Agrima Seth

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Education

University of Michigan, School of Information Aug. 2019 – Present
Ph.D. Candidate, Ann Arbor, MI.
Advisor: Kentaro Toyama

University of Pennsylvania, School of Engineering and Applied Science May 2018
Masters in Engineering, Philadelphia, PA GPA: 3.81/4
Major: Computer & Information Science, Advisor: Lyle Ungar

University of Pune May 2016
Bachelor of Engineering, Pune, India GPA: 79/100
Major: Information Technology

WORK EXPERIENCE

Research Intern, Microsoft Research May - Dec 2023
Bengaluru, India

- Created a novel nuanced data set annotated for gender bias using the best-worst scale.
- Analyzed the dataset using qualitative and quantitative methods to identify key themes in the biased content. Paper published at **EMNLP 2023**
- Designed a community-centered participatory research method to create a dataset of social artifacts and benchmarked LLMs for cultural familiarity. Paper in submission to **LREC-Coling 2024.**

Research Intern, Snap Inc. May - Dec 2022
Los Angeles, CA

- Modeled users across geographies to analyze the impact of cultural values on user behavior using social network and multi-level modeling.
- Reasoned the differences in friendship networks across geographies using theories from cross-cultural psychology. Published results in ***CHI 2023.***

Machine Learning Engineer, Morgan Stanley Aug 2018 –July 2019
New York, NY

- Developed an automatic signature verification system in collaboration with the client office to detect forgeries
- Implemented CNNs, YOLO, Siamese network for signature recognition and verification and deployed the best-performing model

Machine Learning Intern, CERN June – Aug 2017
European Organization for Nuclear Research (CERN), Geneva, Switzerland

- Collaborated with the Compact Muon Solenoid EP-CMG team & studied data patterns in drift tubes using normalization in Python.
- Developed autoencoder using Keras & Tensorflow to automate quality assessment by detector experts, facilitating checking of large volumes of data in real-time, improving the ability to detect unexpected anomalies.
- Served on the core machine learning research team. **Awarded 2nd prize** among 37 intern projects during Openlab Lightning talk at CERN. Published in ***Computing and Software for Big Science, Springer Publications, 2018.***

SELECT PUBLICATIONS

- [Hada, R., **Seth, A.**]∗, Diddee, H., & Bali, K. (2023). "Fifty Shades of Bias": Normative Ratings of Gender Bias in GPT Generated English Text. arXiv preprint arXiv:2310.17428.
  ∗ authors contributed equally
- [Jurgens, D., **Seth, A.**]∗, Sargent, J., Aghighi, A., & Geraci, M. (2023, July). Your spouse needs professional help: Determining the Contextual Appropriateness of Messages through Modeling Social Relationships. In The 61st Annual Meeting Of The Association For Computational Linguistics
  ∗ authors contributed equally

- **Seth, A.,** Cao, J., Shi, X., Dotsch, R., Liu, Y., & Bos, M. W. (2023, April). Cultural Differences in Friendship Network Behaviors: A Snapchat Case Study. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (pp. 1-14).
- [**Seth, A.,** De, S.]∗, Arya, A., Wilkinson, S., Singh, S., & Pal, J. (2022, June). Closed Ranks: The Discursive Value of Military Support for Indian Politicians on Social Media. In Proceedings of the 2022 International Conference on Information and Communication Technologies and Development (pp. 1-11).
  ∗ authors contributed equally
- Pol, A. A., Cerminara, G., Germain, C., Pierini, M., & **Seth, A.** (2019). Detector monitoring with artificial neural networks at the CMS experiment at the CERN Large Hadron Collider. Computing and Software for Big Science, 3(1), 1-13.
- **Seth A.,** Nayak S., Mothe J. and Jadhay S. (2017). News Dissemination on Twitter and Conventional News Channels In Proceedings of the 19th International Conference on Enterprise Information Systems - Volume 1: ICEIS, ISBN 978-989-758-247-9, pages 43-52. DOI: 10.5220/0006264100430052.
- **Seth, A.,** & Mishra, D. (2014). Comparative Study of Geometric and Image Based Modelling and Rendering Techniques. arXiv preprint arXiv:1409.5024.

RESEARCH EXPERIENCE

Model Contextual Appropriateness of Messages Dec 2022 - May 2023

Ph.D. student, University of Michigan, Ann Arbor, MI

- Created a dataset of social relationships and appropriate messages.
- Modeled relationships as the social context to assess the appropriateness of a message using prompt-based frameworks.

Cross-lingual modeling of Controversy Mar 2021 – April 2022

Ph.D. student, University of Michigan, Ann Arbor, MI

- Performed a comprehensive review of the literature on the concept of controversy and the existing computational controversy detection models.
- Highlighted how the existing models fail in the multicultural context and proposed computational methods to overcome the challenges

Optimized data collection on Microblogs Jan 2020- Mar 2021

Ph.D. student, University of Michigan, Ann Arbor, MI

- Evaluated topic-relevant data identification, query generation, and query selection methods to collect high-precision and high-recall data from microblogs.
- Designed a framework to benchmark the performance of algorithms across two social movements: BlackLivesMatter and Metoo

Inter-group conflict on social networking sites Aug 2019-Dec 2019

Ph.D. student, University of Michigan, Ann Arbor, MI

- Analyzed four years of Reddit data to study intergroup conflicts on social networking sites.
- Created computational models to study the language norms of different communities.
- Attempted to create computational models to detect the hijacking of conversations of a group by outgroup members.

Studying Depression Using Linguistic Features from Social Media Sources Jan 2017 – May 2018

Master's Thesis - University of Pennsylvania, Philadelphia, PA

- Harnessed the Twitter data and MyPersonality Test's neuroticism data to build a model to predict depression scores; compared them to the clinically validated screening tool: Centre for Epidemiological Studies Depression Scale (CES-D).
- Extracted LIWC, User2Vec, and Topics to identify the lexica of a depressed individual.
- Analyzed the predictive power of different combinations of these features and sources and evaluated the performance of predictive models using ROC-AUC.

Research Intern Dec 2015 – Feb 2016

Institut de Recherche en Informatique de Toulouse, Toulouse, France

- Compared the flow of catastrophic news on Twitter and news channels using Python and performed visualization on Tableau.
- Published paper at ***ICEIS 2017 (Portugal)***. Awarded ***1st position*** in Amalgam at AIT Pune, 2016.

SELECT PROJECTS AND COMPETITIONS

- Worked with SaveScience and TeachAids Foundation to
(a) create an automatic summary for the misinformation checking dashboard
(b) contributed to the COVID-19 Activity Risk Calculator. June 2021 - May 2022
- Worked with PathCheck Foundation (non-profit) on Twitter and Karuna App integration June 2021 - Oct 2021
- Created a text summarization platform that works on top of messaging systems used at CERN. July 2017
- Programmed NLP and ML routines for answering users' queries (summary and important chats), link. July 2017

Teaching

Graduate Student Instructor
University of Michigan, School of Information Ann Arbor, MI

- Information Analysis Capstone I, Undergraduate Course Fall 2021
- Network Analysis, Graduate Course Spring 2021
- Information Analysis Project, Undergraduate Course Winter 2021,2022,2023
- Models of Social Information Processing, Undergraduate Course Fall 2020

SELECT VOLUNTEERING, MENTORING, AND AWARDS

- Honorable Mention (Finalist) for Snapchat Research Fellowship 2022.
- **Student volunteer** at ACL 2023 in Toronto, Canada 2023.
- Doctoral Executive Committee member Summer 2022-Winter 2023
- Student Volunteer at Social Media Influencer Conference. April 2022
- **Mentored** a Master's student and a Ph.D. student. Winter 2020, Fall 2021
- **Managed and led** 3 NLP-based projects at Pathcheck Foundation, India chapter. June 2021 - Aug 2021
- Led Makerspace workshops and was a member of **'Girls Who Code'** at Morgan Stanley. Nov 2018 - July 2019
- **Mentored** a student at the **Learn,IT Girl!** program to create a Music recommendation System.
- Ranked 2nd among 4789 students of Information Technology in all colleges of the University of Pune
- Awarded Tata Merit Scholarship and Academic Merit Scholarships for standing 1st in Information Technology Dept(2012-2016)
- Gold Medal in Academics at Army Institute of Technology, Pune Information Technology Class of 2016.

TECHNICAL PROFICIENCIES

Languages: Python, R, C++, Java, LISP, JavaScript, Java Servlets, PHP, node.js, Matlab, C
Operating Systems: Windows, Unix, Linux
Libraries and Packages: NLTK, scikit-learn, Numpy, Scipy, Pandas, Opengl, OpenCV, XML, JSON, Protobuf, Keras, Tensorflow, PyTorch
Databases & Tools: BigQuery, Git, NoSQL, MySQL, Cassandra, DynamoDb, Weka, Tableau, BigQuery
Web services: AWS
Crowdsourcing: Mechanical Turk, Prolific

Experience with natural language processing, social network analysis, machine learning, feature engineering, data mining, data analysis, data visualization, interdisciplinary collaboration, and project management