Madhav Ram Nimishakavi

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Computer Science and Automation,
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RESEARCH INTERESTS

I am broadly interested in Machine Learning and Natural Language Processing. My PhD work was on novel applications of Tensor Decomposition in NLP and developing algorithms for Tensor Completion. My recent research has also focused on developing deep learning algorithms for semi-supervised learning on graphs and hyper-graphs.

EDUCATION

PhD, Computer Science and Automation
Indian Institute of Science (IISc), Bangalore, India — August 2014 - March 2019 (Expected)
THESIS (Under Submission): Tensor Learning: Completion Algorithms and Applications of Decomposition for Relation Schema Induction.
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
   Worked on the automation of (L1) customer care executives.

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

CONFERENCE PROCEEDINGS

1. 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]
2. 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]
3. 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]
4. Madhav Nimishakavi, Manish Gupta and Partha Talukdar. Higher-order Relation Schema Induction using Tensor Factorization with Back-off and Aggregation. 56^{th} Annual Meeting of the Association for Computational Linguistics (**ACL**) 2018, Melbourne, Australia. [https://aclanthology.info/papers/P18-1146/p18-1146]
5. 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]

PREPRINTS

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]
2. Naganand Yadati, Madhav Nimishakavi, Prateek Yadav, Anand Louis and Partha Talukdar. HyperGCN: Hypergraph Convolutional Networks for Semi-supervised Classification. [https://arxiv.org/abs/1809.02589]
3. 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]

PROGRAMMING SKILLS

C, C++, Java, C#, SQL, PL/SQL, Cypher, Python, MATLAB, PERL, LaTeX

OTHER PROJECTS

1. Denoising Via Block Wiener Filtering in Wavelet Domain (Course Project).
2. Analysis of Software code using LDA (Course Project).
3. Developed an operating system called PINTOS (Course Project).

GRADUATE COURSEWORK

Probability & Statistics, Computational Methods of Optimization, Data Mining, Information Retrieval, Topics in Pattern Recognition, Probabilistic Graphical Models, Digital Image Processing, Design & Analysis of Algorithms, Automata Theory & Computation, Database Management Systems, Operating Systems, Game Theory, Linear Algebra (audit), Machine Learning (audit) and Topics in Webscale Knowledge Harvesting (audit)

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.
6. Placement coordinator for Department of Computer Science & Automation (CSA) , IISc (Sept 2011 March 2012).
7. Captain for Open Days 2012 at Department of CSA.
8. Served as the Vice Captain for Sports Club, SNIST, Hyderabad (September 2006 - July 2008).