Harshavardhan P Kamarthi

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Research Interests: Time-Series forecasting, Uncertainty Quantification, Structure Learning, Multi-modal Deep Learning

Education

Georgia Institute of Technology — **Atlanta, GA**
Machine Learning PhD, Computational Science and Engineering, GPA: 4.0/4.0 — *Jan 2021- Current*
Advisor: B Aditya Prakash

Indian Institute of Technology Madras — **Chennai, India**
Dual Degree (B.Tech + M.tech) in Computer Science and Engineering, GPA: 9.7/10 — *Aug 2015 - Aug 2020*

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

Research

Conferences

[C1] *Back2Future: Leveraging Backfill Dynamics for Improving Real-time Predictions in Future* [Paper] [Code]
Harshavardhan Kamarthi, Alexander Rodriguez, B Aditya Prakash; 2021
ICLR 2022

[C2] *CAMul: Calibrated and Accurate Multi-view Time-Series Forecasting* [Paper] [Code]
Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B Aditya Prakash; 2021
WWW 2022

[C3] *When in Doubt: Neural Non-Parametric Uncertainty Quantification for Epidemic Forecasting* [Paper] [Code]
Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B Aditya Prakash
Conference on Neural Information Processing Systems (NeurIPS) 2021

[C4] *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)

[C5] *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

[C6] *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

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

Preprints

[P1] *PROFHIT: Probabilistic Robust Forecasting for Hierarchical Time-series* [Paper] [Code]
Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B. Aditya Prakash

[P2] *Data-Centric Epidemic Forecasting: A Survey* [Paper]
Alexander Rodriguez*, **Harshavardhan Kamarthi***, Pulak Agarwal, Javen Ho, Mira Patel, Suchet Sapre, B. Aditya Prakash

[P3] *PEMs: Pre-trained Epidemic Time-Series Models* [Paper]
Harshavardhan Kamarthi, B. Aditya Prakash

[P4] *Learning Latent Graph Structures for Accurate and Calibrated Time-series Forecasting* [Paper]
Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B. Aditya Prakash

Professional Experiences

Samsung Research America — **Mountain View, CA**
Research Intern — *May 2022 - Aug 2022*

Microsoft (R&D) Pvt Ltd — **Hyderabad, India**
Software Development Intern — *May 2018 - July 2018*

Indian Institute of Science — **Bangalore, India**
Summer Research Intern — *May 2017 - July 2017*

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

Tutorials

2022: Data-centric Epidemic Forecasting — *KDD*

2023: AI for Data-centric Epidemic Forecasting — *AAAI*

Grant Writing

NSF Predictive Intelligence for Pandemic Prevention Phase I: Development Grants
BEHIVE - BEHavioral Interaction and Viral Evolution for Pandemic Prevention and Prediction
PI: Dr. B. Aditya Prakash, with collaborators from Georgia Tech, MIT, Univ. of Michigan, Mayo Clinic, and Univ. of Georgia

Professional

2021, 2022: NeurIPS — *Reviewer*

2022: ICLR — *Reviewer*

2021, 2023: KDD — *Reviewer*

2023: ICML — *Reviewer*

2021, 2022: 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 2022: CS8803 Epi: Data Science for Epidemiology (Dr. B Aditya Prakash) *Georgia Tech*

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

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

Relevant Courses

Statistical Machine Learning, Probabilistic Graphical Models, Computer Vision, Data science for Epidemiology, Convex Optimization, Principles of Machine Learning, Deep Learning, Reinforcement Learning, Natural Language Processing,

Technical skills

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

Tools: PyTorch, LaTeX, Git, CUDA