Ameet Deshpande | ASD

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Education

Princeton University **Princeton**

Ph.D. candidate in Machine Learning, GPA – 3.925/4 *2019–present*

Advisor: Karthik Narasimhan

Research interests: Natural Language Processing and Reinforcement Learning

Indian Institute of Technology Madras **Chennai**

Bachelor of Technology, GPA – 9.73/10 *2015–2019*

Senior Thesis: Leveraging Sentiment Analysis for Reinforcement Learning

Professional Experience

Microsoft India (R&D) Pvt Ltd. **Hyderabad**

Software Engineering Intern *May 2018–July 2018*

- Enabled **faster scale-in** and **scale-out** by **migrating** the core component of Microsoft Azure's Real Time VM Replication service (used for Business continuity and disaster recovery–BCDR) to Azure Service Fabric, a **microservices framework**
- Improved **parallelization** by creating **consistent** and **exclusive** storage structures which facilitated the **migration** of the core
- **Reduced CPU usage by 57%** after hosting the service and achieved close to production performance

Wipro Limited **Bengaluru**

Research Intern *May 2017–July 2017*

- Achieved **higher accuracy** by using **hierarchical classification** (HC) instead of flat classification to organize documents
- Proposed the use of **novel evaluation metrics** for HC which helped gain deeper insights into how **different models** performed
- **Induced hierarchies** in a semi-supervised setting by performing **term clustering** based on corpus and **WordNet** similarities
- **Authored** a white paper highlighting the **technical and business aspects** of Hierarchical Classification

Scholastic Achievements

- Awarded the **CMC Prize** for securing **Branch Rank 2** among 61 students (B.Tech+Dual Degree) of CSE
- Won the **Dr Dilip Veeraraghavan Memorial Award** awarded to the second topper in humanities courses at the institute level
- **All India Rank - 122** in **JEE (Advanced) 2015**, taken by 13 lakh students (99.99 percentile) and **first** rank in Karnataka
- Won **Silver Medal** in the **International Chemistry Olympiad** 2015, Azerbaijan (representing India) contested by 80 countries
- **All India Rank - 18** in **KVPY 2014**, taken by **2 lakh students**; awarded **NTSE Scholarship** by N.C.E.R.T in 2013
- **All India Rank - 160** in Round 1 of **ACM-ICPC** International Collegiate Programming Contest 2016
- Received the government's **MCM scholarship** for being in the **top 10** out of 850 students admitted to IIT Madras in 2015

Publications and Preprints

* indicates equal contribution and **boldface** highlights my name. Please click on the title for a summary of the work.

Conferences and Workshops

[1] *Guiding Attention for Self-Supervised Learning with Transformers*
   A. Deshpande and K. Narasimhan
   Findings of EMNLP (2020).

[2] *CLEVR Parser: A Graph Parser Library for Geometric Learning on Language Grounded Image Scenes*
   R. Saqur and **A. Deshpande**
   2nd Workshop for Natural Language Processing Open Source Software (NLP-OSS), EMNLP (2020).

[3] *Leveraging Ontological Knowledge for Neural Language Models*
   A. Deshpande and M. Jegadeesan
   Proceedings of the ACM India Joint International Conference on Data Science and Management of Data (2019).

[4] *Figurenet: A deep learning model for question-answering on scientific plots*
R. Reddy, R. Ramesh, **A. Deshpande**, and M. M. Khapra
2019 International Joint Conference on Neural Networks (IJCNN) (2019).

Notable Preprints..

[1] *Sentiment Analysis for Reinforcement Learning*
A. Deshpande and E. Fleisig
arXiv preprint arXiv:2010.02316 (2020).

[2] *Evaluating a Generative Adversarial Framework for Information Retrieval*
A. Deshpande and M. M. Khapra
arXiv preprint arXiv:2010.00722 (2020).

[3] *Improvements on hindsight learning*
A. Deshpande, S. Sarma, A. Jha, and B. Ravindran
arXiv preprint arXiv:1809.06719 (2018).

Social and Professional Service

Diversity in AI	• **Princeton AI4ALL, 2020:** Research instructor for Princeton AI4ALL, an initiative intended to increase diversity and inclusion in the field of artificial intelligence. Developed material, taught classes, and mentored a group of six students on a natural language processing project on detecting fake news • **Deep Learning Master Class, 2019** Conducted classes for an audience of **90** undergraduates and post-graduates from different departments, covering basics of machine learning and deep learning [Slides]
Teaching	• COS324: Introduction to Machine Learning (Prof. Sanjeev Arora), Fall 2020 • COS484: Natural Language Processing (Prof. Karthik Narasimhan), Spring 2020*
Reviewing and PC	• AAAI (2020)

Talks and Posters

• Guiding Attention for Self-Supervised Learning with Transformers [Link]	IBM Research, New York, 2020
• CLEVR Parser: Geometric Learning on Language Grounded Scenes [Link]	NLP-OSS, EMNLP 2020

Positions of Responsibility

Sponsorship, Saarang 2017	• Managed publicity content pertaining to Saarang; garnered **2.25 lakh likes** on Facebook, **increasing** it by 90k • Part of the Sponsorship team that raised 1.6 Cr INR, **highest** by any student run college festival in India
Data Analytics, Exebit 2018	• Single-Handedly managed the **Data Analytics event** of the Computer Science **technical festival** • **Designed the problem statements** for the screening round and Kaggle hosted fraud detection challenge
Mentor, Saathi, 2018	• **Mentored** a group of 8 freshmen to assist them in academic, co-curricular, and extra-curricular activities

Extra-curricular activities

Sports	• Part of Inter-College IIT Madras 'B' team for Football two years in a row; Dorm football **captain** ('17-'18) • Won 3 **silvers** in cycling, 2 **silvers** in Road-Race (7.8 km) and a **bronze** in football (Inter-Hostel Sports)
Sci-tech	• Part of the hostel team which finished **1st** in Inter Hostel Technical Meet (**TechSoc**) 2017 and **3rd** in 2016 • Finished **second out of 500 teams** in Mimamsa 2017, an **All India Science Quiz** held by IISER Pune

Relevant Courses

- Reinforcement Learning
- Deep Learning
- Natural Language Processing
- Topics in Reinforcement Learning
- Principles of Machine Learning
- Theoretical Machine Learning
- Computational Models of Cognition
- Computational Neuroscience
- Philosophy of Mind