

## Nelson F. Liu

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- 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  
Relevant Coursework: CSE490U (Natural Language Processing), CSE590 (Graduate Artificial Intelligence Seminar), LING461 (Syntax), LING461 (Phonetics), MATH308 (Matrix Algebra)
- PUBLICATIONS 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 - present**  
Working on language-independent translation and alignment of rare and out-of-vocabulary words, particularly with 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 to power various embedded devices with the use of batteries.
  - 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
- PROFESSIONAL EXPERIENCE **scikit-learn**  
*Google Summer of Code Developer* **May - August 2016**  
Contributed to the popular Python machine learning library scikit-learn (18k+ Github stars) by implementing various enhancements to decision tree module (adding new impurity splitting criterion and tree pre-pruning).

SELECTED PERSONAL / OPEN SOURCE PROJECTS	<p><b>paraphrase-id-tensorflow</b>  <i>Creator</i> (100+ Github stars) <span style="float: right;"><b>March 2017 - Present</b></span></p> <p>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"> <li>• Baseline Manhattan BiLSTM (Mueller et. al 2016)</li> <li>• Siamese BiLSTM with Matching Layer (Liu et. al 2016)</li> <li>• State of the Art Bilateral Multi-Perspective Matching model (Wang et. al 2017)</li> </ul> <p><b>deep_qa</b>  <i>Contributor</i> (100+ Github stars) <span style="float: right;"><b>January 2017 - Present</b></span></p> <p>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><b>scikit-learn</b>  <i>Contributor</i> (18.6k+ Github stars) <span style="float: right;"><b>November 2015 - Present</b></span></p> <p>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>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><b>Machines Who Learn</b></p> <p><i>President</i> <span style="float: right;"><b>2016 - Present</b></span>  <i>Officer</i> <span style="float: right;"><b>2015 - 2016</b></span></p> <ul style="list-style-type: none"> <li>• Organizing and leading a machine learning and data science student organization at the University of Washington.</li> <li>• 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.</li> <li>• 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.</li> </ul>
TECHNICAL SKILLS	<ul style="list-style-type: none"> <li>• Languages / Tools: Python, Cython, Java, git, Unix shell scripts</li> </ul>