Robert Liang

robert@robertliang.com
(650)279-7192

Work Experience

Cerebras Systems Sunnyvale, CA
Member of Technical Staff *since March 2020*

PyTorch Support: Worked with product team and engineers from all levels of the stack to build out support for PyTorch. Helped plan out the code design meetings which were led by engineering managers and product managers. Designed tasks for summer intern and worked together to create a BERT reference used by the other teams.

Compiler Generalizability: Built out unit tests inspired by real machine learning models in order for the compiler team to increase the generalizability of our stack. Worked closely with compiler engineers to meet their needs for the project. Created tasks to for summer intern to learn how to work within our large codebase.

Machine Learning Research: Worked with research scientist to study Transformer-based language models. Set up logging for gradient norms, activation norms, and loss scale and analyzed resulting TensorBoard plots in order to debug and fix our implementation of a reversible encoder layer. Ran pre-training and fine tuned for GLUE tasks using custom scripts to set off AWS jobs. Wrote up research reports with tables and plots.

Machine Learning Framework: Worked on the framework backend responsible for supporting TensorFlow models on the Cerebras architecture. Added support for new nonlinear activation functions. Was responsible for framework development related to supporting GlaxoSmithKline's graph convolutional networks for drug discovery. Onboarded new engineers and expanded documentation.

Sandia Point Capital Chicago, IL
Quantitative Researcher *May 2019 to February 2020*

Quantitative Trading: Developed low-latency algorithmic trading software for trading CME futures.

Center for Brains, Minds, and Machines Cambridge, MA
Graduate Student Researcher *January 2018 to May 2019*

Graduate Thesis Project: Completed thesis project designed by graduate advisor Tomaso Poggio, director of CBMM (Center for Brains, Minds, and Machines). Implemented computer vision models in PyTorch to study the generalizability behavior of neural networks. Modified the gradient update step of convolutional neural networks and residual neural networks to generate plots of the relationship between training loss and evaluation loss whenever weights are kept at a constant Frobenius norm throughout training.

Exabeam San Mateo, CA
Software Engineering Intern *June 2017 to August 2017*

Email Processing Pipeline: Worked on the email processing components of Exabeam's corporate security software. Studied the potential of using a random forest classifier to identify phishing emails. Presented the results and findings to the team.

Google Mountain View, CA
Software Engineering Intern *June 2016 to August 2016*

Maps API: Worked on the Google My Business API team within Google Maps. Updated the backend and added API paths to streamline the user experience for businesses who want to upload photos to Google Maps.

Education

Massachusetts Institute of Technology Cambridge, MA
Master of Engineering and Bachelor of Science, Electrical Engineering and Computer Science *Graduated in May 2019*

Selected Coursework: Performance Engineering of Software Systems (6.172), Software Studio (6.170), Machine Learning (6.867), Design and Analysis of Algorithms (6.046), Computer Systems Engineering (6.033)

Programming Tools

Languages: Python, C++, C, Java, Kotlin, Scala, Javascript, Bash, Vimscript

Tools and Frameworks: Git, Linux, Bash, TensorFlow, PyTorch, TensorBoard, Amazon Web Services, Google Colab, Google Firebase, MongoDB, PostgreSQL, Express, Vue.js, AngularJS, React, Node.js