

Harshavardhan P Kamarthi

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Research Interests: Sequence prediction, Uncertainty Quantification, Epidemic Forecasting, Reinforcement Learning, Deep Learning

Education

Georgia Institute of Technology

Machine Learning PhD, Computational Science and Engineering, GPA: 4.0/4.0

Advisor: B Aditya Prakash

Atlanta, GA

Jan 2021- Current

Indian Institute of Technology Madras

Dual Degree (B.Tech + M.tech) in Computer Science and Engineering, GPA: 9.7/10

Chennai, India

Aug 2015 - Aug 2020

- o Masters advisor: Balaraman Ravindran
- o Won awards for best Academic record and best Masters project
- o Thesis title: *Learning policies for Social Network Discovery with Reinforcement Learning*

Research

Conferences.....

- [C1] *When in Doubt: Neural Non-Parametric Uncertainty Quantification for Epidemic Forecasting* [PAPER] [CODE]
Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodríguez, Chao Zhang, B Aditya Prakash
Conference on Neural Information Processing Systems (NeurIPS) 2021
- [C2] *Influence maximization in unknown social networks: Learning Policies for Effective Graph Sampling* [PAPER] [CODE]
Harshavardhan Kamarthi, Priyesh Vijayan, Bryan Wilder, Balaraman Ravindran, Milind Tambe
International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2020
(Nominated for best paper award)
- [C3] *Reinforcement Learning for Unified Allocation and Patrolling in Signaling Games with Uncertainty* [PAPER] [CODE]
Aravind Venugopal, Elizabeth Bondi, **Harshavardhan Kamarthi**, Keval Dholakia, Balaraman Ravindran, Milind Tambe
International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2021
- [C4] *Integrating Lexical Knowledge in Word Embeddings using Sprinkling and Retrofitting* [PAPER]
Harshavardhan Kamarthi*, Aakash Srinivasan*, Devi Ganesan, Sutanu Chakraborti
International Conference on Natural Language Processing 2020

Notable Preprints.....

- [P1] *Back2Future: Leveraging Backfill Dynamics for Improving Real-time Predictions in Future* [PAPER] [CODE]
Harshavardhan Kamarthi, Alexander Rodríguez, B Aditya Prakash; 2021
- [P2] *CAMul: Calibrated and Accurate Multi-view Time-Series Forecasting* [PAPER] [CODE]
Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodríguez, Chao Zhang, B Aditya Prakash; 2021

Workshops.....

- [W1] *Selective Intervention Planning using Restless Multi-Armed Bandits to Improve Maternal and Child Health Outcomes*
Siddharth Nishtala, Lovish Madaan, **Harshavardhan Kamarthi**, Anirudh Grama, Divy Thakkar, Dhyanesh Narayanan, Suresh Chaudhary, Neha Madhiwalla, Ramesh Padmanabhan, Aparna Hegde, Pradeep Varakantham, Balaraman Ravindran, Milind Tambe
AAAI 2021 Workshop on AI For Behavior Change
- [W2] *Missed calls, Automated Calls and Health Support: Using AI to improve maternal health outcomes by increasing program engagement*
Siddharth Nishtala, **Harshavardhan Kamarthi**, Divy Thakkar, Dhyanesh Narayanan, Anirudh Grama, Aparna Hegde, Ramesh Padmanabhan, Neha Madhiwalla, Suresh Chaudhary, Balaraman Ravindran, Milind Tambe
Harvard CRCS Workshop on AI for Social Good 2020

Professional Experiences

Microsoft (R&D) Pvt Ltd

Software Development Intern

Hyderabad, India

May 2018 - July 2018

- Worked on Agriculture stack of Microsoft India's Digital Intelligent Cloud powered platform
- Explored capabilities of R and Scala libraries for **distributed Geo-spatial data processing**,
- Extend data processing models to distributed setting that enabled fast and efficient scale up.
- Optimized **parallel processing algorithms** for analysis of raster data and **improved efficiency to about one-third** of initial implementation.

Indian Institute of Science

Summer Research Intern

Bangalore, India

May 2017 - July 2017

- Mentor: **Dr. Anand Louis**
- Selected as one of the 20 interns across the country to **Narendra Internship Program**
- Studied recent approximation algorithms for various types of k-clustering problems.
- Worked on a constant factor approximation for min max k-clustering problem in Euclidean space.

Honors and Awards

Lakshmi Ravi Award

Best Masters (Dual Degree) Project, **1st** out of class of 61

May 2020

Alumni Association Award

Best Academic Record in Computer Science, **1st** out of class of 61

May 2020

Kishore Vaigyanik Protsahan Yojana Fellow

National rank 82 out of over 100,000 participants

2015

National Talent Search Scholar

0.5% acceptance out of over 1,000,000

2012

Services

Professional.....

2021: International Workshop on Epidemiology meets Data Mining and Knowledge

Reviewer

2021: National Symposium on Predicting Emergence of Virulent Entities by Novel Technologies (PREVENT)

PR and

Tech

2020: IJCAI workshop in AI for Social Good

Reviewer

2017: Software Programming Workshop at IIT Madras

Co-Organizer and Problem Writer

Teaching Assistant.....

Fall 2019: CS6250: Computational Models of Cognition (Dr. Sutanu Chakraborty)

IIT Madras

Spring 2020: CS6700: Reinforcement Learning (Dr. Balaraman Ravindran)

IIT Madras

Relevant Courses

Principles of Machine Learning, Deep Learning, Reinforcement Learning, Natural Language Processing, Convex Optimization, Randomized Algorithms, Philosophy of mind, Cognitive models of Cognition, Computational Neuroscience, Graphical Models

Technical skills

Languages: Python, R, C, C++, Julia, Java

Tools: PyTorch, \LaTeX , Git, CUDA