuan Wu

www.linkedin.com/in/alvin-wu-
https://alvinsenwu.github.io/Portfolio/
aswu@ualberta.ca
(587) -732-0535

Education

University of Alberta | September 2020 - June 2025

- BSc Major in Computing Science Minor in Mathematics
- Relevant Coursework: Algorithms & Data Structures, SQL & NoSQL Database Management Systems, Software Engineering with Object Oriented Design, Software Quality Testing & DevOps, Computational Search Knowledge and Simulation, Web Applications and Infrastructure, Machine Learning, UI/UX Design.

Skills

Languages: Python, C/C++, Java, C#, Typescript, Javascript, Matlab, PHP, HTML/CSS, XML.

Databases/Backend: MongoDB, PostgreSQL, Firebase/Firestore, MySQL, SQLite, Express.js, Node.js, Flask.

Frameworks/Libraries: React.js, Pytorch, Numpy, Pandas, Tensorflow, Angular.js, Gradle, Laravel, Wordpress, Docker.

Professional Experience & Work History

Machine Learning Research Assistant & Student Web Application Developer

University of Alberta Derda Research Group | April 2022 - November 2023

- Undergraduate Research Assistant in GlyNet: A Multi-Task Neural Network for Predicting Protein-Glycan Interactions. Implemented a weight decay pipeline to simplify the model and improve training stability, improving the base accuracy by ~ 2%. Principle Investigator: Ratmir Derda, Supervisor: Eric J Carpenter.
- Web-App Development for Chemical Compound Search and Sort Project combining data science with bio and cheminformatics to help chemists visualize and quickly find similar molecules based on several factors such as molecular weight, Kd values, and structural proteins. Using bit-vector representations of compounds and performing a Jaccard similarity score for analysis, the application increased productivity and efficiency for lab researchers.
- Creation and maintenance of the Lab Website for the research group hosted on Wordpress.
- Technologies Used: React.js, PHP, Javascript, HTML/CSS, MySQL, Numpy, PyTorch, Pubchem, RDKit.

Projects - github.com/AlvinSenWu

NeuroScribe - NeurAlbertaTech's NatHacks 2023 Hackathon Project - 1st Place with $4000 Funding

- Full Stack Web Application and Machine Learning tool that harnesses brain waves for mood and hands-free speech communication, giving voices to individuals who have lost their ability to move and speak.
- Utilized two Machine Learning Models that harness brain waves to detect mood and imagined motor movements, alongside three text prediction models based on mood to create a seamless user experience.
- Application stack & skills: React.js, HTML/CSS, Flask, PyTorch, Pandas, Numpy, Figma.

QRHunter - Java Android Mobile Application

- Lightweight Android Mobile Application, where users from across the world compete in a Geo-catching like format. Scanning QR codes is associated with obtaining points, and players can see where they rank amongst other players.
- Application stack & skills: Java, Object-Oriented Design Patterns, Software Quality, Scrum, Google maps API.

SoundX - Full Stack Music Social Media Application (Current)

- Full-Stack CRUD (Create, Read, Update, Delete) Web and IOS Application for music sharing for users to discover and discuss their favorite artists, songs, and albums. Users can connect and share their linked apple music/spotify accounts. Data analytics for streaming services, helping streaming services provide better suggestions for users.
- Application stack & skills: MongoDB, Express.js, React.js, Node.js (MERN), API Design, Docker.

Tartan Home System - Software Development and Quality Testing Application

- Implementing system functionalities along with Software esting and Quality Assurance techniques such as Black box testing, White box testing, Unit testing, Integration testing, system/end to end testing, A/B Testing, Static Analysis, Performance testing, Technical Debt Analysis, and Continuous Integration/Deployment/Delivery, DevOps.
- Application stack & skills: Java, Docker, MySQL, Mockito, DropWizard, SpotBugs, SonarQube, FTL.