TANMAY PAREKH

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EDUCATION

University of California Los Angeles (UCLA)
Doctor of Philosophy in Computer Science
2021-Ongoing 4.0/4.0

Carnegie Mellon University (CMU)
Master of Science in Language Technologies
2019-2021 4.02/4.0

Indian Institute of Technology Bombay (IITB)
B. Tech with Honors in Computer Science & Engineering
2014-2018 9.37/10

RESEARCH PROJECTS

DOMAIN-AWARE DATA GENERATION FOR ZERO-SHOT INFORMATION EXTRACTION (ONGOING)
- Utilizing LLMs to generate data for information extraction tasks to train fine-tuned downstream models
- Exploring reference-based and finetuning based methods to adapt the models to various ontologies across four different domains of news, social media, biomedical, and wikipedia.

CONTEXTUAL LABEL PROJECTION FOR CROSS-LINGUAL STRUCTURE PREDICTION
- Utilized instruction-tuned language models to perform contextual machine translation to tackle cross-lingual label projection
- Improved translate-train for Event Argument Extraction (EAE) and NER by 1-2 F1 points for 39 languages

MULTILINGUAL EVENT EXTRACTION FROM SOCIAL MEDIA FOR EPIDEMIC PREPAREDNESS
- Created the first Multilingual Event Detection framework SPEED for epidemic events in social media for 65 languages
- Demonstrated the generalization of our framework by providing early epidemic warnings for the three unseen epidemics

BENCHMARKING GENERALIZABILITY FOR EVENT ARGUMENT EXTRACTION
- Created a diverse and comprehensive ontology with 100+ event types and argument roles using expert human annotations from a semantic role labeling dataset FrameNet
- Proposed a dataset GENEVA along with four different benchmarking setups to test the generalizability of models

TOWARDS BUILDING CODE-SWITCHING CHATBOTS
- Proposed a generalized goal-oriented multilingual dialogue framework that elicits code-switching
- Experimented with various agent strategies to study user behavior. Discovered various insights about users' code-switching patterns, personal bias, and linguistic accommodation

STYLE TRANSFER FOR POLITENESS
- Introduced the task of politeness transfer and discussed the pecularities involved in the task
- Proposed a tag and generate approach beating the state-of-the-art techniques in automatic and human evaluation

SKILLS

Programming: Python, C++, Bash, R, MATLAB, Java
Frameworks: Pytorch, Tensorflow

ACHIEVEMENTS & ROLES

- Recipient of the **Amazon Fellowship 2024 - 2025**
- Served as **Program Chair** for Socal NLP Symposium '23
- Recipient of the **UCLA Computer Science Fellowship 2021 - 2022**
- Represented CMU at Alexa Socialbot Challenge 2020 and reached the **Semifinals**
- Received **ISCA Student Grant** at Interspeech '18
- Worked as a **Teaching Assistant** for 10 courses

SELECTED PUBLICATIONS

- **T Parekh**, IH Hsu, KH Huang, KW Chang, N Peng, "Contextual Label Projection for Cross-Lingual Structure Extraction", in Proceedings of *NAACL 2024*
- **T Parekh**, et. al., "Event Detection from Social Media for Epidemic Preparedness", in Proceedings of *NAACL 2024*
- **T Parekh**, IH Hsu, KH Huang, KW Chang, N Peng, "GENEVA: Pushing the Limit of Generalizability for Event Argument Extraction with 100+ Event Types", in Proceedings of *ACL 2023*
- **T Parekh**, et. al., "SPEED++: A Multilingual Event Extraction Framework for Epidemic Prediction and Preparedness", under review at *EMNLP 2024*
- KH Huang, IH Hsu, **T Parekh**, et. al., "A Reevaluation of Event Extraction: Past, Present, and Future Challenges", in Proceedings of *ACL Findings 2024*
- A Madaan*, A Setlur*, **T Parekh***, et. al., "Politeness Transfer: Tag and Generate Approach", in Proceedings of *ACL 2020*
- S Garg*, **T Parekh*** and P Jyothi, "Code-switched Language Models Using Dual RNNs and Same-Source Pretraining", in Proceedings of *EMNLP 2018*

INDUSTRY EXPERIENCE

Research Scientist Intern — Jun '24 – Sep '24
Meta (GenAI)
- Working on enhancing LLM reasoning capabilities for handling complex multi-hop and multi-turn queries

Applied Scientist Intern — Jun '22 – Sep '22
Amazon (Alexa AI)
- Explored the alignment of higher order semantics (like negation) across languages in multilingual models
- Showed the effectiveness of our alignment technique on related downstream tasks like sentiment analysis

Applied Scientist — Jul '18 – Jun '19
Amazon (Machine Learning Team)
- Worked on product attribute extraction from product titles without using human-supervised data.
- Proposed use of semi-supervised learning and regularization techniques to learn from partially labeled data

Other Interns: Goldman Sachs (2017), Philips (2016), Edelweiss (2015), Sportz Interactive (2015)