

# Sawan Kumar

303, Machine and Language  
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**RESEARCH INTERESTS** I am interested in Machine Learning (ML), and Natural Language Processing (NLP). My current research focus is on usage of textual descriptions to aid learning in general, and enabling few/zero-shot learning in particular. I am also interested in generating natural language explanations for machine learning tasks.

**EDUCATION** PhD, Computational and Data Sciences, 2017-present (CGPA: 9.3)  
**Indian Institute of Science (IISc), Bangalore, India**  
Advisor : Partha Pratim Talukdar

M.Tech, Telecommunication Systems, 2007-2012 (CGPA: 8.25)  
**Indian Institute of Technology (IIT) Kharagpur, India**

B.Tech, Electronics and Electrical Communication, 2007-2012 (CGPA: 8.25)  
**Indian Institute of Technology (IIT) Kharagpur, India**

**EXPERIENCE** **Indian Institute of Science (IISc), Bangalore, 2017-present**  
Machine and Language Learning (MALL) Lab  
Department of Computational and Data Sciences (CDS)  
– Learning from and generating natural language explanations

**Amazon Web Services, 2020**  
Applied Scientist Intern (3 months)  
– Worked on post-hoc interpretation of sentiment analysis models

**Amazon India, Bangalore, 2018**  
Applied Scientist Intern (3 months)  
– Worked on improving natural language question-answering systems

**Indian Institute of Science (IISc), Bangalore, 2017- 2018**  
Cognition Lab, Centre for Neuroscience  
– Creating efficient methods for evaluating whole brain connectomes

**Ittiam Systems, Bangalore, 2015-2016**  
Senior Engineer, Computer Vision and Machine Learning  
– Contributed to the development of video analytics solutions for the retail industry

**Ittiam Systems, Bangalore, 2012-2015**

Engineer/Senior Engineer, Multimedia Systems

–Developed device drivers, abstraction layers for device drivers for embedded systems

## PUBLICATIONS

[1] Kumar, Sawan, et al. **"Reordering Examples Helps during Priming-based Few-Shot Learning."** *To appear in the Findings of ACL 2021. Association for Computational Linguistics (ACL).* 2021.

[2] Kumar, Sawan, et al. **"NILE : Natural Language Inference with Faithful Natural Language Explanations."** *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL).* 2020.

[3] Kumar, Sawan, et al. **"Improving Answer Selection and Answer Triggering using Hard Negatives."** *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing (EMNLP).* 2019.

[4] Kumar, Sawan, et al. **"Zero-shot Word Sense Disambiguation using Sense Definition Embeddings."** *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics (ACL).* 2019.  
Recipient of outstanding paper award

[5] Kumar, Sawan, et al. **"ReAI-LiFE: Accelerating the Discovery of Individualized Brain Connectomes on GPUs."** *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI).* 2019.

## AWARDS

- **Outstanding Paper Award at ACL 2019, Italy** (One of five such awardees out of 1737 submissions)
- Secured a rank of 858 in the Joint Entrance Examination (JEE), 2007, among 2.52 lakh applicants
- Recipient of National Talent Search (NTS) Scholarship from the Government of India

## TEACHING

E1 246: Natural Language Understanding, Indian Institute of Science, Spring 2019  
Teaching assistant for Prof. Partha Talukdar

## SOFTWARE

ReAI-LiFE: Accelerating the discovery of individualized brain connectomes with GPUs  
(<https://github.com/SawanKumar28/real-life>)

## SOFTWARE FAMILIARITY

Languages: Python, C, C++, MATLAB, bash  
Deep Learning Libraries: pytorch, keras