Alisa Liu

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EDUCATION

Starting Sep 2020 **University of Washington**
Paul G. Allen School of Computer Science & Engineering, PhD student

Sep 2018 – Jun 2020 **Northwestern University**
Weinberg College of Arts & Sciences, Computer Science Major, Math Major
Cumulative GPA: 4.0/4.0, *summa cum laude*

Sep 2016 – May 2018 **University of British Columbia** *(transferred)*
Faculty of Science, Computer Science Honors, Math Major
Cumulative GPA: 90.6/100 (A+)

Completed coursework: Statistical Language Modeling, Statistical Machine Learning, Design & Analysis of Algorithms, Computational Creativity, Machine Perception of Music & Audio, Introduction to Machine Learning, Applied Linear Algebra, Real Analysis I-II, Probability & Stochastic Processes I-III, Introduction to Number Theory

HONORS & AWARDS

2020 Northwestern Outstanding Computer Science Senior
2019 CRA Outstanding Undergraduate Researcher Award 2020 Honorable Mention
2019 Northwestern Grace Hopper Conference Scholarship
2018 – 2019 (all quarters) Northwestern Weinberg Dean's List
2016 – 2018 (all semesters) UBC Science Scholar (90%+ academic average with full course load)
2018 UBC Faculty of Science International Student Scholarship ($10,000)
2017 UBC Trek Excellence Scholarship ($4,000)
2017 UBC Dean of Science Scholarship ($500)
2016 UBC Outstanding International Student Award ($6,000)

EXPERIENCE

Jun – Sep 2020 **Allen Institute for Artificial Intelligence**, *Research Intern*

Mentor: Chandra Bhagavatula (MOSAIC team)

1. Explored methods for domain invariance and detoxification of language models.

Apr 2019 – Jun 2020 **Northwestern University**, *Research Assistant*

Advisers: Prof. Bryan Pardo, Dr. Prem Seetharaman (interactive audio lab)

1. Presented a method of data augmentation for music generation systems, where the training data is augmented by high-quality output produced in the course of training. [1, 2]
2. Presented an ensemble model for audio source separation that can handle mixtures whose source domain is unknown, using a confidence measure for deep clustering models. [3]

Sep 2018 – Mar 2020 **Northwestern University**, *Research Assistant*

Adviser: Prof. Doug Downey (WebSAIL group)

1. Developed a neural language model that generates definitions and paraphrases of noun compounds and evaluated the impact of active learning on the model's performance.
2. Produced an adversarially generated commonsense question-answer dataset and identified various failure modes. [4]
3. Evaluated the performance of a multi-sense definition modeling system by investigating whether certain linguistic attributes of words were predictive of model performance. [5]

May – Aug 2018 **Amazon**, *Data Engineer Intern*

Manager: Dr. Xingang Guo (LastMile IoT)

1. Developed and implemented a methodology to employ bluetooth beacons to collect operational metrics at Amazon delivery stations. Produced and monitored daily coverage reports and investigated anomalous coverage statistics and metrics.

May 2017 – Apr 2018 **Fred Hutchinson Cancer Research Center**, *Research Intern*

PI: Dr. Ying Chen

1. Used SAS to perform data cleaning, analysis, and reporting for a project involving antiretroviral therapy (ART) for men at-risk of HIV.

PUBLICATIONS

1. **Alisa Liu**, Alex Fang, Gaëtan Hadjeres, Prem Seetharaman, and Bryan Pardo. "Incorporating Music Knowledge in Continual Dataset Augmentation for Music Generation." In *Proceedings of the Machine Learning for Media Discovery (ML4MD) Workshop at the International Conference for Machine Learning (ICML),* 2020.
2. Alex Fang, **Alisa Liu**, Prem Seetharaman, and Bryan Pardo. "Bach or Mock? A Grading Function for Chorales in the Style of J.S. Bach." In *Proceedings of the Machine Learning for Media Discovery (ML4MD) Workshop at the International Conference for Machine Learning (ICML)*, 2020.
3. **Alisa Liu**, Prem Seetharaman, and Bryan Pardo. "Model Selection for Deep Audio Source Separation via Clustering Analysis." In *Proceedings of the Workshop on Detection and Classification of Acoustic Scenes and Events* (DCASE), 2020.
4. Michael Chen, Mike D'arcy, **Alisa Liu**, Jared Fernandez, and Doug Downey. "CODAH: An Adversarially Authored Question-Answer Dataset for Common Sense". In *Proceedings of the 3rd Workshop on Evaluating Vector Space Representations for NLP (RepEval) at the Conference of the North American Chapter of the Association for Computational Linguistics (NAACL)*, 2019.
5. Ruimin Zhu, Thanapon Noraset, **Alisa Liu**, Wenxing Jiang, and Doug Downey. "Multi-Sense Definition Modeling using Word Sense Decompositions." *Manuscript*, 2019.
6. Dexter Everett, **Alisa Liu**, and Jenny Pan. "Comparison of Discourse Surrounding CRISPR/Cas9 in the Media and Peer-Reviewed Literature." *Canadian Journal of Undergraduate Research (CJUR)*, 2018.

TEACHING EXPERIENCE

Fall 2019 **CS 336: Design & Analysis of Algorithms**, *peer mentor*

with Prof. Jason Hartline (Northwestern)

Spring 2019 **EECS 349: Machine Learning**, *peer mentor*

with Prof. Bryan Pardo (Northwestern)

Winter 2018 **CPSC 121: Models of Computation**, *undergraduate TA*

with Prof. Alice Gao, Steve Wolfman, Ryan Vogt (UBC)

ORGANIZATIONAL MEMBERSHIPS

Association of Computational Linguistics (ACL)

Mathematical Association of America (MAA)

Association for Women in Mathematics (AWM)