Aakanksha Naik

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RESEARCH INTERESTS

Transfer Learning, Information Extraction (specifically event extraction and temporal ordering), Natural Language Inference, Coreference Resolution, NLP for Healthcare

EDUCATION

Carnegie Mellon University - School of Computer Science — Pittsburgh, PA
Doctor of Philosophy in Language and Information Technologies, **(PhD)** — May 2022 (expected)
• QPA: 4.0/4.0

Carnegie Mellon University - School of Computer Science — Pittsburgh, PA
Masters in Language Technologies, **(MLT)** — Aug 2018
• QPA: 4.0/4.0

Birla Institute of Technology and Science (BITS) Pilani — Rajasthan, India
Bachelor of Engineering, **BE (Hons.)** in Computer Science — May 2016
• Cumulative GPA: 9.68/10

ACADEMIC HONORS & AWARDS

• National Institutes of Health (NIH) pre-doctoral fellowship recipient, *Starting* September 2020
• Recipient of ISCA Travel Grant to attend SIGDIAL, 2019
• Area Chair Favorite Paper at COLING, 2018
• Recipient of Lee B Lusted Student Prize from Society for Medical Decision Making, 2017
• Recipient of Fellowship in Digital Health from Center for Machine Learning and Health, Carnegie Mellon University, 2017
• Recipient of Viterbi-India Scholarship, 2015
• Recipient of BITS-Pilani Merit Scholarship, 2012-2016
• Recipient of Dhirubhai Ambani Scholarship for academic excellence, 2012-2016

CONFERENCE PUBLICATIONS

• **Naik, Aakanksha**, Carolyn Rose, "Towards Open Domain Event Trigger Identification using Adversarial Domain Adaptation" *To appear at ACL 2020* [pdf]
• Ravichander, Abhilasha*, **Aakanksha Naik***, Carolyn Rose, Eduard Hovy, "EQUATE: A Benchmark Evaluation Platform for Quantitative Reasoning in Natural Language Inference" *CoNLL 2019* [pdf]
• **Naik, Aakanksha**, Luke Breitfeller, Carolyn Rose, "TDDiscourse: A Dataset for Discourse-Level Temporal Ordering of Events" *SIGDIAL 2019* [pdf]
• **Naik, Aakanksha***, Abhilasha Ravichander*, Carolyn Rose, Eduard Hovy, "Exploring Numeracy in Word Embeddings" *ACL 2019* [pdf]
• Yan, Xinru, **Aakanksha Naik**, Yohan Jo, Carolyn Rose, "Using Functional Schemas to Understand Social Media Narratives" *Storytelling Workshop, ACL 2019* [pdf]
• **Naik, Aakanksha***, Abhilasha Ravichander*, Norman Sadeh, Carolyn Rose, and Graham Neubig. "Stress Test Evaluation for Natural Language Inference." *COLING 2018* [pdf] (Area Chair Favorite Paper)
• **Naik, Aakanksha**, Chris Bogart, and Carolyn Rose. "Extracting Personal Medical Events for User Timeline Construction using Minimal Supervision." *BioNLP 2017* (2017): 356-364 [pdf]
• Chandu, Khyathi, **Aakanksha Naik**, Aditya Chandrasekar, Zi Yang, Niloy Gupta, and Eric Nyberg. "Tackling Biomedical Text Summarization: OAQA at BioASQ 5B." *BioNLP 2017* (2017): 58-66 [pdf]

JOURNAL ARTICLES

• Lohmueller, Lisa, **Aakanksha Naik**, Luke Breitfeller, Colleen McIlvennan, Manreet Kanwar, Srinivas Murali, Carolyn Rose, James Antaki. "Factors Affecting Healthcare Engagement by Patients with Severe Heart Failure: An Exploratory Analysis." *Medical Decision Making Policy & Practice*

PUBLISHED ABSTRACTS

• **Naik, Aakanksha R.**, Lisa C. Lohmueller, Carolyn P. Rose, and James F. Antaki. "Improving Decision Support Tools for LVAD Recipients via Computational Analyses of Online Support Group Discussions." *Journal of Cardiac Failure* 23, no. 8 (2017): S107-S108 [pdf]
• **Naik, Aakanksha R.**, Lisa C. Lohmueller, Carolyn P. Rose, and James F. Antaki. "A Computational Analyses of Online Support Group Discussions: Identifying Coping Strategies in LVAD Patients", *Society for Medical Decision Making* (Awarded Lee B. Lusted Student Prize)

(* indicates equal contribution)

PROFESSIONAL SERVICE

• Academic Inclusivity Co-chair, Diversity and Inclusion Committee — ACL 2020
• Mentorship Co-chair — ACL 2019
• Member, Academic Inclusivity Group, Diversity and Inclusion Committee — NAACL 2019
• Reviewer — ACL, EMNLP, COLING, LOUHI, SRW (2020), NAACL (2019)
• Abstract reviewer — WiNLP (2019-20), LTI-SRS (2018-19), SMDM, ESMDM, NASSLLI (2018)

TEACHING

• Teaching Assistant, Machine Learning for Structured Data (Masters-level) — Fall 2019
• Teaching Assistant, Introduction to Machine Learning (Masters-level) — Fall 2018

ONGOING RESEARCH

Open-Domain Event Extraction Aug 2019 - present

Advisor: Prof. Carolyn Rose

- **Aim:** Developing an event extractor which can be used across multiple domains with few or no training examples.
- Developed an unsupervised domain-general event extractor using adversarial domain adaptation, which showed encouraging results on news and literary texts. This system reached 44-49 F1 scores with no training data.
- Currently focusing on improving event extraction on texts from expert domains. Developed two test datasets in the clinical domain by annotating events in EHR records and doctor-patient conversations. Working on improving the unsupervised extractor by exploring the application of cross-lingual embedding alignment techniques to bridge the vocabulary gap.

INTERNSHIPS

Facebook, Menlo Park, CA May 2019 – Aug 2019

Research Intern, **Assistant Reasoning Team**, **Mentor: Pararth Shah**

- **Project:** Leveraging pretrained models for zero-shot learning in task-oriented dialog state tracking
- Worked on making task-oriented dialog state tracking systems more domain-independent. Used pretrained language models such as BERT and reframed the state tracking problem as extractive reading comprehension to build a system which can adapt to unseen domains without any training data, enabling zero-shot learning.

Indian Institute of Science (IISc), Bangalore India Dec 2015 – May 2016

Undergraduate Thesis Student, **Machine and Language Learning (MALL) Lab**, **Advisor: Prof. Partha Talukdar**

- **Project:** Speeding up Coreference Resolution
- Explored the problem of speeding up systems for entity coreference resolution. Developed a meta algorithm for this problem which was able to achieve 4x speedup with 1-2% loss in accuracy.
- Participated in the Allen AI Science Challenge as a member of the lab. Developed an information retrieval-based model for answering eighth grade science questions.

Institute for Creative Technologies, Playa Vista, CA May 2015 – Jul 2015

Visiting Undergraduate Researcher, **Advisor: Prof. Anton Leuski**

- **Project:** Exploring Query Expansion Techniques to improve Language Understanding for Virtual Humans
- Implemented a positional query expansion model and studied the effect of using this model within the NPCEditor framework

RELEVANT COURSES

Deep Learning, Neural Networks for NLP, Probabilistic Graphical Models, Machine Learning (PhD-level), Algorithms for NLP, Meaning in Language Lab, Computational Semantics for NLP, Question Answering, Dialog Systems Lab, Computational Models for Discourse Analysis, Information Retrieval

CO-CURRICULAR ACTIVITIES

- Interested in painting and sketching. Check out some of my art!
- Volunteered for Nirmaan, a student-run not-for-profit organization at BITS-Pilani for three years. Tutored underprivileged primary school kids in mathematics and science.
- Received first prize for a paper titled ”Fairy Tales: Happy Endings or Hidden Meanings?” in the category ”Psychology” during APOGEE 2015, the technical festival of BITS-Pilani
- Studied Hindi and Sanskrit literature. Reached “Parichay” level in national exams conducted by the Rashtrabhasha Hindi Parishad and “Madhyama” level in exams conducted by the “Bruhad Gujarati Sanskrit Parishad” (with “First class” in all levels)