SACHITA NISHAL

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RESEARCH INTERESTS

I am interested in studying and designing interactive AI-driven tools for knowledge work. Most recently, I built an end-to-end recommender system to help science journalists uncover and contextualize complex scientific research for news reporting, powered by NLP and machine learning techniques.

Keywords: Human-Computer Interaction, Human-Centered AI, Natural Language Processing, Machine Learning, Explainability, Crowdsourcing, Social Computing

EDUCATION

Northwestern University, Evanston, IL Sep '20 - Present
Ph.D., Computer Science and Communication Studies (Joint Program) *GPA : 3.82 / 4*
Advisor: Dr. Nick Diakopoulos

Birla Institute of Technology and Science (BITS) Pilani, India Aug '16 - Present
Bachelor of Engineering (Honours), Computer Science *GPA : 8.19 / 10*
Thesis Advisor: Dr. Luís Amaral

RESEARCH EXPERIENCE

Computational Journalism Lab, Northwestern University Sep '20 - Present
Graduate Student Researcher (Advisor: Dr. Nick Diakopoulos)

- Designed recommender systems to help science journalists discover and contextualize novel scientific research for news reporting
- Defined and crowdsourced metrics for how "newsworthy" scientific articles are, according to criteria such as controversy, impact, relevance, etc.
- Architected end-to-end machine learning pipelines to ingest, pre-process, and model textual data based on newsworthiness metrics
- Designed and conducted human evaluation study of GPT-3's ability to generate high-quality news headlines from scientific abstracts
- Conducted interview studies with practicing journalists by building an interactive user-interface incorporating above mentioned components - UI demo here!
- Mentored an undergraduate student on evaluating natural language generation tasks
- **Technology Used:** Python, SQL, JavaScript, Streamlit

Microsoft Research, India May '20 - Aug '20
Research Intern (Advisor: Dr. Joyojeet Pal))

- Investigated the Twitter interactions of politicians with popular celebrities to study partisanship and agenda-setting in the Indian electoral context
- Created, validated, and documented datasets of politician and celebrity Twitter activity using human-in-the-loop data pipelines
- Topic-modelled tweets and designed network models of Twitter interactions to quantitatively characterize politician-celebrity relationships
- **Technology Used:** Python, R, SQL

Amaral Lab, Northwestern University July '19 - Dec '19
Research Intern (Advisor: Dr. Luís Amaral)

- Studied the relationship between novelty in American films, as expressed via their use of cinematic tropes, and the critical and commercial success they receive

- Mined, merged, cleaned and documented datasets from different sources and APIs: TV Tropes, Rotten Tomatoes, IMDb and the American National Film Registry
- Modelled bipartite networks and created regression models to qualify relationships between trope co-occurrence, critical reception, and cultural significance
- **Technology Used:** Python, R, Gephi

Indian Institute of Science, Bangalore, India Dec '18 - May '19
Research Intern (Advisor: Dr. Rajiv Kumar Chaturvedi)

- Designed visualisations from time-series datasets and models of climate indicators, for use in the state of Goa's official Climate Change Action Plan
- **Technology Used:** Python

TECHNICAL SKILLS

Research Methods
Machine Learning, Natural Language Processing, Deep Learning, Network Analysis, Interview Studies, Survey Design, Qualitative Content Analysis, Causal Inference
Programming Languages
Python, R, SQL, HTML/CSS, JavaScript, Java
Data Analysis and Machine Learning
Python (NumPy, Pandas, SciPy, scikit-learn, spaCy, HuggingFace Transformers, NLTK), R (dplyr, caret, igraph)
Information Visualization
Python (Matplotlib, seaborn), R (ggplot2), Tableau, Gephi

PUBLICATIONS

Nishal, S. and Diakopoulos, N. 2022. From Crowd Ratings to Predictive Models of Newsworthiness to Support Science Journalism. *Proceedings of the ACM on Human-Computer Interaction, Vol. 6, CSCW2, Article 441.* [**PDF**]

Mothilal, R., Mishra, D., **Nishal, S.**, Lalani, F., and Pal, J. (2022). Voting with the Stars: Analyzing Partisan Engagement between Celebrities and Politicians in India. *Proceedings of the ACM on Human-Computer Interaction, Vol. 6, CSCW1, Article 134.* [**PDF**]

Arya, A. De, S., Mishra, D., Shekhawat, G., Sharma, A., Panda, A., Lalani, F., Singh, P., Mothilal, R., Grover, R., **Nishal, S.**, Dash, S., Rashid, S., Akbar, S., Pal, J., (2022). DISMISS: Database of Indian Social Media Influencers (Snowballed Sequentially) on Twitter. *Proceedings of the International AAAI Conference on Web and Social Media, 16(1).* [**PDF**]

Akbar, S.Z., Sharma, A., Mishra, D., Mothilal, R.K., Negi, H., **Nishal, S.**, Panda, A. and Pal, J. (2022). Devotees on an Astroturf: Media, Politics, and Outrage in the Suicide of a Popular FilmStar. *ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS)* [**PDF**]

NON-ARCHIVAL PUBLICATIONS AND POSTERS

Nishal, S. and Diakopoulos, N. (2022). "Designing Predictive Models of Newsworthiness to Support Science Journalism." Presented at the Lambert Conference on the Future of Human Computer Interaction + Design.

Nishal, S. and Amaral, L. A. N. (2022). "Measuring the Impact of Trope-based Novelty on Cinematic Success" Presented at the International Conference on Computational Social Science (IC2S2).

Nishal, S. and Diakopoulos, N. (2022). "AI-Driven Lead Recommender Systems for Science Journalists." Presented at the Computation+Journalism Symposium.

SERVICE

Reviewer for CHI (2022), CSCW (2022), NordiCHI (2022)
Technology and Social Behavior (TSB) New Student Orientation Panel (2022)
TSB Prospective Student Weekend Volunteer (2021, 2022)
TSB Incoming Student Mentorship Program (2021, 2022)
Editor and Student Mentor for The BITS R&D Blog (2018-2020)

INVITED TALKS

"Submitting and Presenting at Academic Conferences" (NU School of Communication, 2022)
"Exploring the Structure of Trope Co-Occurrence Networks in American Films" (BITS Goa, 2020)
"Pathways to Research for Undergraduate Students" (BITS Goa, 2020)

HONORS AND AWARDS

BITS Pilani's Summer Research Award (2018)

**Text in violet indicates hyperlink*