

Nelson F. Liu

- RESEARCH INTERESTS Natural Language Processing, Machine Learning, Statistical Inference, Deep Learning
- EDUCATION **University of Washington**, Seattle, Washington
B.S., Computer Science, B.S., Statistics, B.A., Linguistics. Cumulative GPA: 3.84
Expected graduation date: June 2019
- PUBLICATIONS Matt Gardner, Joel Grus, Mark Neumann, Oyvind Tafjord, Pradeep Dasigi, **Nelson Liu**, Matthew Peters, Michael Schmitz, Luke Zettlemoyer. “AllenNLP: A Deep Semantic Natural Language Processing Platform”. Preprint, September 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). “ELISA System Description for LoReHLT 2017”. *Proceedings of the NIST LoReHLT 2017 Workshop*, September 2017.
- Johannes Welbl, **Nelson F. Liu**, Matt Gardner. “Crowdsourcing Multiple Choice Science Questions”. *Proceedings of the EMNLP Workshop on Noisy User-generated Text (WNUT 2017)*, Copenhagen, Denmark, September 2017.
- RESEARCH EXPERIENCE **University of Washington Computer Science and Engineering** Seattle, Washington
Noah’s ARK Group Undergraduate Researcher **September 2015 - present**
Working on various natural language processing and machine learning research problems.
- Advisor: 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.
- 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 methods for reading comprehension as part of Project Aristo.
- Awarded an “AI3 award” for outstanding contributions to deep_qa, research productivity, and more.
 - Mentor: Dr. Matt Gardner
- University of Washington eScience Institute** Seattle, Washington
Undergraduate Researcher **September - December 2016**
Contributed to pomegranate, a library for probabilistic programming and probabilistic graphical modelling in Python.
- Mentor: Jacob Schreiber
- University of Washington Computer Science and Engineering** Seattle, Washington
Networks Lab Undergraduate Researcher **June - August 2015**
Worked on wireless backscatter of ambient signals for powering embedded devices.
- Advisor: Professor Shyam Gollakota
- Massachusetts Institute of Technology CSAIL** Cambridge, Massachusetts
Research Intern **June 2013 - September 2014**
Worked on the START natural language question answering system and its relational knowledge database backend, Omnibase.
- Advisor: Professor Boris Katz

TEACHING EXPERIENCE	<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.</p> <ul style="list-style-type: none"> • Instructor: Professor Yejin Choi
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>
SELECTED PERSONAL / OPEN SOURCE PROJECTS	<p>paraphrase-id-tensorflow <i>Creator</i> (150+ Github stars) March 2017 - Present Implemented three paraphrase identification models from the literature in TensorFlow. Adhered to TensorFlow best practices, and the codebase is extensively documented with thorough unit tests (98% coverage + CI).</p> <ul style="list-style-type: none"> • Baseline Manhattan BiLSTM (Mueller et. al 2016) • Siamese BiLSTM with Matching Layer (Liu et. al 2016) • State of the Art Bilateral Multi-Perspective Matching model (Wang et. al 2017) <p>deep_qa <i>Contributor</i> (200+ Github stars) January 2017 - Present A software library for deep learning for NLP written on top of Keras and Tensorflow. Focused on enabling a workflow for quickly experimenting with and developing models for question answering and reading comprehension tasks.</p> <p>scikit-learn <i>Contributor</i> (21.6k+ Github stars) November 2015 - Present 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>
HONORS AND AWARDS	<p>Phi Beta Kappa, 2017 Washington Research Foundation Fellowship, 2017 UW HPCC Cloud Credit Grant Award, 2017 Mary Gates Research Scholarship, 2016 SciPy Scholarship, 2016 Best Use of Microsoft Technology / Best Use of Data, DubHacks 2015 Winner, Hack The Dot Seattle 2015 Finalist, AngelHack Seattle 2015 Winner, Lockheed Martin Code Quest Sunnyvale 2015 Winner, Dave Wittry Memorial Programming Competition 2015 Winner, California State University Los Angeles ProgFest 2015 Winner, Improving MIT Award, MIT BitComp 2014</p>
LEADERSHIP	<p>Machines Who Learn <i>President</i> 2016 - Present <i>Officer</i> 2015 - 2016</p> <ul style="list-style-type: none"> • Organizing and leading a machine learning and data science student organization at the University of Washington. • Giving weekly talks about various topics of interest to club members of all skill levels. Previous topics include subjects like sequence-to-sequence recurrent neural networks and the Python language and its tools for data science. • Helping other students gain real-world experience with data science projects by collaboratively working on machine learning competitions and other data science/machine learning-related projects. <p>University of Washington Undergraduate Research Leader 2017 - Present</p> <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.
TECHNICAL SKILLS	<ul style="list-style-type: none"> • Languages / Tools: Python, Cython, Java, git, Unix shell scripts