

Archiki PRASAD

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RESEARCH INTERESTS

My research goal is to build natural language processing systems that can reason in an efficient, robust, and interpretable manner.

Major Interests: Prompt-based Learning, Reasoning, Robustness, Compositional Learning.

Other Interests: Self-Supervised Learning, Explainability, Multilinguality.

EDUCATION

Present Aug 2021	The University of North Carolina, CHAPEL HILL, USA <i>Ph.D. in Computer Science Advisor: Mohit Bansal</i> Concentration: Natural Language Processing
May 2021 August 2016	Indian Institute of Technology Bombay, MAHARASHTRA, India Bachelor + Master of Technology, Major: Electrical Engineering GPA: 9.66/10 Minor: Computer Science and Engineering

EXPERIENCE

Present Aug 2021	UNC-NLP Research Group, UNC CHAPEL HILL, US <i>Research Assistant Advisor: Mohit Bansal</i> <ul style="list-style-type: none">Working on prompt-based learning methods with large language and multimodal modelsWorking on consistency and reasoning with language models
Aug 2023 May 2023	Allen Institute of Artificial Intelligence (AI2), SEATTLE, US <i>Research Intern, Aristo Advisors: Tushar Khot, Ashish Sabharwal</i> <ul style="list-style-type: none">Working on a flexible, hierarchical, and dynamic decomposition framework for reasoning with LLMs
Aug 2022 May 2022	Adobe Research, SAN JOSE (REMOTE), US <i>Research Scientist Intern (NLP) Advisors: Trung Bui, David Yoon, Franck Dernoncourt</i> <ul style="list-style-type: none">Developed a challenging benchmark on extracting question-answer pairs from meeting transcripts
May 2021 Aug 2019	Computational Speech And Language Technologies (CSALT) Lab, IIT BOMBAY, India <i>Research Assistant Advisor: Preethi Jyothi</i> <ul style="list-style-type: none">Intermediate-task training for natural language understanding tasks in code-switched languagesProbing accent information in black-box end-to-end automatic speech recognition systemsJoint noise and accent robustness in automatic speech recognition systems
Jan 2021 Jan 2020	Indian Institute of Technology Bombay, MAHARASHTRA, India <i>Research Assistant Advisor: Sharayu Moharir</i> <ul style="list-style-type: none">Worked on designing scheduling policies using multi-armed bandits
Jul 2019 May 2019	Adobe Research, BANGALORE, India <i>Research Intern Advisor: Shiv Kumar Saini</i> <ul style="list-style-type: none">Worked on time-series forecasting in low/zero-data settings using memory-augmented networks

PUBLICATIONS

2023 Archiki Prasad, Alexander Koller, Mareike Hartmann, Peter Clark, Ashish Sabharwal, Mohit Bansal, Tushar Khot “ADAPT: As-Needed Decomposition and Planning with Language Models” Arxiv Preprint [PDF]

2023 Archiki Prasad, Elias Stengel-Eskin, Mohit Bansal “Rephrase, Augment, Reason: Visual Grounding of Questions for Vision-Language Models” Arxiv Preprint [PDF]

2023 Archiki Prasad, Swarnadeep Saha, Xiang Zhou, Mohit Bansal “RECEval: Evaluating Reasoning Chains via Correctness and Informativeness” In Proceedings of Conference on Empirical Methods in Natural Language Processing (EMNLP 2023) [PDF]

2023 Archiki Prasad, Trung Bui, Seunghyun Yoon, Hanieh Deilamsalehy, Franck Dernoncourt, Mohit Bansal “MEETINGQA: Extractive Question-Answering on Meeting Transcripts” In Proceedings of the 2023 Annual Conference of the Association for Computational Linguistics (ACL 2023) [PDF]

2023 Archiki Prasad, Peter Hase, Xiang Zhou, Mohit Bansal “GRIPS: Gradient-free, Edit-based Instruction Search for Prompting Large Language Models” In Proceedings of the 17th Conference of the European Chapter of the Association for Computational Linguistics (EACL 2023) [PDF]

2021 Archiki Prasad*, Mohammad Ali Rehan*, Shreya Pathak*, Preethi Jyothi “*The Effectiveness of Intermediate-Task Training for Code-Switched Natural Language Understanding*” In Proceedings of the 2021 Workshop on Multilingual Representation Learning (MRL 2021) at EMNLP 2021 [PDF] ([Best Paper Honorable Mention](#))

2021 Archiki Prasad, Preethi Jyothi, Rajbabu Velmurugan “*An Investigation of End-to-End Models for Robust Speech Recognition*” In Proceedings of the 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2021) [PDF]

2021 Archiki Prasad, Vishal Jain, Sharayu Moharir “*Decentralized Age-of-Information Bandits*” In Proceedings of the 2021 IEEE Wireless Communications and Networking Conference (WCNC 2021) [PDF]

2020 Archiki Prasad, Preethi Jyothi “*How Accents Confound: Probing for Accent Information in End-to-End Speech Recognition Systems*” In Proceedings of the 2020 Annual Conference of the Association for Computational Linguistics (ACL 2020) [PDF]

2020 Ayush Chauhan, Archiki Prasad, Parth Gupta, Amireddy Prashanth Reddy, Shiv Kumar Saini “*Time Series Forecasting for Cold-Start Items by Learning from Related Items using Memory Networks*” In Companion Proceedings of the Web Conference 2020 (WWW 2020) [PDF]

PATENTS

2022 Ayush Chauhan, Shiv Kumar Saini, Parth Gupta, Archiki Prasad, Amireddy Prashanth Reddy, and Ritwick Chaudhry “*Key-value memory network for predicting time-series metrics of target entities*” US Patent and Trademarks Office 2022 | Adobe Inc. [US11501107]

HONORS AND AWARDS

- IIT Bombay Institute Academic Prize for outstanding performance in the academic year 2019-20
- Amongst top 1.2% of all selected candidates (200,000) JEE-Advance 2016 and amongst top 0.1% of all candidates in JEE-Mains 2016.
- Google participation award for MRL 2021.
- Advanced Performer's grade (about top 1% of class) in Linear Algebra and Economics

PROFESSIONAL SERVICES

Conference Reviewer

- EMNLP 2021-2023
- ACL 2022-2023 (ACL Rolling Review)
- NAACL 2022 (ACL Rolling Review)

RELEVANT COURSEWORK

* = Graduate Level Courses

Mathematics: Linear Algebra*, Real Analysis, Complex Analysis, Multivariate Calculus, Differential Equations

Computer Science: Computer Programming, Data Structures and Algorithms, Operating Systems, Computer Organization, Digital Logic

Machine Learning: Machine Learning*, Structured Prediction*, Language & Learning*, Large Language Models*, Connecting Language to Vision & Robotics*, Information Theory & Coding*, Automatic Speech Recognition*, Natural Language Processing, Digital Image Processing

Probability and Statistics: Probability and Random Processes, Data Analysis and Interpretation, Concentration Inequalities*

SKILLS

Programming Languages: C/C++, Python, R, bash

SW/ Tools: MATLAB, Scilab, Git, Docker, \LaTeX , Arduino, Quartus

ML Libraries: TensorFlow, PyTorch, Keras, NumPy, OpenCV, Pandas, Scikit Learn

REFERENCES

- [Mohit Bansal](#), John R. Louise S. Parker Professor of CS, UNC Chapel Hill.
- [Tushar Khot](#), Research Scientist, Allen Institute of Artificial Intelligence, Seattle.
- [Ashish Sabharwal](#), Senior Research Scientist, Allen Institute of Artificial Intelligence, Seattle.
- [Trung Bui](#), Senior Research Scientist, Adobe Research, San Jose
- [Franck Dernoncourt](#), NLP Researcher, Adobe Research, Seattle
- [Preethi Jyothi](#), Associate Professor of CS, Indian Institute of Technology Bombay