

Nelson F. Liu

EDUCATION

University of Washington, Seattle, Washington
B.S, Computer Science, B.A., Linguistics. Cumulative GPA: 3.86
Expected graduation date: June 2019

PUBLICATIONS

- [1] *LSTMs Exploit Linguistic Attributes of Data*
Nelson F. Liu, Omer Levy, Roy Schwartz, Chenhao Tan and Noah A. Smith. In *Proceedings of the ACL Workshop on Representation Learning for NLP* (RepL4NLP 2018). July 2018.
Best Paper Award.
- [2] *AllenNLP: A Deep Semantic Natural Language Processing Platform*.
Matt Gardner, Joel Grus, Mark Neumann, Oyvind Tafjord, Pradeep Dasigi, **Nelson F. Liu**, Matthew Peters, Michael Schmitz, and Luke Zettlemoyer. In *Proceedings of the ACL Workshop for Natural Language Processing Open Source Software* (NLP-OSS 2018). July 2018.
- [3] *Discovering Phonesthemes with Sparse Regularization*.
Nelson F. Liu, Gina-Anne Levow, and Noah A. Smith. In *Proceedings of the NAACL Workshop on Subword and Character Level Models in NLP* (SCLeM 2018). June 2018.
- [4] *ELISA System Description for LoReHLT 2017*.
Leon Cheung, Thamme Gowda, Ulf Hermjakob, **Nelson Liu**, Jonathan May, Alexandra Mayn, Nima Pourdamghani, Michael Pust, Kevin Knight, 32 others (names ordered alphabetically and by affiliation). In *Proceedings of the NIST LoReHLT 2017 Workshop*. September 2017.
- [5] *Crowdsourcing Multiple Choice Science Questions*.
Johannes Welbl, **Nelson F. Liu**, and Matt Gardner. In *Proceedings of the EMNLP Workshop on Noisy User-generated Text* (WNUT 2017). September 2017.

UNPUBLISHED MANUSCRIPTS

- [6] *Augmenting Statistical Machine Translation with Subword Translation of Out-of-Vocabulary Words*.
Nelson F. Liu, Jonathan May, Michael Pust and Kevin Knight. arXiv:1808.05700. August 2018.

RESEARCH EXPERIENCE

University of Washington Computer Science and Engineering Seattle, Washington
Noah's ARK Group Undergraduate Researcher **September 2015 - present**

- Analyzing and interpreting recurrent neural networks for natural language applications [1].
- Developed methods for automatically discovering non-arbitrary form-meaning associations in language (phonesthemes) [3].
- Advisor: Professor Noah A. Smith

Allen Institute for Artificial Intelligence (AI2) Seattle, Washington
Research Intern (Part-Time) **September 2018 - present**
Research Intern **June - September 2018**

Analyzing and interpreting deep contextualized word representations to discover what linguistic knowledge they capture.

- Advisors: Dr. Matt Gardner and Professor Noah A. Smith

USC Information Sciences Institute Marina del Rey, California
Natural Language Group Research Intern **June 2017 - September 2017**

Worked on language-independent translation and alignment of rare and out-of-vocabulary words, particularly with neural sequence to sequence models [4, 6].

- Advisors: Professor Kevin Knight and Professor Jonathan May

Allen Institute for Artificial Intelligence (AI2) Seattle, Washington
Research Intern **January - March 2017**

Worked on deep learning for science exam question answering as part of Project Aristo. Experimented with transfer learning across domains for reading comprehension [2, 5].

- Advisor: Dr. Matt Gardner

FELLOWSHIPS, AWARDS & HONORS	<p>Washington Research Foundation Fellowship, 2018 Best Paper Award, ACL 2018 Workshop on Representation Learning for NLP (RepL4NLP 2018) [1] Barry M. Goldwater Scholarship, 2018 Phi Beta Kappa, 2017 Washington Research Foundation Fellowship, 2017 UW HPCC Cloud Credit Grant Award, 2017 Mary Gates Research Scholarship, 2016 SciPy Scholarship, 2016</p>
TEACHING EXPERIENCE	<p>University of Washington CSE Direct Admit Seminar <i>Teaching Assistant</i> September - December 2018 Organizing and leading a seminar for first-year computer science students interested in getting involved in undergraduate research and pursuing research-based careers.</p> <p>Natural Language Processing Capstone (CSE 481N) <i>Teaching Assistant</i> March - June 2018 Advised teams of senior undergraduates and masters students on the design and implementation of original NLP projects. <ul style="list-style-type: none"> • Instructor: Professor Yejin Choi </p> <p>Natural Language Processing (CSE 447 / CSE M 547) <i>Teaching Assistant</i> January - March 2018 Assisted with course planning and development, led a weekly discussion section, and held weekly office hours. Developed and administered a new PyTorch-based SQuAD reading comprehension project assignment. <ul style="list-style-type: none"> • Instructor: Professor Yejin Choi </p>
PROFESSIONAL EXPERIENCE	<p>scikit-learn <i>Google Summer of Code Developer</i> May - August 2016 Contributed to the popular Python machine learning library scikit-learn. Implementing various enhancements to decision tree module, most notably adding a adding new impurity splitting criterion and tree pre-pruning.</p>
LEADERSHIP	<p>Machines Who Learn <i>President</i> 2016 - Present <i>Officer</i> 2015 - 2016 <ul style="list-style-type: none"> • Organizing and leading a machine learning and data science student organization at the University of Washington. • Organizing a reading group for students interested in discussing recent and seminal papers in AI (mostly NLP, vision, and robotics). </p> <p>University of Washington Undergraduate Research Leader 2017 - Present <ul style="list-style-type: none"> • Helping undergraduates get involved in undergraduate research, and encouraging them to do so. • Leading workshops, speaking to classes, participating in panels, and designing outreach events to help current and prospective students learn more about undergraduate research. </p>
PROFESSIONAL SERVICE	<p>Reviewing: ACL 2018 (Secondary), EMNLP 2018 (Secondary), EMNLP 2018 Workshop on Analyzing and Interpreting Neural Networks for NLP</p>
SELECTED PERSONAL / OPEN SOURCE PROJECTS	<p>AllenNLP <i>Contributor</i> (2.5K+ Github stars) A software library with abstractions for NLP research, written on top of PyTorch. Also see [2].</p> <p>scikit-learn <i>Contributor</i> (27k+ Github stars) Popular machine learning toolkit for Python. I contribute Python and Cython patches to the project, answer questions on the project mailing list and issue tracker, and review contributions from other developers.</p>