

Harshavardhan P Kamarthi

S1349Q, 756 W Peachtree St NW, Atlanta GA 30308

📞 +1 (404) 789 6249 • ✉ hkamarthi3@gatech.edu • 🌐 harsha-pk.com • 🌐 kage08

Research Interests: Foundational time-series models, Scalable and robust Time-Series forecasting, Probabilistic Forecasting, Uncertainty Quantification and Epidemic Forecasting

Education

Georgia Institute of Technology

Machine Learning PhD, Computational Science and Engineering, GPA: 3.9/4.0

Advisor: B Aditya Prakash

Atlanta, GA

Jan 2021- June 2025 (Expected)

Indian Institute of Technology Madras

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

○ 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*

Chennai, India

Aug 2015 - Aug 2020

Research

Recent Preprints.....

[P1] *Large Pre-trained time series models for cross-domain Time series analysis tasks (2024)* [PAPER] [CODE]

Harshavardhan Kamarthi, B. Aditya Prakash

[P2] *PEMs: Pre-trained Epidemic Time-Series Models (2023)* [PAPER]

Harshavardhan Kamarthi, B. Aditya Prakash

Conferences.....

[C1] *Large Scale Hierarchical Industrial Demand Time-Series Forecasting incorporating Sparsity* [PAPER] [CODE]

Harshavardhan Kamarthi, Aditya B Sasanur, Xinjie Tong, Xingyu Zhou, James Peters, Joseph Czyzyk, B. Aditya Prakash;

KDD Applied Data Science Track 2024

[C2] *LSTPrompt: Large language models as zero-shot time series forecasters by long-short-term prompting*

Haoxin Liu, Zhiyuan Zhao, Jindong Wang, **Harshavardhan Kamarthi**, B. Aditya Prakash;

ACL Findings 2024

[C3] *Time-Series Forecasting for Out-of-Distribution Generalization Using Invariant Learning* [PAPER] [CODE]

Haoxin Liu, **Harshavardhan Kamarthi**, Zhiyuan Zhao, Chao Zhang B. Aditya Prakash;

ICML 2024

[C4] *PROFHIT: Probabilistic Robust Forecasting for Hierarchical Time-series* [PAPER] [CODE]

Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B. Aditya Prakash;

KDD 2023

[C5] *Back2Future: Leveraging Backfill Dynamics for Improving Real-time Predictions in Future* [PAPER] [CODE]

Harshavardhan Kamarthi, Alexander Rodriguez, B Aditya Prakash;

ICLR 2022

[C6] *CAMul: Calibrated and Accurate Multi-view Time-Series Forecasting* [PAPER] [CODE]

Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B Aditya Prakash;

WWW 2022

[C7] *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

[C8] *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)

- [C9] *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
- [C10] *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] *Learning Latent Graph Structures for Accurate and Calibrated Time-series Forecasting* [PAPER][CODE]
Harshavardhan Kamarthi, Lingkai Kong, Alexander Rodriguez, Chao Zhang, B. Aditya Prakash
UDM Workshop at KDD 2024
- [W2] *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
- [W3] *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

Journals

- [J1] *Data-Centric Epidemic Forecasting: A Survey* [PAPER]
Alexander Rodriguez*, **Harshavardhan Kamarthi***, Pulak Agarwal, Javen Ho, Mira Patel, Suchet Sapre, B. Aditya Prakash
To Appear at Nature Machine Intelligence
- [J2] *Evaluation of FluSight influenza forecasting in the 2021-22 and 2022-23 seasons with a new target laboratory-confirmed influenza hospitalizations* [PAPER]
Sarabeth M Mathis, Alexander E. Webber, Tomasz M. LeÅşn, Erin L. Murray, Monica Sun, Lauren A. White, Logan C. Brooks, Alden Green, Addison J. Hu, Roni Rosenfeld, Dmitry Shemetov, Ryan J. Tibshirani, Daniel J. McDonald, Sasikiran Kandula, Sen Pei, Rami Yaari, Teresa K. Yamana, Jeffrey Shaman, Pulak Agarwal, Srikar Balusu, Gautham Gururajan, Harshavardhan Kamarthi, B. Aditya Prakash, et. al
Nature Communications 2024

Other Preprints

- [OP1] *Efficient language model editing via contextual prompt generator (2022)* [PAPER]
Harshavardhan Kamarthi, Yen-Chang Hsu, Yilin Shen, Hongxia Jin

Professional Experiences

Conviva

Research Intern, Host: Vyas Sekar

Research topic: Building a Mixture of Expert models for Root-cause prediction of anomalies in App and Video streaming data

Foster City, CA

May 2024 - Aug 2024

Conviva

Research Intern, Host: Vyas Sekar

Research topic: Real-time Multi-cohort user analytics time-series anomaly detection

Foster City, CA

May 2023 - Aug 2023

Samsung Research America

Research Intern, Host: Yen-Chang Hsu

Research topic: Semi-Parametric Prompt generation for editing Large Language Models' beliefs

Mountain View, CA

May 2022 - Aug 2022

Microsoft (R&D) Pvt Ltd

Software Development Intern

Hyderabad, India

May 2018 - July 2018

Honors and Awards

Lakshmi Ravi Award

Best Masters (Dual Degree) Project at IIT Madras, **1st** out of class of 61 May 2020

Alumni Association Award

Best Academic Record in Computer Science at IIT Madras, **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

Talks.....

Keynote Talk on Robust Time-series Forecasting KDD 2023

Workshop on Uncertainty Reasoning and Quantification in Decision Making

Tutorials.....

Data-centric Epidemic Forecasting KDD 2022

Alexander Rodriguez*, **Harshavardhan Kamarthi***, B Aditya Prakash [LINK TO SLIDES]

AI for Data-centric Epidemic Forecasting AAAI 2023

Alexander Rodriguez*, **Harshavardhan Kamarthi***, B Aditya Prakash [LINK TO SLIDES]

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, 2023: NeurIPS Reviewer

2022, 2023: ICLR Reviewer

2021, 2023: KDD Reviewer

2023, 2024: ICML Reviewer

2021, 2022, 2023: 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
Reviewer

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,

Technical skills

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

Tools: PyTorch, \LaTeX , Git, CUDA