Bowen Luo

Portfolio: plopor.github.io | Email: bowen.luo@gmail.com | Github: https://github.com/plopor

Languages: C#, C++, C, Python, Java, HTML/CSS, Javascript, Bash, MIPS, ARM & R
Tools: Visual Studio, VS Code, Git, Processing, Pycharm, Jira, Android & Linux

EXPERIENCE

- **Software Developer** | **Virtamove** *Jan 2020 - Apr 2020*
  - Individually developed a feature detecting compiled architecture for Windows binaries using memory mappings in C++, **improving app migration success rates**.
  - Individually developed a file and registry rehosting service migrating between matching OS in C++.
  - Worked extensively with native Windows API to query services, registries, and binaries.

- **Software Developer** | **Martello Technologies** *Sept 2020 - Dec 2020*
  - Upgraded to the backend codebase of a data consolidation platform built with the ELK Stack to migrate the product between major versions of Elasticsearch in C#, **creating new data visualization options**.
  - Wrote and maintained integration tests using mocking libraries, reflection, and asynchronous messages with Akka.NET.

- **Junior Developer** | **HelloGbye** *May 2019 - Aug 2019*
  - Researched and prototyped improvements (GRU, ELMo, Attention layers) to an ML model using Keras and Tensorflow, **increasing Natural Language Processing accuracy**.
  - Wrote parsers and tokenizers for JSON and natural language in C# and Python to facilitate training data transfer.
  - Generated C# classes using Visual Studio's T4 text templates for dynamic JSON parsing.

PROJECTS

- **Machine Learning Projects** | **Python, Java**
  - **Flappy Bird AI**
    - Instantiates and updates hundreds of neural networks simultaneously to apply an evolutionary algorithm to play Flappy Bird autonomously.
    - Created a playable Flappy Bird replica made using Java with the Processing engine.
  - **English Detection Neural Network**
    - Developed a neural network from scratch in Python using the Numpy API to illustrate the results of machine learning on language recognition.
    - Demonstrates back-propagation in learning algorithms using sigmoid activated perceptron layers, achieving 95% accuracy.

- **Connect** | **Hack the North, Java, Android Studio**
  - Developed and collaborated on a Wifi sharing service on Android Studio responsible for sending and receiving NDEF messages using NFC.
  - Prototyped the sending of images and PDF as URI.

- **Snake Pathfinding** | **Java**
  - Implemented various pathfinding algorithms into the classic game of Snake using the Processing engine. Users can play against the AI to explore their decision patterns.
  - Real-time path updating allows for a dynamic response to user interactions.

- **Web Portfolio** | **JavaScript, CSS, HTML**
  - Designed and developed an interactive web portfolio using Javascript and the Bootstrap API to accommodate user experience.
  - Provides a platform to dynamically display my projects and more.

EDUCATION

- **University of Waterloo** | **Bachelor's of Computer Science Candidate**
  - Cumulative Average: 82% *Expected graduation, May 2023*