

# 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

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] *PROFHIT: Probabilistic Robust Forecasting for Hierarchical Time-series* [PAPER] [CODE]  
**Harshavardhan Kamarthi**, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B. Aditya Prakash;  
KDD 2023
- [C2] *Back2Future: Leveraging Backfill Dynamics for Improving Real-time Predictions in Future* [PAPER] [CODE]  
**Harshavardhan Kamarthi**, Alexander Rodriguez, B Aditya Prakash;  
ICLR 2022
- [C3] *CAMul: Calibrated and Accurate Multi-view Time-Series Forecasting* [PAPER] [CODE]  
**Harshavardhan Kamarthi**, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B Aditya Prakash;  
WWW 2022
- [C4] *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
- [C5] *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)**
- [C6] *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
- [C7] *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

## Preprints

- [P1] *Data-Centric Epidemic Forecasting: A Survey* [PAPER]  
Alexander Rodriguez\*, **Harshavardhan Kamarthi\***, Pulak Agarwal, Javen Ho, Mira Patel, Suchet Sapre, B. Aditya Prakash
- [P2] *PEMs: Pre-trained Epidemic Time-Series Models* [PAPER]  
**Harshavardhan Kamarthi**, B. Aditya Prakash
- [P3] *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

<b>Samsung Research America</b> <i>Research Intern, Host: Yen-Chang Hsu</i> Research topic: Semi-Parametric Prompt generation for editing Large Language Models' beliefs	<b>Mountain View, CA</b> May 2022 - Aug 2022
<b>Microsoft (R&amp;D) Pvt Ltd</b> <i>Software Development Intern</i>	<b>Hyderabad, India</b> May 2018 - July 2018
<b>Indian Institute of Science</b> <i>Summer Research Intern</i>	<b>Bangalore, India</b> May 2017 - July 2017

## Honors and Awards

<b>Lakshmi Ravi Award</b> <i>Best Masters (Dual Degree) Project at IIT Madras, 1st out of class of 61</i>	May 2020
<b>Alumni Association Award</b> <i>Best Academic Record in Computer Science at IIT Madras, 1st out of class of 61</i>	May 2020
<b>Kishore Vaigyanik Protsahan Yojana Fellow</b> <i>National rank 82 out of over 100,000 participants</i>	2015
<b>National Talent Search Scholar</b> <i>0.5% acceptance out of over 1,000,000</i>	2012

## Services

### Tutorials

<b>Data-centric Epidemic Forecasting</b> Alexander Rodriguez*, <b>Harshavardhan Kamarthi*</b> , B Aditya Prakash [LINK TO SLIDES]	<b>KDD 2022</b>
<b>AI for Data-centric Epidemic Forecasting</b> Alexander Rodriguez*, <b>Harshavardhan Kamarthi*</b> , B Aditya Prakash [LINK TO SLIDES]	<b>AAAI 2023</b>

### 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

<b>2021, 2022:</b> NeurIPS	Reviewer
<b>2022:</b> ICLR	Reviewer
<b>2021, 2023:</b> KDD	Reviewer
<b>2023:</b> ICML	Reviewer

<b>2021, 2022:</b> International Workshop on Epidemiology meets Data Mining and Knowledge	<i>Reviewer</i>
<b>2021:</b> National Symposium on Predicting Emergence of Virulent Entities by Novel Technologies (PREVENT)	<i>PR and Tech</i>
<b>2020:</b> IJCAI workshop in AI for Social Good	<i>Reviewer</i>
<b>2017:</b> Software Programming Workshop at IIT Madras	<i>Co-Organizer and Problem Writer</i>
<b>Teaching Assistant</b> .....	
<b>Fall 2022:</b> CS8803 Epi: Data Science for Epidemiology (Dr. B Aditya Prakash)	<i>Georgia Tech</i>
<b>Fall 2019:</b> CS6250: Computational Models of Cognition (Dr. Sutanu Chakraborty)	<i>IIT Madras</i>
<b>Spring 2020:</b> CS6700: Reinforcement Learning (Dr. Balaraman Ravindran)	<i>IIT Madras</i>

## Relevant Courses

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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

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

**Tools:** PyTorch,  $\LaTeX$ , Git, CUDA