Bowen Luo

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

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

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EXPERIENCE

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

- **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 data transfer.
  - Generated C# classes using Visual Studio's T4 text templates for dynamic JSON parsing.

- **Feedback Controllers Subteam** | **Watonomous**   *Jan 2019 - Apr 2019*
  - Worked with a PID feedback control algorithm responsible for maintaining the path of the autonomous vehicle.

PROJECTS

- **Machine Learning Projects** | Python, Java
  - **Flappy Bird AI**
    - Created a playable Flappy Bird replica made with Java with the Processing engine.
    - Instantiates and updates hundreds of neural nets simultaneously to apply an **evolutionary algorithm** to play Flappy Bird autonomously.
  - **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.

- **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.

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

EDUCATION

- **University of Waterloo** | Bachelor's of Computer Science Candidate
  - 3.7 GPA   *Expected graduation, May 2023*