

Swarnadeep Saha

Research Scientist, FAIR at Meta, Seattle, USA

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RESEARCH INTERESTS

Large Language Models, Reasoning, Planning, Alignment

RESEARCH AND WORK EXPERIENCE

FAIR at Meta (Alignment Team)

Research Scientist, Manager: [Dr. Jason Weston](#)

Seattle, USA

August 2024-Present

FAIR Labs at Meta

Research Intern, Mentors: [Dr. Xian Li](#) and [Dr. Jason Weston](#)

Palo Alto, USA

May 2023-Dec 2023

FAIR Labs at Meta

Research Intern, Mentor: [Dr. Asli Celikyilmaz](#)

Seattle, USA

May 2022-Dec 2022

Salesforce AI Research

Research Intern, Mentors: [Dr. Nazneen Rajani](#) and [Dr. Jesse Vig](#)

Palo Alto, USA

June 2021-August 2021

IBM Research

Research Engineer, Manager: [Dr. Shantanu Godbole](#)

Bangalore, India

July 2017 - June 2019

Adobe Systems

Member of Technical Staff, Manager: [Rajeev Sharma](#)

Noida, India

June 2014 - July 2015

EDUCATION

UNC Chapel Hill

Ph.D. in Computer Science, Advisor: [Prof. Mohit Bansal](#)

North Carolina, USA

2019 - 2024

Thesis: Multi-Step Reasoning over Natural Language

[Google PhD Fellowship in NLP for 2023 and 2024](#)

Indian Institute of Technology, Delhi

M.Tech. in Computer Science, Advisor: [Prof. Mausam](#)

Delhi, India

2015 - 2017

Thesis: Open Information Extraction from Numerical and Conjunctive Sentences

[Best M.Tech Thesis Award in Computer Science](#)

Jadavpur University

B.E. in Computer Science, GPA: 8.72/10.0

Kolkata, India

2010 - 2014

PUBLICATIONS

1. System-1.x: Learning to Balance Fast and Slow Planning with Language Models

Swarnadeep Saha, Archiki Prasad, Justin Chih-Yao Chen, Peter Hase, Elias Stengel-Eskin, Mohit Bansal

Under Review at ICLR 2025 [\[pdf\]](#)

2. MAgICoRe: Multi-Agent, Iterative, Coarse-to-Fine Refinement for Reasoning

Justin Chih-Yao Chen, Archiki Prasad, Swarnadeep Saha, Elias Stengel-Eskin, Mohit Bansal

Under Review at ICLR 2025 [\[pdf\]](#)

3. **MAGDi: Structured Distillation of Multi-Agent Interaction Graphs Improves Reasoning in Smaller Language Models**
Justin Chih-Yao Chen*, Swarnadeep Saha*, Elias Stengel-Eskin, Mohit Bansal
ICML 2024[\[pdf\]](#)
4. **Branch-Solve-Merge Improves Large Language Model Evaluation and Generation**
Swarnadeep Saha, Omer Levy, Asli Celikyilmaz, Mohit Bansal, Jason Weston, and Xian Li
NAACL 2024[\[pdf\]](#)
5. **ReConcile: Round-Table Conference Improves Reasoning via Consensus among Diverse LLMs**
Justin Chih-Yao Chen, Swarnadeep Saha, and Mohit Bansal
ACL 2024[\[pdf\]](#)
6. **Can Language Models Teach Weaker Agents? Teacher Explanations Improve Students via Personalization**
Swarnadeep Saha, Peter Hase, and Mohit Bansal
NeurIPS 2023[\[pdf\]](#)
7. **ReCEval: Evaluating Reasoning Chains via Correctness and Informativeness**
Archiki Prasad, Swarnadeep Saha, Xiang Zhou, and Mohit Bansal
EMNLP 2023[\[pdf\]](#)
8. **MURMUR: Modular Multi-Step Reasoning for Semi-Structured Data-to-Text Generation**
Swarnadeep Saha, Xinyan Velocity Yu, Mohit Bansal, Ramakanth Pasunuru, and Asli Celikyilmaz
ACL Findings 2023[\[pdf\]](#)
9. **Summarization Programs: Interpretable Abstractive Summarization with Neural Modular Trees**
Swarnadeep Saha, Shiyue Zhang, Peter Hase, and Mohit Bansal
ICLR 2023[\[pdf\]](#)
10. **Are Hard Examples also Harder to Explain? A Study with Human and Model-Generated Explanations**
Swarnadeep Saha, Peter Hase, Nazneen Rajani, and Mohit Bansal
EMNLP 2022[\[pdf\]](#)
11. **Explanation Graph Generation via Pre-trained Language Models: An Empirical Study with Contrastive Learning**
Swarnadeep Saha, Prateek Yadav, and Mohit Bansal
ACL 2022[\[pdf\]](#)
12. **ExplaGraphs: An Explanation Graph Generation Task for Structured Commonsense Reasoning**
Swarnadeep Saha, Prateek Yadav, Lisa Bauer, and Mohit Bansal
EMNLP 2021[\[pdf\]](#)
13. **multiPProver: Generating a Set of Proofs for Improved Interpretability in Rule Reasoning**
Swarnadeep Saha, Prateek Yadav, and Mohit Bansal
NAACL 2021[\[pdf\]](#)
14. **PProver: Proof Generation for Interpretable Reasoning over Rules**
Swarnadeep Saha, Sayan Ghosh, Shashank Srivastava, and Mohit Bansal
EMNLP 2020[\[pdf\]](#)

15. **ConjNLI: Natural Language Inference over Conjunctive Sentences**
Swarnadeep Saha, Yixin Nie, and Mohit Bansal
EMNLP 2020[\[pdf\]](#)
16. **Pre-Training BERT on Domain Resources for Short Answer Grading**
Chul Sung, Tejas Dhamecha, Swarnadeep Saha, Tengfei Ma, Vinay Reddy, and Rishi Arora
EMNLP 2019[\[pdf\]](#)
17. **Aligning Learning Objectives to Learning Resources: A Lexico-Semantic Spatial Approach**
Swarnadeep Saha, Malolan Chetlur, Tejas I. Dhamecha, Shantanu Godbole and others
IJCAI 2019[\[pdf\]](#)
18. **Creating Scoring Rubric from Representative Student Answers for Improved Short Answer Grading**
Smit Marvaniya, Swarnadeep Saha, Tejas I. Dhamecha, Peter Foltz, Renuka Sindhgatta and Bikram Sengupta
CIKM 2018[\[pdf\]](#)
19. **Joint Multi-Domain Learning for Automatic Short Answer Grading**
Swarnadeep Saha, Tejas I. Dhamecha, Smit Marvaniya, Peter Foltz, Renuka Sindhgatta and Bikram Sengupta
arXiv 1902.09183[\[pdf\]](#)
20. **Open Information Extraction from Conjunctive Sentences**
Swarnadeep Saha and Mausam
COLING 2018[\[pdf\]](#)
21. **Balancing Human Efforts and Performance of Student Response Analyzer in Dialog-based Tutors**
Tejas I. Dhamecha, Smit Marvaniya, Swarnadeep Saha, Renuka Sindhgatta and Bikram Sengupta
AIED 2018[\[pdf\]](#)
22. **Sentence Level or Token Level Features for Automatic Short Answer Grading?: Use Both**
Swarnadeep Saha, Tejas I. Dhamecha, Smit Marvaniya, Renuka Sindhgatta and Bikram Sengupta
AIED 2018[\[pdf\]](#)
23. **Bootstrapping for Numerical Open IE**
Swarnadeep Saha, Harinder Pal and Mausam
ACL 2017[\[pdf\]](#)

ACHIEVEMENTS AND AWARDS

- **Google PhD Fellowship** (one of eight students worldwide) in NLP with full funding for 2 years.
- **Munroe and Rebecca Cobey Fellowship** at UNC Chapel Hill.
- **Best M.Tech. Thesis** in Computer Science at IIT Delhi.
- Lab-wide **Research Appreciation Award** at IBM Research.
- Twice **Manager's Choice Award** at IBM Research.
- **All India Rank of 142** in Graduate Aptitude Test in Engineering (GATE), 2014.
- **State Rank of 96** in West Bengal Joint Entrance Examination (WBJEE), 2010.

PROFESSIONAL SERVICE

- **Area Chair:** EMNLP 2024

- **Conference Reviewer:** NAACL 2024, ACL 2023, EMNLP 2023, NeurIPS 2023, ARR 2022, EMNLP 2022, ARR 2021, EMNLP 2021, NAACL 2021, AAAI 2020, AIED 2019, NAACL 2019, EMNLP 2018.
- **Journal Reviewer:** AI Journal (AIJ), Computational Linguistics (CL).

REFERENCES

- [Dr. Jason Weston](#), Senior Director/Research Scientist, Fundamental AI Research (FAIR), Meta.
- [Dr. Mohit Bansal](#), John R. & Louise S. Parker Associate Professor of CS, UNC Chapel Hill.
- [Dr. Mausam](#), Professor, Jai Gupta Chair of CSE and Founding Head of School of AI, IIT Delhi and Affiliate Professor of CS, University of Washington, Seattle.