Bowen Luo

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

Interests & Coursework: ML, Graphics, Optimization, HPC, Networks, Compilers, DBs, Cloud
Languages: Python, C#, C++, C, Java, Go, Javascript

EDUCATION

University of Chicago | **Masters in Computer Science Candidate** *Dec 2024 expected graduation*
University of Waterloo | **Bachelor of Computer Science** | **Combinatorics & Optimization Minor**

EXPERIENCE

Arista Networks | **Software Engineer** (C++, Python) *Sept 2022 - Dec 2022*

- Individually developed network switch CLI commands to asynchronously query information on routes in the forwarding tables across VRF instances, **improving routing telemetry data**.
- **Prototyped efficiencies** to routing table adjacency trimming by consolidating optimizations done during next-hop creation and interface-down adjacency review.
- Built test framework features **detecting tight-loops** in tasks of ASIC platform agents at runtime.

Oracle Netsuite | **Software Developer** (Java, JavaScript, SQL) *Jan 2022 - Apr 2022 & May 2021 - Aug 2021*

- **Planned architecture** of and implemented objects/services for a new data storage (UMD) and manipulation pipeline; wiring (Guice), persisting, and exposing SQL entries to **perform Oracle Netsuite platform rewrite**.
- Built frontend pages (React/Preact) along with necessary data pipeline services and endpoints, researching and implementing UMD record querying for request validation.
- Individually wrote and upgraded endpoints to fetch and manipulate SQL data.
- Implemented scheduled SQL tasks and contributed to a web-based frontend (UIF, JS), **delivering continuous features for client requests**.

Martello Technologies | **Software Developer** (C#) *Sept 2020 - Dec 2020*

- Individually upgraded the backend codebase of a data consolidation platform (ELK Stack, Akka.NET), migrating between major versions of Elasticsearch and **creating new data visualization options**.

VirtaMove | **Software Developer** (C++) *Jan 2020 - Apr 2020*

- Individually developed a feature detecting the memory-mapped compiled bitness for Windows binaries, **improving app migration success rates** across Windows OS of varying architectures.
- Individually developed a native file and registry rehosting service migrating between matching OS, working with kernel interfacing Windows API to query services, registries, and binaries.

Amgine | **Junior Developer** (C#, Python) *May 2019 - Aug 2019*

- Researched and prototyped improvements (GRU, ELMo word embedding, attention layers) to an NLP ML model (Keras, Tensorflow), **improving sentiment analysis of emails.**
- Wrote a custom JSON parser and email tokenizer to **enable training data transfer/generation**.
- Generated C# classes (T4 text templates) for dynamic JSON parsing.

PERSONAL PROJECTS

Photorealistic Raytracer | C++

- Demonstrating supersampling anti-aliasing, mirror/glossy reflection and refraction, soft shadows, texture and bump mapping, and Phong illumination. Scene rendering specified with Lua.

Parallelized Raytracer | Go

- Demonstrating BSP parallelism for Phong illumination and gaussian denoising, implemented with a CV-based barrier and lock-free DEQueue for work-stealing between threads.

Connect - **Hack the North** | Java, Android Studio

- Service to send/receive NDEF messages using NFC. Prototyped sending images and PDFs as URI.

ML Models | Java, Python

- Semi-supervised image classification model on MNIST using K-means and KNN for cluster labeling.
- Perceptron-based neural networks demonstrating evolutionary and back-prop algorithms.