Vivek Gupta

Machine Learning & Natural Language Processing

Contact Information

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Google Scholar

Research Interests

Natural Language Inference, Representation Learning, Extreme Multi-Label Learning, Ethics in Artificial Intelligence

Current Position

School of Computing, University of Utah (Aug 2018 - Present)
Graduate Research Assistant Advisor: Prof. Vivek Srikumar & Prof. Suresh Venkatasubramanian

Education

School of Computing, University of Utah (Aug 2018 - Present)
PhD, Computer Science, School of Computing
Advisor: Prof. Vivek Srikumar & Prof. Suresh Venkatasubramanian (CGPA: 3.8/4)

Indian Institute of Technology, Kanpur (July 2015 - May 2016)
M. Tech, Computer Science and Engineering
Advisor: Prof. Harish Karnick (CGPA: 9.3/10)

Indian Institute of Technology, Kanpur (July 2011 - July 2015)
B. Tech, Computer Science and Engineering (CGPA: 7.5/10)

Employment

Microsoft Research Lab, India (Oct 2016 - Aug 2018)
Research Fellow, Machine Learning and Natural Language Application Dr. Nagarajan Natararjan, Dr. Praneeth Netrapalli & Dr. Prateek Jain

Scholastic Achievements

Selected among the top 7 finalist in **Ericson's Innovation Awards, India** in 2016

Secured **All India Rank 183** in **IIT-JEE 2011** amongst more than 500,000 candidates

Qualified for **Kishore Vaigyanik Protsahan Yojana (KVPY) scholarship, 2011**

Selected among top 1% of students in India, **Indian National Physics Olympiads, 2011**

Selected among top 1% of students in India, **Indian National Chemistry Olympiads, 2011**

Publications

Gupta, V., Nokhiz, P., Dutta, C., Venkatasubramanian, S., *Equalizing Recourse Across Group*, Under Review [PrePrint]

Gupta, V., Kumar, A., Talukdar, P., Netrapalli, P., *Unsupervised Document Representation using Partition Word-Vectors Averaging*, Under Review [PrePrint]

Li, T., **Gupta, V.**, Mehta, M., Srikumar, V., *A logic-Driven Framework for Consistency of Neural Models*, to appear in **EMNLP-IJCNLP 2019** [PrePrint]

Gupta, V., Wadbude, R., Natarajan, N., Karnick, H., Jain, P., Rai, P., *Distributional Semantics meet Multi-Label Learning*, **AAAI 2019** (Oral) [Paper] [Slides] [Poster]

Gupta, V., Saw A., Gupta, H., Nokhiz, P., Talukdar, P., *Word Polysemy Aware Document Vector Estimation*, **NAACL-SRW 2019** (non-archival)

Raunak, V., **Gupta, V.**, Metze, F., *Effective Dimensionality Reduction for Word Embeddings*, **RepL4NLP 2019** [Paper] [Poster]

Raunak, V., Kumar, V., **Gupta, V.**, Metze, F., *On Dimensional Linguistic Properties of the Word Embedding Space*, **ACL-SRW 2019** (non-archival)

Dohare, S., **Gupta, V.**, Karnick, H., *Unsupervised Semantic Abstractive Summarization*, **ACL-SRW 2018** [Paper] [Poster]

Mekala, D., **Gupta, V.**, Paranjape, B., Karnick, H. *Sparse Composite Document Vectors using soft clustering over distributional representations*, **EMNLP 2017** (Oral) [Paper] [Slides]

Gupta, V., Karnick, H.,Bansal, A., Jhala, P. *Product Classification in E-Commerce using Distributional Semantics*, **COLING 2016** (Master Thesis Work) [Paper] [Poster]

Wadbude, R., **Gupta, V.**, Mekala, D., Karnick, H., *User Bias Removal in Review Score Prediction*, **CODS-COMAD 2018** & **DAB 2017**(Oral) [Paper] [Poster]

Gupta, V., Mittal, S., Bhaumik, S., Roy, R. *Assisting Humans to Achieve Optimal Sleep by Changing Ambient Temperature*, **BIBM 2016**, **BHI 2016** & **HI-DS 2016** (Oral) [Paper] [Slides]

Mekala, Dheeraj., **Gupta, V.**, Kar, P., Karnick, H., *Bayes-optimal Hierarchical Classification over Asymmetric Tree-Distance Loss*, Tech Report [PrePrint]

Mahajan, D., **Gupta, V.**, Keerthi, S., Sundararjan, S., *Efficient Estimation of Generalization Error and Bias-Variance Components of Ensembles*, Tech Report [PrePrint]

Master Thesis

Product Categorization in E-Commerce using Distributional Semantics
Prof. Harish Karnick (IIT Kanpur) & Pradhuman Jhala (Flipkart.com) [Thesis] [Slides]

- Proposed a novel distributional semantics representation for text documents.
- Proposed a two-level ensemble approach utilizing (with respect to the taxonomy tree) a path-wise, node-wise and depth-wise classifiers for product classification.

Research Internships

IBM Research, Thomas J. Watson Research Center May 2019 - Aug 2019
Contrastive Explanations for Natural Language Task *Dr. Kush R Varshney (Research Manager)*

Microsoft Research India, Bangalore (May 2016 - Jul 2016)
Estimation of Generalization Error for Ensembles *Dr. Sundararajan Sellamanickam (Principal Applied Scientist)*

Flipkart Internet Pvt. Ltd., Bangalore (May 2015 - July 2015)
Web Scale Product Classification *Pradhuman Jhala (Principal Architect)*

Samsung R&D Institute, Bangalore (May 2014 - July 2014)
Mobile and Healthcare Solution Y2014 *Sandip Bhaumik (Group Manager) & Raj Roy (Manager)*

Professional Services

Program Committee: AAAI 2020, NAACL 2019, ACL-SRW 2019, ACL-SRW 2018, EMNLP 2017.

Coordinator: Recently assigned as the Data Science Club Coordinator at the University of Utah.

Coordinator: Initiated and managed Special Interest Group in Machine Learning at Computer Science and Engineering Department, IIT Kanpur. Organized regular meetups for discussions and talks on topics in Machine Learning and related fields.

Teaching Assistant: for MLT 2016 - Machine Learning Tool and Technique: Mentored a group of 30 M-Tech students part of a course on Machine Learning. Set up a labeling software for project work, resulting in a new dataset.

Student Secretary: in Promotion of Work Experience and Research PoWER & Alumni Contact Program (ACA) under Office of Dean of Research and Development, IIT Kanpur.

Student Volunteer: for mentoring and teaching underprivileged students of primary classes from nearby village (Nankari) at Prayas, IIT Kanpur.

Seminars

I had the opportunity to present my work at various places which I thoroughly enjoyed. [Talks]

Mentorship

I have been extremely lucky to mentor some amazing students while working at Microsoft. [Students]

Grants

I have been fortunate to receive scholarships/grants at several occasions to support my education and research. [Grants]