Atharva Kulkarni

Ph.D. in Computer Science | University of Southern California

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Research Interests: Theoretical & Empirical Understanding of LLMs | Learning Dynamics | Trustworthy NLP

Education

Present **Aug 2024**	**University of Southern California | Thomas Lord Dept. of Computer Science** Doctor of Philosophy (Ph.D.) in Computer Science › Advisor: Swabha Swayamdipta › Honors: Viterbi School of Engineering Fellowship (AY 2024-25)	**Los Angeles, CA**
May 2025 **Jan 2025**	**University of California, Berkeley | Simons Institute for the Theory of Computing** Visiting Ph.D. Student | Program: Special Year on LLMs and Transformers (Part 2) [🌐]	**Berkeley, CA**
May 2024 **Aug 2022**	**Carnegie Mellon University | Language Technologies Institute** Master of Science (M.S.) in Language Technologies › Advisors: Graham Neubig & Barnabás Póczos › Collaborators: Aditi Raghunathan, Ameet Talwalkar, David Mortensen, Emma Strubell › Honors: CMU LTI Research Fellowship (AY 2023-24)	**Pittsburgh, PA**
May 2020 **Aug 2016**	**Savitribai Phule Pune University | PVG's College of Engineering and Technology** Bachelor of Engineering (B.E.) in Computer Science	**Pune, India**

Experience

Aug 2024 **May 2024**	**Apple Inc. | Siri & Information Intelligence (SII)** *Machine Learning Research Intern | Mentors: Yuan Zhang & Hong Yu* *Collaborators: Bo-Hsiang Tseng, Joel Moniz, Xiou Ge, & Dhivya Piraviperumal*	**Seattle, WA**
Aug 2023 **May 2023**	**Apple Inc. | Siri & Information Intelligence (SII)** *Machine Learning Research Intern | Mentors: Shruti Bhargava & Hong Yu* *Collaborators: Bo-Hsiang Tseng, Joel Moniz, & Dhivya Piraviperumal*	**Seattle, WA**
July 2022 **March 2021**	**IIIT Delhi | Laboratory for Computational Social Systems (LCS2) [🌐]** *Predoctoral Researcher | Advisor: Tanmoy Chakraborty*	**Delhi, India**
July 2022 **Dec 2021**	**IIT Bombay | Cognitive & Behavioural Neuroscience Laboratory [🌐]** *Research Collaborator | Advisor: Rashmi Gupta*	**(Remote) Powai, India**

Selected Publications (* denotes equal contribution)

[11]   **Evaluating Evaluation Metrics – The Mirage of Hallucination Detection**
Atharva Kulkarni, Yuan Zhang, Joel Moniz, Xiou Ge, Bo-Hsiang Tseng, ..., Swabha Swayamdipta, Hong Yu.
Annual Meeting of the Association for Computational Linguistics   **[Under review ACL'25]**

[10]   **Still Not Quite There! Evaluating Large Language Models for Comorbid Mental Health Diagnosis** [PDF | code]
Amey Hengle*, Atharva Kulkarni*, Shantanu Patankar, ..., Rashmi Gupta
Conference on Empirical Methods in Natural Language Processing   **[EMNLP'24]**

[9]   **Multitask Learning Can Improve Worst-Group Outcomes** [PDF | code]
Atharva Kulkarni*, Lucio Dery*, Amrith Setlur, Aditi Raghunathan, Ameet Talwalkar, Graham Neubig
Transactions of Machine Learning Research   **[TMLR'24]**

[8]   **SynthDST: Synthetic Data is All You Need for Few-Shot Dialog State Tracking** [PDF | code] **[Oral Presentation]**
Atharva Kulkarni, Bo-Hsiang Tseng, Joel Moniz, Dhivya Piraviperumal, Hong Yu, Shruti Bhargava.
Conference of the European Chapter of the Association for Computational Linguistics   **[EACL'24]**

[7]   **The Student Becomes the Master: Matching GPT3 on Scientific Factual Error Correction** [PDF | code]
Dhananjay Ashok, Atharva Kulkarni, Hai Pham, Barnabás Póczos.
Findings of the Association for Computational Linguisticss   **[Findings EMNLP'23]**

[6] **Counting the Bugs in ChatGPT's Wugs: A Multilingual Investigation into the Morphological Capabilities of a Large Language Model** [PDF | code]
Leonie Weissweiler, Valentin Hofmann, ..., <u>Atharva Kulkarni</u>, ..., Hinrich Schuetze, Kemal Oflazer, David Mortensen.
Conference on Empirical Methods in Natural Language Processing **[EMNLP'23]**

[5] **Learning & Reasoning Multifaceted Longitudinal Data for Poverty Estimates and Livelihood Capabilities of Lagged Regions in Rural India** [PDF] [AI for Social Good Award]
<u>Atharva Kulkarni</u>, Raya Das, Ravi Srivastava, Tanmoy Chakraborty
International Joint Conference on Artificial Intelligence **[IJCAI'23]**

[4] **Revisiting Hate Speech Benchmarks: From Data Curation to System Deployment** [PDF | code]
<u>Atharva Kulkarni</u>*, Sarah Masud*, Vikram Goyal, Tanmoy Chakraborty
ACM SIGKDD Conference on Knowledge Discovery and Data Mining **[KDD'23]**

[3] **Characterizing Entities in Harmful Memes: Who is Hero, Villain, Victim?** [PDF | code]
Shivam Sharma*, <u>Atharva Kulkarni</u>*, . . ., Preslav Nakov, Md. Shad Akhtar, Tanmoy Chakraborty
Conference of the European Chapter of the Association for Computational Linguistics **[EACL'23]**

[2] **Empowering the Fact-checkers! Automatic Identification of Claim Spans on Twitter** [PDF | code]
Megha Sundriyal*, <u>Atharva Kulkarni</u>*, Vaibhav Pulastya, Md. Shad Akhtar, Tanmoy Chakraborty
Conference on Empirical Methods in Natural Language Processing **[EMNLP'22]**

[1] **When did you become so smart, oh wise one?! Sarcasm Explanation in Multi-modal Multi-party Dialogues** [PDF | code] **[Oral Presentation]**
Shivani Kumar*, <u>Atharva Kulkarni</u>*, Md. Shad Akhtar, Tanmoy Chakraborty
Annual Meeting of the Association for Computational Linguistics **[ACL'22]**

Academic Service

Conference Reviewer	COLM'25, ARR'25, TMLR'24, ARR'24, EMNLP'23, ACL'23, EMNLP'22, ICON'22
Workshop Reviewer	WiNLP'24, SSLTheoryPractice NeurIPS'23, R0-FoMo NeurIPS'23
Conference Volunteer	EACL'24, EACL'23, ACL'21, EACL'21

Talks

SynthDST: Synthetic Data is All You Need for Few-Shot Dialog State Tracking

> NiklasOPF AI podcast [video link]	Nov 2024	– YouTube
> EACL'24 Oral Presentation	March 2024	– St. Julian's, Malta
> Siri & Information Intelligence (SII), Apple. Inc	Aug 2024	– Seattle, WA

When did you become so smart, oh wise one?! Sarcasm Explanation in Multi-modal Multi-party Dialogues

> Student Research Symposium, CMU LTI	Aug 2022	– Pittsburgh, PA

Teaching & Mentorship Roles

**Mentor – CS Undergraduate Mentorship Program	USC**	Fall'24
**Teaching Assistant – Advanced NLP	CMU**	Fall'23
**Teaching Assistant – Introduction to NLP	CMU**	Spring'23
**Mentor – AI Undergraduate Mentorship Program	CMU**	Fall'22

Honours & Awards

1. USC Viterbi Fellowship (2024-25) – Awarded to selected incoming PhD student at USC, covering full tuition & stipend.

2. CMU LTI Research Fellowship (2023-24) – Awarded to selected MLT students at CMU, covering full tuition & stipend.

3. Best Paper – AI for Social Good | IJCAI'23 [⊶] – Poverty estimation using neural networks for rural Indian setting.

4. Shared Task Winner | WASSA @ EACL'21 [⊶] – Empathy & distress detection in reaction to news stories.

5. Shared Task Winner | TechDoFication @ ICON'20 [⊶] – Coarse-grained technical domain identification of documents for indigenous Indian languages.

6. Bachelor's Thesis Award | ZS ASPIRE 2020 [⊶] – 2nd place amongst 33,000 teams & cash prize of 2,00,000 INR for Bachelor's Thesis project.