

AKHILA YERUKOLA

Natural Language Processing · Machine Learning

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RESEARCH INTERESTS

My research focuses on enhancing the reasoning and generation capabilities of language models across various contexts, with a particular emphasis on (a) ambiguous and pragmatic language understanding, and (b) the cross-cultural adaptation of models.

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

- Abhinav Rao*, **Akhila Yerukola***, Vishwa Shah, Katharina Reinecke, Maarten Sap NormAd: A Benchmark for Measuring the Cultural Adaptability of Large Language Models *under review*.
- **Akhila Yerukola**, Saujas Vaduguru, Daniel Fried, Maarten Sap Is the Pope Catholic? Yes, the Pope is Catholic. Generative Evaluation of Intent Resolution in LLMs *Association for Computational Linguistics (ACL)*, 2024.
- **Akhila Yerukola**, Xuhui Zhou, Elizabeth Clark, 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.
- Kalpa Gunaratna, Vijay Srinivasan, **Akhila Yerukola**, Hongxia Jin. Explainable Slot Type Attentions to Improve Joint Intent Detection and Slot Filling *Findings of Empirical Methods in Natural Language Processing (EMNLP)*, 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

Advanced NLP CS11-711

Spring 2024

*Graduate Teaching Assistant***Instructor:** Prof. Graham Neubig

— Worked with a team of 7 TAs for 100 students to refine and grade course assignments. Mentored 5 student teams for the course project delivery

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: ACL 2024, EMNLP 2024, 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.