Martin Woo
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"Software Engineer with 1 year of full-stack engineering experience specializing in React with published papers in machine learning. Domain knowledge working with human healthcare data. Dedicated to learning, creating, and cats."

EDUCATION

QUEEN'S UNIVERSITY   Kingston, ON
Master of Science, Computer Science - Machine Learning   Sep 2022
Cumulative GPA: 4.1/4.3
Teaching Assistant (2YoE): Algorithms (Python, Java); Web Development (JS, PHP, HTML, CSS); Cybersecurity (C)
Awards: Research Fellow Scholarship 2020

QUEEN'S UNIVERSITY   Kingston, ON
Bachelor of Computing, Computer Science   May 2020

WORK EXPERIENCE

LIONS GATE HOSPITAL   Vancouver, BC
Software Engineer (Full-Stack) | React, Electron.js, Python, SQLite   May 2022 – Present
- Conceived a machine learning solution with Logistic Regression, in collaboration with Dr. Eytan David, for accurately analyzing and treating balanced-based dizziness, leading to a **10% reduction** in the number of treatment sessions.
- Incorporated the Electron framework with a React front-end, Python, and SQLite to create a standalone desktop app for suggesting parameters and treatment plans to an AR-based therapeutic protocol used daily by more than **40 high-risk patients**.
- Adjusts patient treatment plan by analyzing patient performance trends to ensure personalized treatment protocol.

QUEEN'S UNIVERSITY   Kingston, ON
Machine Learning Researcher | Python (TensorFlow/Keras, matplotlib, numpy, Pandas)   Sep 2019 – Sep 2022
- Facilitated with Dr. Farhana Zulkernine and 3 others to research and publish state-of-the-art concepts for unsupervised learning, resulting in 2 published papers (refer to 2nd page) and 1 paper in review.
- Produced a total of **8 clustering machine learning model/data pipelines** (LSTMs, AEs, CNN) for time-series processing using clustering on streaming human activity data using Python (TensorFlow), Numpy, and Pandas.
- Improved **state-of-the-art results by 5% (95%)** while establishing **novel baseline performances** and balancing resource use from more than **2 million** points of complex streaming training data.
- Proposed and implemented **3** visualization methods for intuitive cluster analysis with Matplotlib.

QUEEN'S UNIVERSITY   Kingston, ON
Software Engineer (Full-Stack) | JavaScript, HTML, CSS, PHP, MySQL   May 2020 – Sep 2020
- Collaborated with Dr. Greg Lessard and 1 other to build and improve a language learning and language generation web application (VinciLingua) currently used internally in **8+ Queen's University language courses**.
- Launched higher server side security in MySQL DB by enforcing singular login via tokenization in conjunction with client-side security using cookies and localstorage.
- Overhauled HTML/Javascript framework using BootStrap while launching a streamlined modern design. Led to an increase in loading speed and improved user interactions.
- Composed 2 new interactive language activities using JavaScript and the generative language model: drag-and-drop words and fill in the blanks.

ACTIVITIES

QUEEN'S HONG KONG STUDENT'S ASSOCIATION   Kingston, ON
Co-Chair, Sponsorship Director   Sep 2017 – May 2020
- Hired and delegated a student cultural club with 15 executives to create 6 events promoting the Hong Kong culture to the Queen's student community, leading to a 14% increase in memberships and 20% in profits.
- Facilitated sponsorships with 20+ local businesses and collaborated with 3 others clubs to host multiple events.

SKILLS

Programming Languages: Python, JavaScript, HTML/CSS, LaTeX;
Frameworks: (JavaScript) Electron**,** React, React Native; **(Python)** Gatsby; **(Other)** Bootstrap
Databases: SQLite, MySQL, Firebase (Google Cloud Platform), S3 (Amazon Web Services)
Libraries: (Python) TensorFlow, Scikit-Learn, Scipy, Pandas, Matplotlib; **(JavaScript)** React-spring, React-Redux/Redux
Other: WordPress; Git/Github; Slack; Jira; Docker; EC2 (Amazon Web Services)

PUBLICATIONS

[1] Woo, M. 2022: A computational odyssey. towards a deeper understanding of clustering streaming human activity recognition data. Master's thesis, Queen's University, Kingston, ON, Canada, Sept. 2022.

[2] Woo, M., Zulkernine, F., and Abdulsalam, H. M. Clustering HAR Data Streams. In Proceedings of the 46th IEEE Annual Computers ,Software, and Applications Conference, COMPSAC 2023 (Torino, Italy, 26-30 June 2023).

[3] Woo, M., Zulkernine, F., and Abdulsalam, H. M. Clustering HAR Data Streams. Frontiers of Computer Science, 2023. [in review]