

## Madhav Ram Nimishakavi

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<https://madhavcsa.github.io/>

### School Address

Computer Science and Automation,  
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### Permanent Address

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OU Colony, Raidurg,  
Hyderabad, India 500008

## RESEARCH INTERESTS

I am broadly interested in Machine Learning and Natural Language Processing. My PhD work is on developing novel Tensor Decomposition based algorithms for the problem of Relation Schema Induction and developing novel algorithms for Tensor Completion. My recent research has also focused on developing deep learning based algorithms for semi-supervised learning on graphs and hypergraphs.

## EDUCATION

*PhD*, Computer Science and Automation

Indian Institute of Science (IISc), Bangalore, India

August 2014 - August 2019 (Expected)

**THESIS** (Submitted): Relation Schema Induction using Tensor Factorization and Algorithms for Low-rank Tensor Completion.

Adviser: Dr. Partha Talukdar

*ME*, Computer Science and Automation

Indian Institute of Science (IISc), Bangalore, India

August 2010 - June 2012

**THESIS** - Use of Semantics in Topic based Classification.

Adviser: Prof. M. Narasimha Murthy

*BTech*, Computer Science and Engineering

Sree Nidhi Institute of Science & Technology, Hyderabad, India

July 2006 - June 2010

Main Project - Container Independent Secure Data Communication

## WORK EXPERIENCE

**Microsoft:** *Software Development Engineer in Test, Hyderabad, India.*

July 2012 - July 2014

Worked on developing the test framework and automated test suites for graphics on office web apps and office apps on android devices.

## INTERNSHIP EXPERIENCE

1. **Amazon Core ML:** Applied Science Intern, Bangalore, India.

June 2017 - September 2017

Worked on using Active Learning for generating better training data for RAMP model. RAMP is a random forest based large-scale classifier used for classification of advertisements as relevant or not to the search query.

2. **Wipro:** Research Intern, Bangalore, India.

August 2015 - October 2015

As part of L1-Automation project, worked on converting Natural Language text to executable commands using Reinforcement Learning.

## TEACHING EXPERIENCE

1. Teaching Assistant, IISc E1 246, Natural Language Understanding. Spring 2018
2. Teaching Assistant, IISc UE 101, Algorithms and Programming. Fall 2016
3. Teaching Assistant, IISc E0 268, Data Mining. Spring 2015

## PUBLICATIONS

1. Naganand Yadati, Vikram Nitin, Madhav Nimishakavi, Prateek Yadav, Anand Louis and Partha Talukdar. Link Prediction in Hypergraphs using Graph Convolutional Networks. [<https://openreview.net/forum?id=ryeaZhRqFm>] [Under submission at CIKM 2019]
2. Naganand Yadati, Madhav Nimishakavi, Prateek Yadav, Anand Louis and Partha Talukdar. HyperGCN: A New Method of Training Graph Convolutional Networks on Hypergraphs. [<https://arxiv.org/abs/1809.02589>] [Under submission at NeurIPS 2019]
3. Prateek Yadav, Madhav Nimishakavi, Naganand Yadati, Shikhar Vasisth, Arun Rajkumar and Partha Talukdar. Lovász Convolutional Networks. The 22nd Conference on Artificial Intelligence and Statistics (**AISTATS**) 2019, Okinawa, Japan. [<https://arxiv.org/abs/1805.11365>]
4. Madhav Nimishakavi, Pratik Jawanpuria and Bamdev Mishra. A Dual Framework for Low-rank Tensor Completion. Advances in Neural Information Processing Systems (**NeurIPS**) 2018, Montreal, Canada. A shorter version was accepted in Workshop on Synergies in Geometric Data Analysis, NIPS 2017, Long Beach, California, United States. [<https://arxiv.org/abs/1712.01193>]
5. Madhav Nimishakavi, Bamdev Mishra, Manish Gupta and Partha Talukdar. Inductive Framework for Multi-Aspect Streaming Tensor Completion with Side Information. The ACM International Conference on Information and Knowledge Management (**CIKM**) 2018, Turin, Italy. [<https://arxiv.org/abs/1802.06371>]
6. Madhav Nimishakavi, Manish Gupta and Partha Talukdar. Higher-order Relation Schema Induction using Tensor Factorization with Back-off and Aggregation. 56<sup>th</sup> Annual Meeting of the Association for Computational Linguistics (**ACL**) 2018, Melbourne, Australia. [<https://aclanthology.info/papers/P18-1146/p18-1146>]
7. Madhav Nimishakavi, Uday Singh Saini and Partha Talukdar. Relation Schema Induction using Tensor Factorization with Side Information. International Conference on Empirical Methods in NLP (**EMNLP**) 2016, Austin, USA. [<https://aclanthology.info/papers/D16-1040/d16-1040>]
8. Madhav Nimishakavi, Uday Saini and Partha Talukdar. Technical report on Applicability of Tensor Factorization methods for the problem of Predicate Induction. [[https://madhavcsa.github.io/Reports/directed\\_ont\\_ext.pdf](https://madhavcsa.github.io/Reports/directed_ont_ext.pdf)]

## PROGRAMMING SKILLS

*Python, Java, C, C++, C#, SQL, PL/SQL, Cypher, MATLAB, PERL, L<sup>A</sup>T<sub>E</sub>X, PyTorch*

## OTHER PROJECTS

1. Part of the team which participated in the Allen AI Science Challenge 2016 and stood 10th globally.
2. Denoising Via Block Wiener Filtering in Wavelet Domain (Course Project).
3. Analysis of Software code using LDA (Course Project).
4. Developed an operating system called PINTOS (Course Project).

### INVITED TALKS & PRESENTATIONS

1. Invited to talk about Graph-based Semi-Supervised Learning at Amazon, Bangalore, May 2019.
2. Invited to talk about Low-rank Tensor Completion at CoDS-Comad, Jan 2019.
3. Presented a poster on dynamic tensor completion at Google AI/ML workshop in Bangalore, Jan 2018.
4. Presented a poster on Higher-order Relation Schema Induction at Google NLP summit in Zurich, September 2017.
5. Presented a poster on Event Schema Induction at Google NLU/NLP workshop in NewYork, July 2017.

### ACADEMIC ACTIVITIES

- **Reviewer:** ACL, NeurIPS, EMNLP.

### AWARDS & ACTIVITIES

1. Awarded student travel/volunteer scholarship for EMNLP 2016, ACL 2018 and NeurIPS 2018.
2. Awarded partial travel grant from Microsoft Research India for travel to ACL 2018, CIKM 2018 and NeurIPS 2018.
3. Awarded partial travel grant from Google India for travel to EMNLP 2016.
4. Participated in Android App development hackathon, 2014 at Microsoft IDC, Hyderabad.
5. Secured an all India rank of 45 (out of 107,086 candidates) in Graduate Aptitude Test in Engineering (GATE) 2010.