

KATHERINE A. KEITH

kkeith@cs.umass.edu

EDUCATION

University of Massachusetts Amherst 2016–Present
M.S. / Ph.D. in Computer Science (in progress) *Amherst, MA*
GPA 3.96/4.0

Lewis & Clark College 2011–2015
B.A. in Mathematics with departmental honors, summa cum laude *Portland, OR*
Minor: Chinese
GPA 3.95/4.0

RESEARCH EXPERIENCE

Graduate Research Assistant September 2016–Present
University of Massachusetts, Amherst *Amherst, MA*

- Natural language processing, machine learning, and computational social science research
- Advisor: Dr. Brendan O'Connor

Undergraduate Research Assistant May 2014–August 2014
Lewis & Clark College *Portland, OR*

- Developed an agent-based simulation of intergenerational wealth transfer in medieval England
- Funding: Andrew W. Mellon Collaborative Student-Faculty Research Grant
- Advisor: Dr. Clifford Bekar

PEER-REVIEWED CONFERENCE PUBLICATIONS

Uncertainty-aware generative models for inferring document class prevalence. **Katherine A. Keith** and Brendan O'Connor. In *Proceedings of Empirical Methods in Natural Language Processing (EMNLP)*. 2018.

Monte Carlo Syntax Marginals for Exploring and Using Dependency Parses. **Katherine A. Keith**, Su Lin Blodgett, and Brendan O'Connor. In *Proceedings of North American Chapter of the Association for Computational Linguistics (NAACL)*. 2018.

Identifying civilians killed by police with distantly supervised entity-event extraction. **Katherine A. Keith**, Abram Handler, Michael Pinkham, Cara Magliozzi, Joshua McDuffie, and Brendan O'Connor. In *Proceedings of Empirical Methods in Natural Language Processing (EMNLP)*. 2017.

INDUSTRY EXPERIENCE

Research Intern May–August 2018
CTO Data Science Team, Bloomberg L.P. *New York, New York*

- Mentor: Dr. Amanda Stent
- Correlated stock market signals with text of earnings call transcripts

TEACHING EXPERIENCE

Instructor, First-year seminar

Fall 2019

University of Massachusetts Amherst

- Co-designed curriculum on “Ethical Issues Surrounding Artificial Intelligence Systems and Big Data” <https://github.com/sblodgett/ai-ethics>
- Led two weekly discussion sections comprising of 19 students each

Graduate Teaching Assistant**CS685: Advanced Natural Language Processing**

Spring 2018

University of Massachusetts Amherst

- Assisted students with course material and homework during weekly office hours
- Graded literature review assignment and in-class presentations
- Helped to design homeworks

Fulbright English Teaching Assistant

August 2015–June 2016

*U.S. Department of State**Kinmen, Taiwan*

- Taught first through sixth grade ESL courses in a public elementary school
- Facilitated multi-cultural dialogue and programming

Mathematics Tutor

January 2012–May 2015

*Lewis & Clark College**Portland, OR*

- Tutored Calculus I, Calculus II, and Linear Algebra for private one-on-one and group sessions
- Tutored in the Symbolic and Quantitative Resource Center (SQRC)

OTHER PROJECTS

- “Fairkit-learn: A multi-objective optimization approach to fairness in machine learning classifiers.” *Advanced Software Engineering: Analysis and Evaluation* final class project (Spring 2018)
- “Class-conditional language modeling with LSTMs.” *Machine Learning* final class project (Fall 2017)
- “Linguistically Motivated LSTM Architectures for Relation Extraction.” *Neural Networks* final class project (Fall 2017)
- “Temporal, Embedding-Based Soft Deduplication of Police Killing Events.” *Database Design & Implementation* final class project (Spring 2017)
- “Probabilistic Modeling of Trending Words on Twitter.” *Statistical Machine Learning* final class project (Fall 2016)
- “Machine Learning Classification of Job Loss Twitter Messages.” *Introduction to Natural Language Processing* final class project (Fall 2016)
- “Extending the Pontryagin Maximum Principle of Optimal Control Theory for Inequality Constraints and Discounting.” *Lewis & Clark College Mathematics Department Senior Honors Thesis* (Spring 2015)
- “An Agent-Based Simulation of Intergenerational Mobility Amongst the English Medieval Peasantry.” *Andrew W. Mellon Student-Faculty Research Project* (Summer 2014)

SELECTED COURSES

Advanced Algorithms (in progress), Machine Learning, Neural Networks, Probabilistic Graphical Models, Advanced Software Engineering: Analysis and Evaluation, Database Design & Implementation, Introduction to Natural Language Processing, Advanced Probability & Statistics, Real Analysis, Abstract Algebra, Game Theory, Numerical Analysis, Differential Equations, Linear Algebra

SERVICE & OUTREACH

- Organizer, CICS Male Ally Workshop Series** 2017–2018
University of Massachusetts Amherst
<https://github.com/mrlucasch/cics-male-allyship-workshops>
- Student Volunteer, Girls Inc. Eureka! Summer Workshop** August 1 & 3, 2017
University of Massachusetts Amherst
- Mentor, Research Experience for Undergraduates (REU)** Summer 2017
University of Massachusetts Amherst, College of Information and Computer Science
- Social Co-Chair, Computer Science Women's Group** January 2017–Present
University of Massachusetts Amherst Computer Science Women's Group
- Student Volunteer, Women in Engineering and Computing Career Day** October 24, 2016
University of Massachusetts Amherst

TECHNICAL STRENGTHS

Python (scipy, scikit-learn, numpy, pandas), Pytorch

FOREIGN LANGUAGES

Chinese (Mandarin)

HSK Level 4 (tested April 16, 2016)

CET Beijing: 16-week language-intensive immersion program (Spring 2014)

AWARDS & HONORS

- Computing Research Association of Women (CRAW) Graduate Cohort (2017, 2018)
- Empirical Methods in Natural Language Processing (EMNLP) Student Travel Scholarship (2017)
- Paul Utgoff Memorial Graduate Scholarship in Machine Learning (2016)
- Fulbright ETA Grantee with the U.S. Department of State (2015–16)
- Rhodes Scholarship Finalist (2015)
- Marshall Scholarship Finalist (2015)
- Rena Ratte Award, Lewis & Clark College (2015)
- Robert B. Pamplin Jr. Society Fellow, Lewis & Clark College (2012–2015)
- Dean's List, Lewis & Clark College (2011–2015)
- Project Pengyou National Leadership Fellow (2014)
- Phi Beta Kappa Member (2014–2015)
- Pi Mu Epsilon Member (2014–2015)
- Barbara Hirschi Neely Four-Year Full-Tuition Scholarship Recipient, Lewis & Clark College (2011–2015)
- NCAA Division III Cross-Country All-Academic (2012)
- Lewis & Clark Cross-Country Four-Year Varsity Letter Winner (2011–2015)