

KATHERINE ATWELL

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katherine-atwell.github.io

RESEARCH INTERESTS

Natural language processing; discourse analysis; computational social science

EDUCATION

Ph.D., Computer Science, Expected 2025 - Northeastern University

B.S., Mathematics, 2020 - University of Maryland, Baltimore County

B.S., Computer Science, 2020 - University of Maryland, Baltimore County

PUBLICATIONS

Meng Ye, Karan Sikka, Katherine Atwell, Sabit Hassan, Ajay Divakaran and Malihe Alikhani. 2023. Multilingual Content Moderation: A Case Study on Reddit. arXiv preprint arXiv:2302.09618.

Venkata Govindarajan, Katherine Atwell, Barea Sinno, Malihe Alikhani, David Beaver, Junyi Jessy Li. 2022. Dimensions of Interpersonal Dynamics in Text: Group Membership and Fine-grained Interpersonal Emotion. arXiv preprint arXiv:2209.06687.

Katherine Atwell*, Sabit Hassan*, and Malihe Alikhani. 2022. APPDIA: A Discourse-aware Transformer-based Style Transfer Model for Offensive Social Media Conversations. In *Proceedings of the 29th International Conference on Computational Linguistics*, pages 6063–6074, Gyeongju, Republic of Korea. International Committee on Computational Linguistics.

Katherine Atwell, Remi Choi, Junyi Jessy Li, and Malihe Alikhani. 2022. The Role of Context and Uncertainty in Shallow Discourse Parsing. In *Proceedings of the 29th International Conference on Computational Linguistics*, pages 797–811, Gyeongju, Republic of Korea. International Committee on Computational Linguistics.

Anthony Sicilia, Katherine Atwell, Malihe Alikhani, and Seong Jae Hwang. 2022. PAC-Bayesian Domain Adaptation Bounds for Multiclass Learners. In *Proceedings of the Thirty-Eighth Conference on Uncertainty in Artificial Intelligence*, pages 1824–1834, Eindhoven, The Netherlands. Association for Uncertainty in Artificial Intelligence.

Barea Sinno*, Bernardo Oviedo*, Katherine Atwell*, Malihe Alikhani, and Junyi Jessy Li. 2022. Political Ideology and Polarization: A Multi-dimensional Approach. In *Proceedings of the 2022 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*, pages 231–243, Seattle, United States. Association for Computational Linguistics.

Katherine Atwell*, Anthony Sicilia*, Seong Jae Hwang, and Malihe Alikhani. 2022. The Change that Matters in Discourse Parsing: Estimating the Impact of Domain Shift on Parser Error. In *Findings of the Association for Computational Linguistics: ACL 2022*, pages 824–845, Dublin, Ireland. Association for Computational Linguistics.

Katherine Atwell, Junyi Jessy Li, & Malihe Alikhani. 2021. Where Are We in Discourse Relation Recognition?. In *Proceedings of the 22nd Annual Meeting of the Special Interest Group on Discourse and Dialogue*, 314–325. Singapore. Association for Computational Linguistics.

Andrina Helgersen, Jamiahus Walton, Celia Loya, Christopher Kawell, Katherine Atwell, Quinn Monaghan, Lakshay Ahuja, Hesham Hassan, Stephen Gilbert, & Anuj Sharma. 2018. Developing an Optimized UI for Traffic Incident Managers. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 292–296. Philadelphia, Pennsylvania, United States. Human Factors and Ergonomics Society.

(* denotes equal contribution)

PRESENTATIONS

Katherine Atwell, Remi Choi, Junyi Jessy Li, and Malihe Alikhani. 2022. The Role of Context and Uncertainty in Shallow Discourse Parsing. Poster presented at: the 29th International Conference on Computational Linguistics. Gyeongju, Republic of Korea.

Katherine Atwell*, Sabit Hassan*, and Malihe Alikhani. 2022. APPDIA: A Discourse-aware Transformer-based Style Transfer Model for Offensive Social Media Conversations [Conference Presentation]. The 29th International Conference on Computational Linguistics. Gyeongju, Republic of Korea.

Katherine Atwell, Michael Datz, Max Goplerud, Tessa Provins, and Malihe Alikhani. How Do Politicians Collaborate? Poster presented at: Text as Data Conference 2022. New York, New York, United States.

Barea Sinno*, Bernardo Oviedo*, Katherine Atwell*, Malihe Alikhani, and Junyi Jessy Li. 2022. Political Ideology and Polarization of Policy Positions: A Multi-dimensional Approach. Poster presented at: the 2022 Annual Conference of the North American Chapter of the Association for Computational Linguistics. Seattle, Washington, United States

Katherine Atwell and Malihe Alikhani. Are discourse models really humanlike? Assessing the factors that impact human annotation quality and model performance for implicit discourse relation recognition. Poster presented at: 2022 CRA Grad Cohort for Women. New Orleans, Louisiana, United States

Katherine Atwell and Malihe Alikhani. Polarization: A Multi-Dimensional Approach. Poster presented at: Eradicate Hate Global Summit, October 2021. Pittsburgh, Pennsylvania, United States.

Katherine Atwell, Junyi Jessy Li., Malihe Alikhani. 2021. Where are we in discourse relation recognition? [Conference presentation]. The 22nd Meeting of the Special Interest Group on Discourse and Dialogue. Singapore.

INVITED TALKS

Coreference, *University of Pittsburgh*

APPDIA: A Discourse-aware Transformer-based Style Transfer Model for Offensive Social Media Conversations, *The University of Texas at Austin*

RESEARCH EXPERIENCE

University of Pittsburgh - *Graduate Researcher*

Fall 2020 - Present

- Currently conducting natural language processing research under Dr. Alikhani, where I have worked on projects related to discourse analysis, political polarization, domain adaptation, style transfer, AI moderation, and multimodal coherence
- Projects I'm currently working on include:
 - Building an annotated dataset that measures linguistic inter-group bias in the context of political parties (i.e. affective polarization)
 - Use discourse structure graphs for difference discourse frameworks, along with topological graphs, for text generation
 - Studying the role of context in implicit discourse relation recognition
 - Studying ideological polarization within the sphere of Twitter
 - Building a discourse-aware style transfer model for offensive text

Iowa State University, Summer Program for Interdisciplinary Research and Education –

Emerging Interface Technologies (SPIRE-EIT) Research Experience for Undergraduates (REU) -
Research Intern

Summer 2017

- Took courses in **C++**, **Unity**, **Maya**, **Solidworks**, and 3-D printing
- Followed rapid prototyping principles and used **Axure RP 8** and Microsoft Powerpoint to design, mock, and showcase a user interface for a program which will eventually replace traffic incident managers' software packages at the Iowa Department of Transportation

PROFESSIONAL EXPERIENCE

Google, Inc., Mountain View, CA - *Software Engineering Intern*

Summer 2019

- Calculated several statistics, including mean, median, standard deviation, and Spearman's Rank correlation, and plotted them on different charts using **Javascript** and the **Google Charts** API
- Displayed info about summary statistics on the UI for the user to view, and gave the user the option to display these statistics
- Authored a design doc for this tool and a future backend request for these calculations

Google, Inc., Mountain View, CA - *Engineering Practicum Intern* Summer 2018

- Built a web application with the UI and frontend for an internal tool for the YouTube team which showcases the differences between two different internal processors
- Authored a design doc and created mock-ups for the UI, wrote code for the web pages, integrated randomly-generated data into the chart, used internal tools to bring application up on a server and to continuously run the file that generated data. Used this data to populate the chart
- Developed this tool with **Python**, using the **Flask microframework** to build and deploy the application, and programmed the UI with **HTML**, **CSS**, and **Javascript**, creating the chart with the **Dygraphs** charting library

TEACHING EXPERIENCE

School of Computing and Information, University of Pittsburgh - *Mentor* Spring 2021 - Fall 2022

- Mentored five undergraduate students as part of various projects, and have worked with them one-on-one to answer questions and explain the goals of our projects, as well as checking in weekly to make sure they are doing well
- Two of my students have co-authored papers currently under review, and one is applying to graduate programs due to his positive experiences in our lab

School of Computing and Information, University of Pittsburgh - *Teaching Assistant* Spring 2021

- Created assignments, held office hours, and graded exams for Professor Alikhani's AI for Good: Ethics and Impact class

College of Engineering and IT, UMBC - *Teaching Assistant* Spring 2019

- Held office hours, proctored exams, and graded assignments for Computer Science II

College of Natural and Mathematical Sciences, UMBC - *Teaching Assistant* Fall 2018

- Led discussions and graded assignments for Professor Bonny Tighe's Calculus I class

Learning Resources Center, UMBC - *Tutor* September 2017 - Spring 2019

- Tutored students in Precalculus, Calculus I-III, Physics I, Discrete Structures, Statistics

HONORS

Alexa Prize TaskBot Challenge Finalist Spring 2023-Present

Best Paper Award, UAI 2022 Summer 2022

CRA-W Scholarship for Early Career Workshop and the Graduate Cohort Spring 2022

Grace Hopper Travel Scholarship Recipient, UMBC and Univ. of Pittsburgh Fall 2018, Fall 2020

Meyerhoff Scholar, UMBC
Honors College, UMBC

August 2016 – Present
August 2016 – Present

PROFESSIONAL SERVICE

Association for Uncertainty in Artificial Intelligence - Reviewer	Spring 2023
ACM FAccT Conference - Reviewer	Spring 2023
Conference on Empirical Methods in Natural Language Processing - Reviewer	Summer 2022
Journal of Educational Data Mining - Reviewer	Summer 2022
Workshop on Computational Approaches to Discourse - Program Committee	Summer 2022
International Conference on Natural Language Generation (INLG) - Reviewer	Summer 2021
Special Interest Group on Discourse and Dialogue - Program Committee	Summer 2022
Association for Computational Linguistics (ACL) - Reviewer	Spring 2022
Association for the Advancement of Artificial Intelligence (AAAI), Special Track on AI for Social Impact - Reviewer	Fall 2021