

William Huang

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Education

New York University, Courant Institute; New York, NY

Anticipated: May 2021

M.S., Scientific Computing

Cumulative GPA: 3.83

Relevant Coursework: Seminar in Semantics (Current), Natural Language Processing (Current), Natural Language Understanding, Deep Learning, Fundamental Algorithms, Programming Languages, Numerical Methods I

Cornell University, College of Engineering; Ithaca, NY

May 2016

B.S. with Honors, Operations Research Engineering, Dyson Business Minor for Engineers

Major GPA: 3.76 | Cumulative GPA: 3.60 | Cum Laude

Relevant Coursework: Machine Learning, Optimization, Stochastic Processes, Engineering Probability and Statistics

Research & Professional Experience

Machine Learning for Language (ML²); New York, NY

Advised by Prof. Samuel R. Bowman

Jun 2020 — Present

- Researched the use of Item Response Theory (IRT) as a method to evaluate the relative difficulties of NLP benchmarks
- Developed a script using Pyro to apply black-box Variational Inference to fit an IRT model to a set of machine responses by experimenting with different prior and posterior approximation assumptions
- Selected as set of NLP benchmarks based on reasoning criteria for a comparison of evaluation tasks
- Evaluated the use of counterfactually-augmented natural language inference (NLI) training data
- Built a custom task sampler with PyTorch to study the effect of batching similar examples during deep learning training

American International Group, Inc (AIG); New York, NY

Enterprise Risk Management Analyst II

Aug 2016 — Jun 2019

- Managed quarterly capital estimation by coordinating with a multinational team and presenting risk profile changes from business activities and market movements to key stakeholders
- Led a team of multinational analysts to migrate portions of AIG's capital model to Python in collaboration with IT

Publications (* Equal contribution)

- 2020 “Precise Task Formalization Matters in Winograd Schema Evaluations.” Haokun Liu*, **William Huang***, Dhara A. Mungra, and Samuel R. Bowman. In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP)*.
- 2020 “Counterfactually-Augmented SNLI Training Data Does Not Yield Better Generalization Than Unaugmented Data.” **William Huang**, Haokun Liu, and Samuel R. Bowman. In *Proceedings of the 2020 EMNLP Workshop on Insights from Negative Results in NLP*.

Projects

Counterfactually-Augmented Training Data; New York, NY

- Researched properties of counterfactually-augmented NLI training data by evaluating RoBERTa models on out-of-domain examples and challenge examples to test generalization and robustness
- Analyzed the lexical diversity of counterfactually-augmented training sets to understand the effectiveness of minimal edit constraints and the role of dataset size

Task Sensitivity to Problem Formalization; New York, NY

- Coordinated several hundred training runs on a high performance computer cluster to train RoBERTa and BERT models on seven Winograd Schema Challenge (WSC) task formalizations
- Analyzed and visualized results using Pandas and Matplotlib for an ablation analysis between two popular WSC formalizations to attribute an 11-21% difference in validation accuracy

Skills & Interests

Technical Skills Python • PyTorch • Pandas • Numpy • Huggingface • Matplotlib • Pyro • Microsoft Office • \LaTeX
Interests Board Games • Skiing • Fantasy Football • Cooking