


# 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:** Reasoning, Robustness, Compositional Learning, Prompt-based Learning,.

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

## EDUCATION

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

## EXPERIENCE

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

## 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

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**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

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- 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

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### Conference Reviewer

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

## RELEVANT COURSEWORK

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\* = 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

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

**SW/ Tools:** MATLAB, Scilab, Git, Docker,  $\text{\LaTeX}$ , Arduino, Quartus

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

## REFERENCES

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- [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