Meghana Moorthy Bhat (updated August 7, 2019)

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RESEARCH INTERESTS

Data mining, NLP, graphical models and deep learning.

EDUCATION

Ohio State University, Columbus, OH, USA

Ph.D. in Computer Science August 2019 - May 2024 (Expected)

University of Wisconsin-Madison, Madison, WI, USA

Master of Science, Computer Science Sep 2017 - May 2019
(CGPA: 3.6/4.0)

Sri Jayachamarajendra College of Engineering (SJCE), Mysore, India
Bachelor of Engineering (Honours), Computer Science Sep 2008 - Jun 2012
(CGPA: 9.21/10)

RESEARCH EXPERIENCE

Research Intern, Mila, Montreal, QC

Adviser: Prof. Laurent Charlin June 2019 - August 2019

TPMS: Proposed methodology to assign reviewers for the submitted papers in conferences using Microsoft CMT.
Methodology:

- *Document Representation:* Developed different DL models including autoencoders and language models for creating embedding of documents.

- *Evaluation:* Performed evaluation in two different aspects: Clustering and supervised learning approach using fully connected neural network inspired from Siamese networks.

Graduate Researcher, UW-Madison, WI, USA

Adviser: Prof. Theodoros Rekatsinas Sep 2017 - Dec 2018

- **Error Detection and Correction using Deep Learning:** Proposed algorithms to perform error detection and correction for structured data using deep learning (DL).
  Methodology:

  - *Representation:* Mapped every tuple to numeric representation in multi-dimensional space.

  - *Models:* Developed DL models using GRU for training embeddings across rows and columns

  - Tested the methodology for synthetic errors in real-world datasets consisting of null values, typos and shuffled attribute values.

  - *Evaluation:* Evaluated against few of the current state-of-the art methods like HoloClean

- **Approximate discovery of Functional Dependencies (FDs) using structure learning:** Explored different mechanisms with fellow lab-mates to derive FDs from a noisy dataset using structure learning.
  Methodology:

  - Mapped word to latent vector representation and used attention, logistic regression to obtain the high-level structure of potential FD candidates.

- Developed mutual information estimator methods to obtain potential FD candidates from the previous step.
- Tested the accuracy of results against HoloClean for different noisy datasets.

PROFESSIONAL EXPERIENCE	**University of Wisconsin-Madison**, Madison, WI, USA	
	Graduate Project Assistant	Jan 2019 - May 2019
	Qualcomm, San Diego, CA, USA	
	Machine Learning Intern	June 2018 - Aug 2018
	Intel Corporation, Bangalore, India	
	Design and Software Engineer (Infrastructure and performance modelling)	Jul 2012 - Jul 2017

PAPERS AND CONFERENCES

1. Zhixuan Zhou, Huankang Guan, **Meghana Bhat** and Justin Hsu "Detecting Fake News with NLP: Challenges and Possible Directions." International Conference on Agents and Artificial Intelligence (ICAART) 2019 **(To Appear).**
2. **Meghana Moorthy Bhat**, Josef Eckmueller, Melwyn Scudder. "Performance Optimization of Virtual Prototypes." DTTC Intel, Portland, Oregon, USA 2015. (DTTC is Intel global internal conference)
3. **Meghana Moorthy Bhat**, Melwyn Scudder, Kartik Shah. "Virtual Prototype (VP) Quality Improvement Methodology." DvCon India, Bangalore, India, 2015.

TEACHING EXPERIENCE

Department of Mathematics, UW-Madison

Grader/Reader, MATH 113: Trigonometry   Jan 2019 - May 2019
Served as Grader for a class of 75 students, with duties of grading papers and help students on reviewing exam papers.

Department of Computer Science, UW-Madison

Grader/Reader, CS 640: Introduction to Computer Networks   Jan 2018 - May 2018
Served as Grader for a class of 120 students, with duties of grading papers, holding office hours to help students on reviewing exam papers.

TECHNICAL SKILLS

Scientific Computing - Python (numpy, scipy, sklearn, TensorFlow, Keras)

General-purpose Programming & Others - Java, C++, LaTeX, HTML, SQL

COURSEWORK

UW Madison	**SJCE Mysore**
CS 839 Data Management for Machine Learning Applications	Databases and Management Systems
CS 839 Topics in Security	Algorithms and Data Structures
CS 838 Data Science: Principles, Algorithms, Applications	Operating Systems
CS 760 Machine Learning	Introduction to Networks
CS 765 Data Visualization	
CS 577 Introduction to Algorithms	

PROJECTS

Detecting Fake News with NLP: Challenges and Possible Directions

UW-Madison (Adviser: Prof. Justin Hsu)   Sep 2018 - Nov 2018

Designed adversarial attacks that can 'fool' classification algorithms built on fact checking using NLP algorithms.

Snapdragon Neural Processor Engine (SNPE)

Qualcomm (Adviser: Mark Charlebois)   June 2018 - Aug 2018

Worked on enabling 8-bit CPU (Fixed point math) in SNPE for better performance in overall speed-up and lesser memory consumption for SNPE AI powered phones.

Entity Matching using Machine Learning and Deep Learning

UW-Madison (Course: Data Science, with Prof. AnHai Doan)   Feb 2018 - Apr 2018

Performed entity matching of books from raw data of Amazon and GoodReads using Magellan and DeepMatcher. Performed benchmark analysis of both the approaches to understand the respective trade-offs. Code

Speaker Detection Algorithm for Safer Home Project

UW-Madison (Adviser: Prof. Suman Banerjee)   Feb 2018 - Apr 2018

As a team member of Safer Home project, extended Paradrop to incorporate speaker detection module using hidden markov process. The project Safer Home emerged as one of the winner teams in US Ignite challenge. Link

Performance Optimization for Virtual Prototypes

Intel Corporation (Manager: Bharat Singh)   Jan 2013 - Jan 2014

Designed and developed a profiler system to identify potential performance bottlenecks. It is a Python tool built from the ground up. Later, added further features for performing data analysis on cache hits and misses. Received Department Recognition Award for the outstanding contribution.

HONOURS AND ACHIEVEMENTS	Qualcomm Hackathon Finalist - Award for Innovation, 2018.
	Application development award from US Ignite for SAFER Home project.
	Department Recognition Award, Intel Corporation for successful critical project completion, 2015.
	Employee Recognition Award, Intel Corporation for acceptance of poster presentation in DvCon India, 2015.
	Employee Recognition Award, Intel Corporation for customer satisfaction and flexibility, 2014.
	Conferral of the Honours degree in CSE, SJCE Mysore, 2012 (Requires minimum of 8.5 CGPA throughout the last two years of undergraduate studies).
	State Board Merit Scholarship, Karnataka Secondary Education Examination Board (KSEEB) India, for 4 years of undergraduate study covering 75% of undergraduate tuition fee, 2008-2012.
	Ranked All India 780 out of 400,000 candidates in Common Entrance Test, 2008.
EXTRACURRICULAR ACTIVITIES	Carnatic classical vocalist - Performed over 300+ concerts across India and USA. Audio
	Volunteered for Linux Club and SJCE music club during undergraduate studies to organize tech talks and events.