

# Bowen Yi

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## Research Interests

Human-Centered NLP/ML, NLP for mental and physical well-being, Behavioral Data Science, Computational Social Science.

## Education

Aug. 2025 Present	University of Southern California PhD in Computer Science   GPA: - Advisor: <a href="#">Shrikanth Narayanan</a>	Los Angeles, CA
Jan. 2023 May. 2025	University of Michigan - Ann Arbor B.S. in Computer Science   GPA: 3.79/4.0	Ann Arbor, MI
Sep. 2021 Dec. 2022	University of California - San Diego B.S. in Mathematics-Computer Science, Minor in Sociology   GPA: 3.83/4.0	La Jolla, CA

## Publications

S=In Submission, C=Conference, W=Working Paper

- [C.1] **Examining Spanish Counseling with MIDAS: a Motivational Interviewing Dataset in Spanish** [🔗]  
Aylin Gunal\*, [Bowen Yi](#)\*, John Piette, Rada Mihalcea, Veronica Perez-Rosas gens (\* = Equal Contribution)  
*Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics* [NAACL 2025]
- [C.2] **Causally Modeling the Linguistic and Social Factors that Predict Email Response** [🔗]  
Yinuo Xu\*, ..., [Bowen Yi](#)\*, ..., David Jurgens (\* = Equal Contribution with Random Order)  
*Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics* [NAACL 2025]
- [C.3] **The Generation Gap: Exploring Age Bias Underlying in the Value Systems of Large Language Models** [🔗]  
Siyang Liu and Trish Maturi and [Bowen Yi](#) and Siqi Shen and Rada Mihalcea  
*Conference on Empirical Methods in Natural Language Processing, Miami, USA* [EMNLP 2024]
- [S.1] **NLP for Social Good: A Survey of Challenges, Opportunities and Responsible Deployment** [🔗]  
Antonia Karamolegkou, ..., [Bowen Yi](#), ..., Daryna Dementieva  
[Under review at EMNLP 2025]
- [S.2] **Real or Robotic? Assessing Whether LLMs Accurately Simulate Qualities of Human Responses in Dialogue** [🔗]  
Jonathan Ivey\*, ..., [Bowen Yi](#)\*, ..., David Jurgens (\* = Equal Contribution with Random Order)  
[Under review at EMNLP 2025]
- [W.1] **Unveiling Behavioral Differences in Bilingual Information Operations: A Network-Based Approach** [🔗]  
[Bowen Yi](#)  
[Preprint on arXiv]
- [W.2] **Uncovering the Impact of Intervention Messages on Diverse Population Groups**  
[Bowen Yi](#), Rada Mihalcea, Fang Yu, Elena Frank, Joan Zhao, Srijan Sen, Maggie Makar

## Research Experience

### Behavioral Data Science

**Causal Effect of Intervention Messages on Medical Interns' Well-being** [W.2] Feb. 2024 - Present

Advisors: [Maggie Makar](#), [Rada Mihalcea](#)

- > Collaborate with [Srijan Sen's Lab](#) at Michigan Psychiatry to analyze 4 years of intervention message data and behavioral data from **wearable devices** for 6,000+ medical interns, including metrics such as mood, steps, and sleep.
- > Measure CATE and isolated causal effects of intervention message categories on patient subgroups, utilizing tools like EconML and scikit-learn.
- > Develop interpretable language representations for 939 intervention messages to enable valid causal inference, based on 14 expert-encoded psychotherapy categories and lexicons like LIWC.
- > Design robust subgroup-discovery methods that accommodate data perturbations and time-varying interventions, employing DoubleML and Random Forest to identify patient subgroups with significant treatment responses, demonstrating improved stability compared to baseline methods.

## Human-Centered NLP

### Simulating Culturally-Aligned Mental Health Counseling

Sep. 2024 - Present

Advisor: [Rada Mihalcea](#)

- › Simulate counselor-patient conversations in mental health from Hispanic culture using LLMs, leveraging **visual** information (interpreted using multimodal LLMs like video-ChatGPT), **speech** features (such as tone and pitch), and **text** data from the dataset in [C.1].
- › Align LLMs with doctor and patient behaviors in Spanish culture by exploring strategies such as prompt engineering, fine-tuning, **reinforcement learning**, and **multi-agent frameworks**.
- › Develop a human-LLM collaborative framework to evaluate cultural sensitivity, behavioral alignment, and counseling quality of the simulated counselor, following criteria like [ENACT](#) while reducing reliance on existing professional knowledge-based benchmarks.

### Assessing Alignment of LLM Simulated Human Responses [S.1]

July. 2024 - Sep. 2024

Advisors: [David Jurgens](#)

- › Evaluated alignment of LLM simulations with human interactions on 100,000 English, Chinese, and Russian dialogues from [the WildChat dataset](#).
- › Co-designed an evaluation framework with metrics to assess lexical, stylistic, and semantic alignment between simulated human dialogues and real human-LLM multilingual interactions.
- › Found a low alignment across all three languages among nine tested models even when prompted in the target language, particularly in lower-resource settings like Russian.

### Inspecting Age Bias in the Value Systems of LLMs [C.3]

April. 2024 - Jun. 2024

Advisors: [Rada Mihalcea](#)

- › Analyzed the alignment of social, economic, and other 11 categories of world values across six age groups in 62 countries on 6 leading LLMs, leveraging data from the [World Values Survey](#).
- › Responsible for evaluating the age bias in [the Mistral model](#) and studying the impact of age identity prompts on value misalignment.
- › Findings suggested a general inclination of LLM values towards younger demographics, especially when tested on the US population.

## Computational Social Science

### Examining Enhanced Behavioral Counseling in Spanish [C.1]

Apr. 2024 - Present

Advisors: [Verónica Pérez-Rosas](#), [Rada Mihalcea](#)

- › Collaborate with [John Piette](#) to introduce the first Spanish Motivational Interviewing dataset from 74 public videos, annotated by experts on counseling strategies.
- › Analyzed culture-driven behavioral and psycholinguistic differences between the Spanish and English therapists, such as the word-exchange ratio, language style matching, language usage (LIWC), and sentiment.
- › Designed [P-Tuning experiments](#) on multilingual and monolingual LLMs to predict counselor behaviors such as reflections and questions.
- › Investigating the impact of visual captioning in counseling videos on model performance for classifying therapist strategies and generating personalized feedback.

### Climate Change and Socio-Political Stability in Sub-Saharan Africa [C]

May. 2024 - Jan. 2025

Advisor: [Verónica Pérez-Rosas](#)

- › Collaborate with social scientists from [Arun Agrawal's](#) lab to examine causal relationships between climate or demographic changes and sociopolitical stability as reflected in scientific literature.
- › Develop data infrastructure, analytical models, and an automated pipeline to collect and process over 20,000 relevant scientific articles, leveraging tools like Grobid, Selenium, and BeautifulSoup.

### Uncovering the Impact of George Floyd Incident on Podcast Ecosystem [Report, Dataset]

Aug. 2023 - Jun. 2024

Advisors: [David Jurgens](#), [Dallas Card](#)

- › Modeled the topical trends (using Mallet), [political bias](#), and conversation dynamics in 600,000+ transcribed podcast episodes published from May to June 2020.
- › Investigated the impact of George Floyd's death on podcasts across 79 themes, identifying named entities mentioned with George Floyd that reflect themes of social justice and police violence.
- › Fine-tuned and calibrated language models (e.g., RoBERTa, MiniLM) to classify news content and sentiment in podcasts, with plans to incorporate **audio** features such as pitch into classifiers for better performance.

## Modeling Conversational Dynamics in Email Exchanges [C.2]

Mar. 2023 - Jun. 2024

Advisor: [David Jurgens](#)

- › Analyzed 11.3M emails from [the GMANE corpus](#), identifying and measuring key conversational dynamics and social-linguistic factors of email exchanges including intimacy, formality, and cogency.
- › Created a dataset of 1,800 emails annotated for intents, expectations, and 14 pragmatic features; benchmarked models including logistic regression and zero-shot LLMs.
- › Conducted causal analysis revealing that social status, argumentation quality, and social connection influence response rates, with social status being the most significant.

## Academic Service

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Reviewer EMNLP 2025

## Industry Experience

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### Software Engineering Intern | Boardx.us

Jun. 2023 - Aug. 2023

Mentor: Mr. Feng Zhang

- › Contributed to designing collaborative/interactive digital whiteboards with a focus on improving user experience and managing company data on Microsoft Azure.
- › Assisted in integrating AI chatbots to inspire creativity in user design and writing.
- › Introduced accessibility features, including color-blind-friendly design, to make the product more inclusive.

## Presentations

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### “Examining Spanish Counseling with MIDAS”

- › [NAACL Main Conference 2025](#) [Poster] | [Recording]
- › [MSLD 2025](#) [Poster]

May. 2025 (Albuquerque, NM)  
Apr. 2025 (Notre Dame, IN)

### “Causally Modeling the Linguistic and Social Factors that Predict Email Response”

- › [NAACL Main Conference 2025](#) [Poster]

May. 2025 (Albuquerque, NM)

### “NLP for Enhanced Behavioral Counseling in Spanish”

- › BoF Session on Large Multimodal Models for Biomedical Research, EMNLP 2024
- › [Michigan AI Symposium, Embodied AI](#) [Poster]
- › [e-HAIL Symposium, Generative AI in Healthcare](#) [Poster]

Nov. 2024 (Miami, FL)  
Oct. 2024 (Ann Arbor, MI)  
Sep. 2024 (Ann Arbor, MI)

### “Can LLMs Simulate Human Subject Studies?”

- › NLP Reading Group, Michigan AI Lab [Slides] | [Note]

Sep. 2024 (Ann Arbor, MI)

### “Podcast Study: Uncovering News in Non-News Space”

- › David Jurgens Lab Meeting, UMSI [Slides]

Feb. 2024 (Ann Arbor, MI)

### “Tutorial: Topic Modeling with Mallet”

- › David Jurgens Lab Meeting, UMSI [Slides]

Nov. 2023 (Ann Arbor, MI)

## Honours and Awards

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Viterbi School of Engineering Fellowship, 2025 - 2026 | [University of Southern California](#) [📍] \$44,290 per year.

Departmental Fellowship, 2025 | [University of Utah](#) [📍] Declined to join USC.

Excellence Fellowship, 2025 - 2028 | [Stony Brook University](#) [📍] \$10,000 for 3 Years. Declined to join USC.

James B. Angell Scholar, 2025 | [University of Michigan](#) [📍] For 2 consecutive terms of all A's.

University Honors, 2023 - 2025 | [University of Michigan](#) [📍] For achieving a GPA above 3.5 in every full-time term.

IEEE-Eta Kappa Nu, 2022 & 2024 | [UC San Diego](#) & [University of Michigan](#) [📍] Invited membership for ranking in the top 25% of the junior class and top 33% of the senior class

Provost Honors, 2021 - 2022 | [UC San Diego](#) [📍] For achieving a GPA above 3.5 in every full-time term.

## Teaching and Leadership

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- Grader, EECS 486 Information Retrieval @ UMich

Jan. 2025 - Present

> Grade and provide detailed feedback on the coding assignments, exam, and final project for 100+ students.
- NLP Reading Group, University of Michigan

Co-Organizer [🌐]

Sep. 2024 - Present

> Organize and host weekly paper presentations by designing event setups and providing speaker tutorials.

> Communicate NLP research to attendees from CS and non-CS fields (such as Medicine and Psychology) and undergraduates with limited experience, building an inclusive community of 180 active members.
- Volunteer Mentor for College Applications

Oct. 2021 - Mar. 2023

> Supported about 10 financially challenged domestic and international students through their first-year or transfer college applications.

> Provided constructive feedback on essay brainstorming, standardized test preparation, major and college choice, etc.

Skills

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DL/ML Programming	PyTorch, TensorFlow, PyTorch-Transformers, Scikit-Learn
Programming Languages	Python, C/C++, Java, HTML/CSS
Natural Languages	Hunanese (native), Mandarin (native), English (fluent), Cantonese (conversational), Greek (learning), Serbian (learning)