

# AKHILA YERUKOLA

Natural Language Processing · Machine Learning

408-480-0906 ◊ yerukolaakhila@gmail.com ◊ <http://akhila-yerukola.github.io/>

## RESEARCH INTERESTS

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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

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<b>Carnegie Mellon University, School of Computer Science</b> <i>Doctor of Philosophy in Language Technologies Institute</i>	2022 - Present
<b>Stanford University</b> <i>Master of Science in Computer Science</i>	2017 - 2019
<b>National Institute of Technology Trichy (NITT), Tamil Nadu, India</b> <i>Bachelor of Technology in Computer Science &amp; Engineering</i>	2012 - 2016

## PUBLICATIONS

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- Abhinav Rao\*, **Akhila Yerukola\***, Vishwa Shah, Katharina Reinecke, Maarten Sap NormAd: A Benchmark for Measuring the Cultural Adaptability of Large Language Models *Cross-Cultural Considerations in NLP Workshop (C3NLP) @ ACL 2024*; 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

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**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

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**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

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### **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**

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**Organizer:** Generation, Evaluation, Metrics (GEM) Benchmark and Workshop at ACL 2021

**Reviewer:** ACL 2024, EMNLP 2024 (**Outstanding Reviewer**), NAACL 2024, EMNLP 2023, EMNLP 2020

**Secondary Reviewer:** NAACL-HLT 2021, COLING 2020, CIKM 2020

**Volunteer:** EMNLP 2021, EMNLP 2020

## **AWARDS**

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- 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-ride 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.

## **DEPARTMENTAL SERVICE**

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- 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.