

Kevin Stowe | PhD.

Adelungstraße 34 – 64283, Darmstadt – DE

☎ +1 517 648 8953 • ✉ kevincstowe@gmail.com
🌐 kevincstowe.github.io

Introduction

I am currently employed as a Research Scientist in Natural Language Processing (NLP) at Educational Testing Services (ETS). I work with the Automated Content Generation team in language generation. My research interests are thus in two very different but sometimes overlapping areas: (1) the wide variety of novel, interesting language that people produce and machines struggle with, and (2) how to ethically and intelligently apply NLP technology to address real-world problems.

Work Experience

Current.....

- **Research Scientist at ETS**

Automated Content Generation team Working in an agile environment to produce content for our educational applications. We employ deep-learning based language generation to quickly and effectively generate samples used for testing language learner's abilities and providing them with new content for learning.

Previous.....

- **Postdoc, Ubiquitous Knowledge Processing (UKP) Lab**
Technical University of Darmstadt, Darmstadt, Germany

adv: Prof. Dr. Iryna Gurevych

https://www.informatik.tu-darmstadt.de/ukp/ukp_home

- Creative Natural Language Generation**

Working on a variety of approaches to generating creative language. We're experimenting with deep learning methods for language generation, and attempting to add functionality to allow them to produce metaphors, humor, and other challenging types of language. This work involves colleagues at TU Darmstadt, as well as thesis students and external collaborators, and explores a wide breadth of challenges, including manipulating state-of-the-art architectures, collecting appropriate data, and devising evaluation metrics that can handle creative outputs.

- Text Analytics for Social Good**

Working with a wide variety of researchers from around Germany, I'm involved with a variety of initiatives to use our expertise in NLP to assist with social good projects, ranging from issues of social unrest to public health. This work involves extensive data collection and annotation, and our aim is to incorporate citizen science initiatives to alleviate the workload. This collaboration involves computer scientists working on advanced models for data analysis and social scientists providing theory- and task-based guidance.

- o **Research Associate, CLEAR Lab**
University of Colorado, Boulder, United States
adv: Martha Palmer & Jim Martin

Doctoral Dissertation: Computational Approaches to Metaphor and Syntax

My doctoral dissertation for the University of Colorado is focused on using syntactic features coupled with deep learning to improve automatic metaphor detection. Drawing from evidence that metaphoric meaning can often be derived via syntactic features like argument structure, I've employed information from syntactic parses and lexical resources to improve deep learning models. Through a variety of strategies including improving training data and embeddings models, I've improved the performance of state-of-the-art models on multiple metaphor detection tasks. I hope to continue to work on balancing linguistic analysis and deep learning to continue to improve state-of-the-art methods for figurative language.

Computational Language and Education Research Lab (CLEAR)

adv: Martha Palmer

<https://www.colorado.edu/lab/clear/>

I work with Professor Martha Palmer on a variety of computational lexical resources, including VerbNet and PropBank. My responsibilities include ensuring compatability with outside resources, implementation of new infrastructure, developing interface tools for other researchers, and improving the accuracy, consistency, and coverage of the resources. Our current work involves linking VerbNet with the Generative Lexicon and improving consistency among semantic predicates, and improving automatic classification with better annotation.

Communicating Hazard Information in the Modern Environment (CHIME)

adv: Leysia Palen

I also worked with the Empowering the Public with Information in Crisis (EPIC) lab at the University of Colorado along with the National Center for Atmospheric Research (NCAR). This project aimed to identify relevant information from social media during natural disasters in order to assist first responders, government agencies, and affected populations. We developed improved machine learning classification for tweet relevance, as well building classification based on language and location for predicting evacuation behavior.

Publications

Primary Author.....

- o Stowe, Kevin*; Ghosh, Debanjan*; Zhao, Mengxuan. Controlled Generation for Language Learning Items. Industry track at the 2022 Conference on Empirical Methods for Natural Language Processing (EMNLP). 2023. Abu Dhabi/Online. (* equal contribution)
- o Stowe, Kevin; Utama, Prasetya Ajie; Gurevych, Iryna. IMPLI: Exploring Language Models' Performance on Figurative Language. [60th Annual Meeting of the Association for Computational Linguistics \(ACL\)](#). 2022. Online.
- o Stowe, Kevin; Beck, Nils; Gurevych, Iryna. [Exploring Metaphoric Paraphrase Generation](#). *25th Annual Conference for Computational Language Learning (CoNLL)*, pg. 323-336. 2021. Online.

- o Stowe, Kevin; Chakrabarty, Tuhin; Muresan, Smaranda; Peng, Nanyung; Gurevych, Iryna. [Metaphor Generation with Conceptual Mappings](#). *59th Annual Meeting of the Association for Computational Linguistics (ACL)*, pg.. 6724-6736. 2021. Online.
- o Stowe, Kevin; Preciado, Jenette; Conger, Kathryn; Brown, Susan; Kazeminejad, Ghazaleh; Gung, James; Palmer, Martha. [Semlink 2.0: Chasing Lexical Resources](#). *14th International Conference on Computational Semantics (ICWS)*, pg.. 222-227. 2021. Online.
- o Stowe, Kevin; Moeller, Sarah; Michaelis, Laura; Palmer, Martha. [Linguistic Analysis Improves Neural Metaphor Detection](#). *23rd Annual Conference for Computational Language Learning (CoNLL)*, pg. 362-371. 2019. New Orleans, Louisiana, US.
- o Stowe, Kevin; Palmer, Martha; Anderson, Jennings; Kogan, Marina; Palen, Leysia; Anderson, Kenneth M.; Morss, Rebecca; Demuth, Julie; Lazrus, Heather. [Developing and Evaluating Annotation Procedures for Twitter Data during Hazard Events](#). in *Proceedings of the Joint Workshop on Linguistic Annotation, Multiword Expressions and Constructions (LAW-MWE-CxG-2018)*, pg. 133-143. 2018. Santa Fe, New Mexico, US.
- o Stowe, Kevin; Anderson, Jennings; Palmer, Martha; Palen, Leysia; Anderson, Kenneth M. [Improving Classification of Twitter Behavior During Hurricane Events](#). in *Proceedings of the Workshop on Natural Language Processing for Social Media (SocialNLP)*, pg. 67-75. 2018. Melbourne, Australia
- o Stowe, Kevin; Palmer, Martha. [Leveraging Syntactic Constructions for Metaphor Identification and Interpretation](#). in *Proceedings of the Workshop on Figurative Language Processing*, pg. 17-26. 2018. New Orleans, Louisiana, US
- o Stowe, Kevin; Paul, Michael J.; Palmer, Martha; Palen, Leysia; Anderson, Kenneth M. [Identifying and Categorizing Disaster-Related Tweets](#), in *Proceedings of the International Workshop on Natural Language Processing for Social Media*, pg. 1-6. 2016. Austin, Texas, US

Contributing Author.....

- o Scheunemann, Christoph et al., [Data Collection and Annotation Pipeline for Social Good Projects](#). In *Proceedings of the AAAI Fall 2020 AI For Social Good Symposium*. 2020. Online.
- o Morss, Rebecca et al., [Understanding Weather Forecast Communication, Interpretation, and Use through Analysis of Twitter Data](#). In *29th Conference on Weather Analysis and Forecasting*. 2018. Denver, Colorado, US.
- o Demuth, Julie L. et al., ["sometimes da #beachlife ain't always da wave": Understanding People's Evolving Hurricane Risk Communication, Risk Assessments, and Responses Using Twitter Narratives](#), In *Weather, Climate, and Society*. 2018.
- o Palmer, Martha et al, The Pitfalls of Shortcuts: Tales from the word sense tagging trenches. in *Essays in Lexical Semantics and Computational Lexicography - In Honor of Adam Kilgariff*.

M. Diab, A. Villavicencio, M. Apidianaki, V. Kordoni, A. Korhonen, P. Nakov, M. Stevenson (editors). Springer series Text, Speech and Language Technology. Springer, 2018.

- o Morss, Rebecca et al, [Hazardous Weather Predication and Communication in the Modern Information](#). in *Bulletin of the American Meteorological Society*, vol. 98, pg. 2652-2674. 2016.
- o Anderson, Jennings et al; [Far Far Away in Far Rockaway: Responses to Risks and Impacts during Hurricane Sandy through First-Person Social Media Narratives](#), in *Proceedings of ISCRAM*, Rio de Janeiro, Brazil, 2016.
- o Bonial, Claire; Stowe, Kevin; Palmer, Martha. [Renewing and Revising SemLink](#), in *The GenLex Workshop on Linked Data in Linguistics*, pg. 9-17, 2013. Pisa, Italy

Dissertation.....

- o Stowe, Kevin. [Syntactic and Semantic Improvements to Computational Metaphor Processing](#). Advisors Martha Palmer and Jim Martin. University of Colorado. 2019.

Community

Reviewing.....

- o ACL Rolling Review, Nov 2021-Present
- o Reviewer, Artificial Intelligence Review
- o Program Committee, EMNLP 2022
- o Program Committee, *SEM 2022
- o Program Committee Member, Figurative Language Workshop, 2022
- o Assistant Senior Area Chair (Iryna Gurevych), Area COI Track, Association for Computational Linguistics (ACL), 2021
- o Assistant Area Chair (Iryna Gurevych), Sentiment Analysis, Style and Argumentation, Empirical Methods in Natural Language Processing (EMNLP), 2020
- o Assistant Area Chair (Iryna Gurevych), Sentiment Analysis, Style and Argumentation, Association for Computational Linguistics (ACL), 2020
- o Program Committee Member, Conference on Computational Natural Language Learning (CoNLL), 2017, Vancouver, Canada
- o Program Committee Member, Corpus Linguistics Fest, 2016, Bloomington, Indiana

Students.....

- o Kea Busemann, BS, Evaluating Metaphor Generation
- o Elena Leidinger, MS, Exploring Creative Dialogue Agents
- o Nils Beck, BS, Controlled Metaphor Generation
- o Ruslan Sandler, BS, Natural Language Generation for Humor
- o Tobias Blei, BS, Style Transfer for Creative Text Generation

Other.....

- o Primary Organizer, Online UKP Retreat, 2020
- o Project Manager, Data Analytics Software Project (DASP), TU Darmstadt Summer Semester 2020

- o Sponsor, Computer Science Senior Project, Computational Language and Education Research Website Development, 2019
- o Student Volunteer, North American Association of Computational Linguistics (NAACL) 2015, Denver, Colorado
- o Computer science tutor for Linguistic students, particularly in the aim of improving basic programming skills. Primarily in Python and C++, with other support as required.

Education

- o **University of Colorado, Boulder** **Boulder, Colorado**
PhD, Advisors: Martha Palmer, Jim Martin *2013–2019*
 Joint degree in Linguistics and Computer Science through the Institute of Cognitive Science (ICS).

Main CS Coursework Natural Language Processing Fundamentals of Programming Languages Machine Learning User-Centered Design Computation for Research	Main Ling Coursework Computational Lexical Semantics Construction Grammar Computational Phonology Semantics and Pragmatics Phonology, Morphology, Syntax
---	--
- o **Indiana University** **Bloomington, Indiana**
MA, Linguistics *2009–2011*
 Coursework in corpus linguistics, computational approaches to syntax, discrete mathematics and natural language processing.
- o **Michigan State University** **East Lansing, Michigan**
BA, Linguistics *2004–2009*
 Coursework included core linguistics, advanced semantics and pragmatics, and German and Russian languages.

Technical skills

- o **Natural Language Processing** Extensive experience with machine learning and NLP toolkits, including HuggingFace, SciKit-Learn, ClearNLP, Stanford Core NLP, Gensim, PyTorch and Keras. Familiar with a variety of NLP tasks, including sentiment analysis, natural language generation, classification and regression with transformers, and more.
- o **Linguistics** Traditional background in phonetics, phonology, morphology, syntax, and semantics. My primary interests are in lexical semantics, pragmatics, formal logic, and metaphor interpretation.
- o **Programming** Proficient in Python and Java, with some experience in C++, Ruby, R, PHP, and SQL. Web development experience with HTML, CSS, Javascript and PHP.
- o **Management** I've managed a variety of annotation projects, including behavioral annotation of Twitter data and word sense annotation, using Excel as well as custom in-house tools. I co-lead a special interest group within our lab, as well as mentoring junior lab members and supervising BS. and MS. student theses.
- o **Professional** My research prioritizes diversity, working with a wide variety of computer scientists, social scientists, and non-academics to accomplish research goals. I'm proficient in research and

grant writing, including copy-editing in English. I'm effective at managing time and resources, and developing and executing short- and long-term research plans.

Previous Employment

- **FindMyAudience (<https://findmyaudience.wordpress.com/>)** **Boulder, Colorado**
NLP Consultant Summer 2015
I worked for FindMyAudience, a technology startup, to identify possible audiences for authors and publishing companies. Together we developed methods for identifying book similarities and consumer interests from social media and other sources using deep learning and latent semantics models.
- **Avaya Labs** **Westminster, Colorado**
NLP Researcher Summer 2013
As a research intern, I did analysis of social media data (Twitter and Facebook) using machine learning algorithms, particularly unsupervised clustering, to determine trends in user interactions with various company partners. I identified differences in positive and negative reactions based on sentiment analysis using topic modelling on social media, allowing for better interaction between companies and their customers.
- **Jackson National Life** **Okemos, Michigan**
Software Developer 2011-2012
I started as a software trainee and advanced to software developer. I studied Java and SQL to improve software and workflows for company employees.