Pranav Goel

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ACADEMIC APPOINTMENTS AND AFFILIATIONS

Postdoctoral Research Associate   Sep 2023 -
Network Science Institute, College of Social Sciences and Humanities
> Northeastern University
> Advisor: Prof. David Lazer

Affiliated Researcher   Sep 2023 -
NULab for Digital Humanities and Computational Social Science
> Northeastern University

EDUCATION

Ph.D., Computer Science   2018 - 2023
University of Maryland, College Park, USA
> Dissertation: Analyzing communicative choices to understand their motivations, context-based variation, and social consequences
> Advisor: Philip Resnik

Masters, Computer Science   2018 - 2020
University of Maryland, College Park, USA
> GPA: 4.0/4.0

(Computational Linguistics, Deep Learning, Seminar in Computational Social Science, Information Retrieval, Advanced Numerical Optimization, Theoretical Machine Learning: Guarantees & Analyses, Advanced Computer Vision: Visual Learning & Recognition, AI for Social Good: Applied Mechanisms Design)

B.Tech., Computer Science & Engineering (with Honors in AI)   2014 - 2018
Indian Institute of Technology (BHU) Varanasi, India
> GPA: 9.34/10.0

RESEARCH AND PROFESSIONAL EXPERIENCE

Visiting Research Scholar: Lazer Lab, Northeastern University   June 2021 - Aug 2023
Project: Mainstream News Sharing in Online Misinformation Networks
> Supervisor: Prof. David Lazer

Summer Research Fellow: National Institute of Science & Technology (NIST)   June-Sep 2022
Project: An Interactive Document Annotation Tool using Technical Language Processing for Measurement Science, working with the NIST Community Resilience Program
> Supervisor: Prof. Jordan Boyd-Graber & Dr. Juan Fung

Research Intern: NLP Group, Microsoft Research, Redmond   June 2020 - Aug 2020
Project: Money Talks? Associations between Donor Activity and Congressional Floor Speech
> Supervisor: Dr. Nebojsa Jojic

Research Intern: NLP Group, Microsoft Research, Redmond   June 2019 - Aug 2019
Project: Different Language Generation Mechanisms for Chatbots - What are the Differences?
> Supervisor: Dr. Nebojsa Jojic

Research Intern: Articulab, Carnegie Mellon University   May 2017 - July 2017
Project: Conversational Strategy Classification for a Virtual Assistant and Detecting Indirectness
> Supervisors: Prof. Yoichi Matsuyama and Prof. Justine Cassell

Research Intern: CFILT Lab, Indian Institute of Technology Bombay   May 2016 - July 2016
Project: Sarcasm Target Identification
> Supervisors: Dr. Aditya Joshi and Prof. Pushpak Bhattacharyya

Software Engineering Intern: Ephesoft, India   Dec 2016 - Jan 2017
Project: Comparing Content Analysis Approaches (with the Data Science team)

PEER-REVIEWED PUBLICATIONS

1. Kai-Cheng Yang, **Pranav Goel**, Alexi Quintana-Mathe, Luke Horgan, Stefan McCabe, Nir Grinberg, Kenneth Joseph, David Lazer. "DomainDemo: a dataset of domain-sharing activities among different demographic groups on Twitter." *Nature Sci Data* 12, 1251 (2025). `doi.org/10.1038/s41597-025-05604-6`

2. **Pranav Goel**, Jon Green, David Lazer, and Philip Resnik. "Using co-sharing to identify use of mainstream news for promoting potentially misleading narratives." *Nature Human Behaviour* (2025). `doi.org/10.1038/s41562-025-02223-4`

3. Zongxia Li, Andrew Mao, Daniel Stephens, **Pranav Goel**, Emily Walpole, Alden Dima, Juan Fung, Jordan Boyd-Graber. "Improving the TENOR of Labeling: Re-evaluating Topic Models for Content Analysis." Proceedings of the 18th Conference of the European Chapter of the Association for Computational Linguistics (EACL): Main Volume. 2024.

4. Stefan McCabe, Jon Green, **Pranav Goel**, and David Lazer. "Inequalities in Online Representation: Who Follows Their Own Member of Congress on Twitter?" Journal of Quantitative Description: Digital Media 3. 2023. *Information Technology and Politics (ITP) Best Paper Award 2023 by the American Political Science Association (APSA).*

5. Alexander Hoyle, Rupak Sarkar, **Pranav Goel**, and Philip Resnik. "Natural Language Decompositions of Implicit Content Enable Better Text Representations." Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP). 2023.

6. **Pranav Goel**, Nikolay Malkin*, SoRelle W. Gaynor*, Kristina Miler, Nebojsa Jojic, Philip Resnik. "Donor Activity is Associated with US Legislators Attention to Political Issues." PLoS ONE 18(9): e0291169. https://doi.org/10.1371/journal.pone.0291169. 2023.

7. **Pranav Goel**, David Lazer, Philip Resnik. "Mainstream News Articles Co-Shared with Fake News Buttress Misinformation Narratives." International AAAI Conference on Web and Social Media (ICWSM) 2023. (Non-archival track). *Outstanding Study Design Award.*

8. Alexander Hoyle, **Pranav Goel**, Rupak Sarkar, and Philip Resnik. "Are Neural Topic Models Broken?" Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP) (Findings). 2022.

9. **Pranav Goel***, Alexander Hoyle*, Denis Peskov*, Andrew Hian-Cheong*, Jordan Boyd-Graber, and Philip Resnik. "Is Automated Topic Model Evaluation Broken?: The Incoherence of Coherence." Advances in Neural Information Processing Systems (2021). *Spotlight Presentation at NeurIPS 2021*

10. Nikolay Malkin, Sameera Lanka, **Pranav Goel**, and Nebojsa Jojic. "Studying word order through iterative shuffling." Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP). 2021.

11. Nikolay Malkin, Sameera Lanka, **Pranav Goel**, Sudha Rao, and Nebojsa Jojic. "GPT Perdetry Test: Generating new meanings for new words" In Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL). 2021.

12. **Pranav Goel***, Alexander Hoyle*, and Philip Resnik. "Improving Neural Topic Models Using Knowledge Distillation." Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP). 2020.

13. **Pranav Goel**, Shi Feng, and Jordan Boyd-Graber. "How Pre-trained Word Representations Capture Commonsense Physical Comparisons". Proceedings of the 1st Workshop on Commonsense Inference in Natural Language Processing at EMNLP 2019.

14. **Pranav Goel***, Devang Kulshreshtha*, and Anil Kumar Singh. "How emotional are you? Neural Architectures for Emotion Intensity Prediction in Microblogs". Proceedings of the 27th International Conference on Computational Linguistics (COLING) 2018.

15. **Pranav Goel**, Yoichi Matsuyama, Michael Madaio, and Justine Cassell. "I think it might help if we multiply, and not add": Detecting Indirectness in Conversation. Proceedings of the International Workshop Series on Spoken Dialogue Systems Technology (IWSDS) 2018. (Also published as a Chapter in the Book: 9th International Workshop on Spoken Dialogue System Technology pp 27-40, Lecture Notes in Electrical Engineering, vol 579. Springer, Singapore.)

16. Aditya Joshi, **Pranav Goel**, Pushpak Bhattacharyya, and Mark J. Carman. "Sarcasm Target Identification: Dataset and An Introductory Approach." LREC 2018-11th edition of the Language Resources and Evaluation Conference 2018.

17. **Pranav Goel***, Devang Kulshreshtha*, Prayas Jain and K.K. Shukla. "Prayas at emoint 2017: An ensemble of deep neural architectures for emotion intensity prediction in tweets." Proceedings of the 8th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis at EMNLP 2017. (Shared Task Winner!)

18. **Pranav Goel** and Anil Kumar Singh. "IIT (BHU): System Description for LSDSem'17 Shared Task." Proceedings of the 2nd Workshop on Linking Models of Lexical, Sentential and Discourse-level Semantics at EACL 2017.

* joint first author

Accepted for Publication:

- SoRelle W. Gaynor, Kristina Miler, **Pranav Goel**, Alexander M. Hoyle, and Philip Resnik. "Express Yourself (Ideologically): Legislators' Ideal Points Across Audiences." *Journal of Politics.*

- Alyssa Hasegawa Smith, Sagar Kumar, Yukun Yang, and **Pranav Goel**. "Locating the Asymmetry in Information Flow between Local and National Media on Transgender Discourses." *Special Issue of Bulletin of Applied Transgender Studies on 'Dynamics of Transphobic Content and Disinformation.'*

- Hauke Licht, Rupak Sarkar, Patrick Y. Wu, **Pranav Goel**, Niklas Stoehr, Elliott Ash, and Alexander Hoyle. "Measuring Scalar Constructs in Social Science with LLMs." Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP). [arXiv]

SERVICE & TEACHING

Reviewing, Organizing, & Chairing

- PolNet-PaCSS 2025 (Tutorial Co-Organizer: "Beyond APIs: Collecting Web Data for Research using the National Internet Observatory")

- IC2S2 2025 (Reviewer).

- ACM Web Science Conference 2025 (Tutorial Co-Organizer: "Beyond APIs: Collecting Web Data for Research using the National Internet Observatory")

- ICWSM 2025 (Co-Chair for the Datasets, Posters, and Demo Track).

- *PNAS Nexus* (Reviewer).

- IC2S2 2024 (Tutorial Co-Organizer: "New Approaches and Data Sources to Study Digital Media and Democracy").

- IC2S2 2024 (Reviewer).

- NLP + CSS workshop at NAACL 2024 (Reviewer).

- ACM FAccT 2024 (Program Committee).

- NeurIPS 2023 (Reviewer).

- ACL 2023 (Program Committee).

- EMNLP 2022 (Reviewer Committee: Computational Social Science & Cultural Analytics track).

- ACL Rolling Review (ARR) 2022 (Reviewer).

- EMNLP 2021 (Reviewer for Computational Social Science and Cultural Analytics track, as well as Information Retrieval and Text Mining track).

- CLPsych 2021 workshop at NAACL 2021 (Reviewer).

- ACL 2021 (Reviewer for the Computational Social Science and Cultural Analytics track).

Mentoring

- PhD students at the Lazer Lab, Network Science Institute, Northeastern University: Hong Qu, Ata Uslu, Burak Ozturan, Alyssa Smith, Allison Wan, Cassidy Waldrip, Hsiu-Chi Lu.

- PhD students as part of the Cross-Disciplinary Mentoring Initiative at the Network Science Institute, Northeastern University: Abby Leung, Tamanna I. Urmi.

- As part of the NAACL 2024 Student Research Workshop: Milo Knell, undergrad student at Harvey Mudd College.

- Samuel Du, undergraduate student at the University of Virginia, RA for joint project with SoRelle W. Gaynor (Assistant Professor of Public Policy and Politics at the University of Virginia).

Teaching

- Graduate Teaching Assistant, *Discrete Mathematics*, Dept of Computer Science, University of Maryland (Fall 2018, Fall 2019, Spring 2020).

- Graduate Teaching Assistant, *Introduction to Natural Language Processing*, Dept of Computer Science, University of Maryland (Spring 2019).

- Undergraduate Teaching Assistant, *Introduction to Artificial Intelligence*, Dept of Computer Science & Engineering, Indian Institute of Technology (BHU) Varanasi (Spring 2018).

- Undergraduate Teaching Assistant, *Introduction to Programming in C*, Dept of Computer Science & Engineering, Indian Institute of Technology (BHU) Varanasi (Fall 2016).

INVITED TALKS

- "What Text-Based Ideal Points Reveal about Strategic Considerations behind Congressional Behavior across Different Outlets and Issues." Text as Data (TADA) 2021.

- "Locating the Asymmetry in Information Flow between Local and National Media on Transgender Discourses." Local Journalism Researchers Workshop 2024.

- "Revealing the Localness of News Domains through Sharing Patterns on Social Media." Local Journalism Researchers Workshop 2024.

- "Introduction to National Internet Observatory." Data Challenge at ICWSM 2024.

- "Locating the Asymmetry in Information Flow between Local and National Media on Transgender Discourses." International Conference on Computational Social Science (IC2S2) 2024.

- "Revealing the Localness of News Domains through Sharing Patterns on Social Media." International Conference on Computational Social Science (IC2S2) 2024.

- "Introduction to National Internet Observatory." IC2S2 2024 (Tutorial).

- Guest Lecture on "Scraping Web Data for Research and the National Internet Observatory" for the "Data and Text Mining for the Web" course at Wellesley College, Spring 2024 (Instructor: Eni Mustafaraj).

- "Exploring the Interaction of Trust in Science and Vaccine Hesitancy." Trust & Safety Research Conference 2024.

- "Introduction to National Internet Observatory." Trust & Safety Research Conference 2024.

- "Beyond APIs: Collecting Web Data for Research using the National Internet Observatory." WebSci 2025 (Tutorial)

- "Data demo: Introduction to National Internet Observatory (NIO)." 75th Annual Conference of the International Communication Association (ICA 2025).

- "Understanding the Role of Platform Curation and User Agency in Partisan and Unreliable News Consumption." International Conference on Computational Social Science (IC2S2) 2025.

- "Navigating the Evolving Web: Are Large Language Modeling-based Chatbots Gatekeepers or Gateways?" International Conference on Computational Social Science (IC2S2) 2025.

- "Navigating the Evolving Web: Are Large Language Modeling-based Chatbots 'One-Stop Shops' or Gateways?" The 18th Annual Political Networks and Computational Social Science Conference (PolNet-PaCSS) 2025.

- "Beyond APIs: Collecting Web Data for Research using the National Internet Observatory." The 18th Annual Political Networks and Computational Social Science Conference (PolNet-PaCSS) 2025.

GRANTS & AWARDS

Co-authored Grants

- Information Exposure and Information-Seeking Behavior in User Interactions with Large Language Models: Internet & Democracy Initiative (IDI) Seed Grant funding ($2,000 awarded for solo-author proposal to support the project)

- An Annotated Dataset of Local and National U.S. News Articles about Transgender Issues – NetSeed: Seedling Research Award 2024 ($10,000 awarded to support the project)

- Modeling Co-Decisions: A Computational Framework Using Language and Metadata – NSF (Award No. 2008761)

- Advanced Topic Modeling Methods to Analyze Text Responses in COVID-19 Survey Data – NSF (Award No. 2031736)

Awards

- Outstanding Study Design Award at ICWSM 2023

- Information Technology and Politics (ITP) Best Paper Award 2023 by the American Political Science Association (APSA)

- Ann G. Wylie Dissertation Fellowship, University of Maryland, 2023

- Jacob K. Goldhaber Travel Grant, University of Maryland, 2023

- International Conference Student Support Award, University of Maryland, 2023

- Computer Science Department Travel Award, University of Maryland, 2023

- Dean's Fellowship, University of Maryland, 2019-2020.

- Dean's Fellowship, University of Maryland, 2018-2019.

- Selected for the DAAD-WISE scholarship/internship program, 2017.

MEDIA APPEARANCES

- Coverage of my work on "Using co-sharing to identify use of mainstream news for promoting potentially misleading narratives" by Maryland Today: today.umd.edu/study-misinformation-spreaders-reframe-news-from-reputable-sources-to-support-false-claims

- Coverage of my work on local news by the Center for Innovation and Sustainability in Local Media at the University of North Carolina: cislm.org/qa-with-sociopolitical-local-news-researcher-pranav-goel/

- Coverage of my work showing how US political donations are associated with policy issues prioritized in congressional speeches:
    - By Maryland Today: today.umd.edu/umd-researchers-follow-the-money-to-the-house-floor
    - In the Public Library of Science (PLOS) Press Release: eurekalert.org/news-releases/1001377