

Swarnadeep Saha

CS PhD Candidate, UNC Chapel Hill, NC, USA

🌐 <https://swarnahub.github.io>

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RESEARCH INTERESTS

Natural Language Processing, Deep Learning, Interpretability, Graphs, Structured Prediction.

EDUCATION

UNC Chapel Hill

*Ph.D. in Computer Science, Advisor: [Prof. Mohit Bansal](#)
Munroe and Rebecca Cobey Fellowship*

North Carolina, USA

2019 - Present

Indian Institute of Technology, Delhi

*M.Tech. in Computer Science, Advisor: [Prof. Mausam](#), GPA: 9.01/10.0
Thesis: Open Information Extraction from Numerical and Conjunctive Sentences
Best M.Tech Thesis Award in Computer Science*

Delhi, India

2015 - 2017

Jadavpur University

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

Kolkata, India

2010 - 2014

INDUSTRY EXPERIENCE

Salesforce Research

*Research Intern, Mentors: [Dr. Nazneen Rajani](#) and [Dr. Jesse Vig](#)
○ Topics in **interpretability**, **commonsense reasoning** and **active learning**.*

Palo Alto, USA

Summer 2021

IBM Research

*Research Engineer, Manager: [Dr. Shantanu Godbole](#)
○ Designed and implemented large scale **Machine Learning** and **NLP** solutions for **Intelligent Tutoring Systems (Watson Tutor)**, notably in the areas of **Automatic Short Answer Grading** and **Text Segmentation**.
○ *Lab-wide Research Appreciation* award and twice *Manager's Choice* award.*

Bangalore, India

July 2017 - June 2019

Adobe Systems

*Member of Technical Staff, Manager: [Rajeev Sharma](#)
○ Worked as a full-stack software developer in the **Acrobat Reader Team** of Adobe.*

Noida, India

June 2014 - July 2015

PUBLICATIONS

1. **ExplaGraphs: An Explanation Graph Generation Task for Structured Commonsense Reasoning**
Swarnadeep Saha, Prateek Yadav, Lisa Bauer, and Mohit Bansal
EMNLP 2021 [Long][Oral][[pdf](#)]
2. **multiPProver: Generating a Set of Proofs for Improved Interpretability in Rule Reasoning**
Swarnadeep Saha, Prateek Yadav, and Mohit Bansal
NAACL 2021 [Long][Oral+Poster][Acceptance Rate: 26%][[pdf](#)]

3. **PProver: Proof Generation for Interpretable Reasoning over Rules**
Swarnadeep Saha, Sayan Ghosh, Shashank Srivastava, and Mohit Bansal
EMNLP 2020 [Long][Oral][Acceptance Rate: 24%][\[pdf\]](#)
4. **ConjNLI: Natural Language Inference over Conjunctive Sentences**
Swarnadeep Saha, Yixin Nie, and Mohit Bansal
EMNLP 2020 [Long][Poster][Acceptance Rate: 24%][\[pdf\]](#)
5. **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 [Short][Poster][Acceptance Rate: 23%][\[pdf\]](#)
6. **Aligning Learning Objectives to Learning Resources: A Lexico-Semantic Spatial Approach**
Swarnadeep Saha, Malolan Chetlur, Tejas I. Dhamecha, Shantanu Godbole and others
IJCAI 2019 [Long][Oral+Poster][Acceptance Rate: 17%][\[pdf\]](#)
7. **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 [Long][Oral][Acceptance Rate: 17%][\[pdf\]](#)
8. **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 [Long][\[pdf\]](#)
9. **Open Information Extraction from Conjunctive Sentences**
Swarnadeep Saha and Mausam
COLING 2018 [Long][Oral][Acceptance Rate: 37%][\[pdf\]](#)
10. **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 [Long][Oral][Acceptance Rate: 25%][\[pdf\]](#)
11. **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 [Long][Oral][Acceptance Rate: 25%][\[pdf\]](#)
12. **Bootstrapping for Numerical Open IE**
Swarnadeep Saha, Harinder Pal and Mausam
ACL 2017 [Short][Poster][Acceptance Rate: 18%][\[pdf\]](#)

ACHIEVEMENTS AND AWARDS

- **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 among 155190 applicants.

- **State Rank of 96** in West Bengal Joint Entrance Examination (WBJEE), 2010 among 127196 applicants.

PROFESSIONAL SERVICE

- Conference Reviewer: ARR 2021, EMNLP 2021, NAACL 2021, AAAI 2020, AIED 2019, NAACL 2019, EMNLP 2018.
- Journal Reviewer: AI Journal (AIJ), Computational Linguistics (CL).

SOFTWARE SKILLS

- Programming Languages: C, C++, Java, Scala, Python, Perl, Assembly Languages.
- Databases: MySQL, PostgreSQL.
- Frameworks and Tools: PyTorch, Keras, Hadoop, Git, Perforce, Maven, SBT.

RELEVANT GRADUATE LEVEL COURSES

- Machine Learning, Advanced Machine Learning, Graphical Models, Generative Models, Advanced NLP, Grounding in NLP, Structured Prediction, Machine Learning and Graphics.

REFERENCES

- [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.
- [Dr. Shashank Srivastava](#), Assistant Professor of CS, UNC Chapel Hill.
- [Dr. Nazneen Rajani](#), Senior Research Scientist, Salesforce Research.
- [Dr. Jesse Vig](#), Senior Research Scientist, Salesforce Research.
- [Dr. Shantanu Godbole](#), Senior Research Manager, IBM Research.