AKHILA YERUKOLA

Natural Language Processing · Machine Learning
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RESEARCH INTERESTS

My research interests are in natural language processing (NLP), specifically focusing on enhancing natural language generation (NLG) systems with commonsense reasoning and mitigating social biases in language.

EDUCATION

Carnegie Mellon University, School of Computer Science 2022 - Present
Doctor of Philosophy in Language Technologies Institute

Stanford University 2017 - 2019
Master of Science in Computer Science

National Institute of Technology Trichy (NITT), Tamil Nadu, India 2012 - 2016
Bachelor of Technology in Computer Science & Engineering

PUBLICATIONS

- **Akhila Yerukola**, Xuhui Zhou, Maarten Sap "Don't Take This Out of Context! On the Need for Contextual Models and Evaluations for Stylistic Rewriting" *Empirical Methods in Natural Language Processing (EMNLP)*, 2023.
- Jimin Mun, Emily Allaway, **Akhila Yerukola**, Laura Vianna, Sarah-Jane Leslie, Maarten Sap "Beyond Denouncing Hate: Strategies for Countering Implied Biases and Stereotypes in Language" *Findings of Empirical Methods in Natural Language Processing (EMNLP)*, 2023.
- Xuhui Zhou, Hao Zhu, **Akhila Yerukola**, Thomas Davidson, Jena D. Hwang, Swabha Swayamdipta, Maarten Sap. "COBRA Frames: Contextual Reasoning about Effects and Harms of Offensive Statements" *Findings of Association for Computational Linguistics (ACL)*, 2022.
- Sebastian Gehrmann, ... **Akhila Yerukola**, Jiawei Zhou. "The GEM Benchmark: Natural Language Generation, its Evaluation and Metrics" *Association for Computational Linguistics (ACL) Workshop*, 2021.
- **Akhila Yerukola***, Mason Bretan*, Hongxia Jin. "Data Augmentation for Voice-Assistant NLU using BERT-based Interchangeable Rephrase" *European Chapter of the Association for Computational Linguistics (EACL)*, 2021.
- Abigail See, Aneesh Pappu*, Rohun Saxena*, **Akhila Yerukola***, Christopher D. Manning. "Do Massively Pretrained Language Models Make Better Storytellers?" *Computational Natural Language Learning (CoNLL)*, 2019.

(*** equal contribution**)

RESEARCH EXPERIENCE

Research Collaborator March 2021 - March 2022
University of Washington, Paul G. Allen School of Computer Science & Engineering
Advisor: Prof. Yejin Choi
— Devising a question answering metric based on commonsense to evaluate story generation models

Graduate Research Assistant Sept 2018 - July 2019
Stanford University, Department of Computer Science
Advisor: Prof. Christopher Manning
— Studied if and where RNN language models encode long-term planning information
— Showed that massive pretrained language models generate more coherent and diverse narrative discourse, however their repetition and genericness problems are caused mainly by choice of decoding algorithm [**CoNLL 2019**]

INDUSTRY EXPERIENCE

AI Research Engineer Aug 2019 - June 2022
Samsung Research America (SRA), Mountain View, CA, USA
Supervisors: Hongxia Jin, Vijay Srinivasan
— Working on fine-grained natural language understanding for Bixby (expected to roll out in Q1 2022)
— Developed an internal AI Chatbot to handle HR, IT & Legal user queries [**SRA Q3 2021 President's Award**]
— Delivered a low-resource domain classification system for Bixby with a 50% error rate reduction, relative to the previous production version, across Samsung's mobile phones and smart home products [**SRA Q4 2020 President's Award**]
— Devised a data augmentation strategy based on byte pair encoding and a BERT-like self attention model to rephrase user utterances [**EACL 2021**]

Sr. Machine Learning Intern June 2018 - Sept 2018
IBM Watson, San Jose, CA, USA
Supervisor: Rama Akkiraju
— Improved Watson's english named entity recognition (NER) model using semi-supervised learning

Software Engineer June 2016 - Aug 2017
Microsoft R&D, Hyderabad, India
— Built a sentiment analysis model for the Microsoft Social Engagement that improves sales by leveraging social insights
— Developed an orchestration engine library for dense Azure cloud deployments

TEACHING EXPERIENCE

Natural Language Understanding CS224U Spring 2019
Graduate Teaching Assistant **Instructors:** Prof. Christopher Potts, Prof. Bill MacCartney
— Worked with a team of 10 TAs for 250+ students to refine and grade course assignments. Mentored 10+ student teams for the course project delivery
— Taught a lecture on "Probing black box models"

Machine Learning CS229 Spring 2019
Graduate Teaching Assistant **Instructor:** Adjunct Prof. Andrew Ng

— Worked with a team of 30+ TAs for 850+ students to develop new assignments, refine and grade course assignments. Mentored 30 student teams for the course project delivery

Delta, a web development club of NITT June 2013 - May 2014
Undergraduate Volunteer Instructor
— Taught basics of C++, Java and Android application development

PROFESSIONAL EXPERIENCE AND VOLUNTEERING

Organizer: Generation, Evaluation, Metrics (GEM) Benchmark and Workshop at ACL 2021
Reviewer: EMNLP 2023, EMNLP 2020
Secondary Reviewer: NAACL-HLT 2021, COLING 2020, CIKM 2020
Volunteer: EMNLP 2021, EMNLP 2020

DEPARTMENTAL SERVICE

- Member of the Stanford MSCS Admissions Committee, 2019. Reviewed student applications with faculty to select the incoming MS students for 2020.
- Editor of Bits and Bytes, the official newsletter of the Department of Computer Science, NITT, 2016. Managed a team of 10 people to release a newsletter twice a month.
- Head of Public Relations at Vortex, Annual Symposium of Department of Computer Science, NITT, 2016.

AWARDS

- SRA President's Award for excellence in research and innovation; awarded for Q4 2020 & Q3 2021
- 2nd Best Project Award, CS231n (Convolutional Neural Networks for Visual Recognition) Stanford 2018. Picked out of 200+ projects.
- 2nd Best Project Award, CS224n (NLP with Deep Learning) Stanford 2018. Picked out of 145+ projects.
- Full undergraduate scholarship by Ministry of Human Resource Development (MHRD), India 2012-2016. The scholarship is awarded to the top 0.01 % of students in the All India Engineering Exam, 2012.
- Third Highest GPA Award, 2015. Awarded by the Department of Computer Science, NITT.