Alisa Liu

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EDUCATION

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

Apr 2019 – present **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. Built an ensemble model for audio source separation that can handle mixtures whose source domain is unknown, using a confidence measure to mediate among domain-specific models based on deep clustering. [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 (e.g. "caramel popcorn"), and evaluated the impact of active learning on the model's performance.

2. Produced an adversarially generated commonsense question-answer dataset, using a question acquisition procedure where participants write questions designed to target weaknesses of state-of-the-art neural QA systems. We 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)

SKILLS

Programming Languages: Python, Java, Matlab, C++, MySQL, SAS

Packages/Frameworks: PyTorch, Tensorflow, scikit-learn, NumPy, nussl, Git, LaTeX

ORGANIZATIONAL MEMBERSHIPS

Association of Computational Linguistics (ACL)

Mathematical Association of America (MAA)

Association for Women in Mathematics (AWM)