Jon Menard

https://jonmenard.github.io/

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Education

- **Carleton University** — Ottawa, ON
  Master of Applied Science - Software Engineering; Standing: A — *Sep. 2021 – Present*
- **Carleton University** — Ottawa, ON
  Bachelor of Engineering in Software Engineering; Standing: A- (10/12.0) — *Sep. 2017 – May. 2021*

Work Experience

- **Government Of Canada: Statistics Canada** — Ottawa, ON
  Software — *July 2020 - Dec. 2021*
  - **SQL Server**: Student intern for the database application development support team. Prepared and tested services to be used during the 2021 May Census. Provided support for other departments in need of optimizing existing SQL queries.
  - **SDMX**: Researched various tools to automate SDMX data mapping for database storage. Found several programs that could be used to assist with data comparison between Canada and other countries

Applied Projects

- **Master's Thesis Project (MARL W.R.T Wireless Communication)** — Ottawa, ON
  Carleton University — *Sep. 2020 - Present*
  - Working alongside Professor Gabriel Wainer and Professor Ala'a Al-Habashna to research the use of multi-agent reinforcement learning to increase spectral efficiency in 5G wireless communications.
  - Using AI and neural networks to model transmission characteristics of a network of N virtual upload equipments connecting to M base stations to optimize throughput and fidelity of transmission. Involved experimentation of many different reinforcement algorithms to determine the best training method.
  - Using Python along with TensorFlow, NumPy, Pandas, etc., to implement reinforcement learning
- **Web Application**
  FindMyCellTower.com — *Mar. 2022 - Present*
  - Developed a lightweight website that displays an interactive map of nearby cellular towers, including signal type (3G, 4G, etc.). https://www.findmycelltower.com
  - Learned and applied Google Maps API for rendering the interactive map.
  - Researched and prototyped with OpenCellid's public dataset to populate the application's SQL database.
- **Personal Portfolio**
  Jon Menard's Portfolio — *Jan. 2019 - Present*
  - Learned advanced programming concepts with HTML, CSS, JavaScript, and PHP by creating a portfolio of games such as Snakes, Flappy Bird, Mine Sweeper, Tetris, as well as an AI play Tetris. https://jonmenard.github.io/
- **4th Year Engineering Project** — Ottawa, ON
  Carleton University — *Sep. 2020 - April 2021*
  - Worked alongside Professor Gabriel Wainer and 3 other students to create a web-based platform that stores and hosts simulations for the Advanced Real-Time Simulation Laboratory (ARSLabs). (Java Spring framework, Thymeleaf, and Heroku).
  - Achieved the first prototype for a Library of Models developed by ARSLabs to store DEVS simulations.
  - Led the peer-reviewed presentation of the solution and coordinated the live demonstration.
- **Unity Game Development - Machine Learning**
  Self Driving Car — *Sep. 2020 - June 2021*
  - Worked in Unity to simulate a self-parking car amid obstacles. Developed a neural network for the car that would receive inputs from the car's multiple sensors, and decided to apply the gas, brake, or steer the car.
  - Implemented the Proximal Policy Optimization Reinforcement Learning Algorithm in C# to train the car's neural network.

Publications

- **A Web Based Modeling and Simulation Environment to Support the DEVS Simulation Lifecycle**: 2nd writer: https://ieeexplore.ieee.org/document/9552123

Programming Skills

- **Main Languages**: Java, Python, Javascript, C#, SQL, PHP, HTML, CSS