Namrata Nadagouda

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Website: https://nnadagouda95.github.io

RESEARCH INTERESTS Human-in-the-loop learning, learning from similarity comparisons, active learning, preference learning, representation learning

EDUCATION

Ph.D. Electrical & Computer Engineering August 2019 - Present
Georgia Institute of Technology, Atlanta, GA
Advisor: Prof. Mark Davenport

M.S. Electrical & Computer Engineering December 2020
Georgia Institute of Technology, Atlanta, GA

B.Tech. Electrical & Electronics Engineering May 2017
National Institute of Technology Karnataka, Surathkal, India

PUBLICATIONS

N. Nadagouda, Y. Teng and M. Davenport, "Active query synthesis for preference learning", *In preparation.*

N. Nadagouda, A. Xu and M. Davenport, "Active metric learning and classification using similarity queries", in *Uncertainty in Artificial Intelligence (UAI)*, August 2023. Also presented at Human in the Loop Learning Workshop, *Neural Information Processing Systems (NeurIPS), December 2022.*

A. McRae, A. Xu, J. Jin, **N. Nadagouda**, N. Ahad, P. Guan, S. Karnik and M. Davenport, "Delta Distancing: A Lifting Approach to Localizing Items From User Comparisons", in *Proc. IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP), May 2022.*

N. Nadagouda and M. Davenport, "Switched Hawkes Processes", in *Proc. IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP), June 2021.*

G. Canal, M. Connor, J. Jin, **N. Nadagouda**, M. O'Shaughnessy, C. Rozell and M. Davenport, "The Picasso Algorithm for Bayesian Localization Via Paired Comparisons in a Union of Subspaces Model", in *Proc. IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP), May 2020.*

ABSTRACTS

N. Ahad, **N. Nadagouda**, E. Dyer and M. Davenport, "Active learning for time instant classification", at Data-centric Machine Learning Research Workshop, *International Conference on Machine Learning (ICML), July 2023.*

Y. Teng, A. Mamuye, E. Mo, K. Zhu, R. Walker, **N. Nadagouda** and M. Davenport, "Range-Only Simultaneous Localization and Mapping using Paired Comparisons", at *IEEE Annual Conf. on RFID, April 2021.*

N. Nadagouda and M. Davenport, "Switched Hawkes Processes", at *Workshop on Recent Developments on Mathematical/Statistical approaches in Data Science (MSDAS), June 2019.*

ARTICLES

N. Nadagouda, "Journey of a researcher: Finding pleasure in the pathless woods", *American Ceramic Society Bulletin*, Student Perspectives, June/July 2020.

RESEARCH EXPERIENCE

Active learning for time series data Summer 2023 - present
Working on developing a method for classifying individual instants of time series data. The data consists of features which repeat at regular intervals and the existence of these correlations poses a unique challenge for active label selection.

Active query synthesis Fall 2022 - present
Working on developing a method for synthesizing queries actively for preference learning. Queries are pairwise comparisons of the form – *Which among a pair of items, A and B does a user prefer?* The user's preferences are estimated using a Bayesian framework iteratively by acquiring responses to the queries.

Unified framework for active learning Fall 2019 - Summer 2022
Developed a unified query framework for active learning based on nearest neighbor queries. This method can be applied to any problem which involved learning a representation of the dataset that respects the underlying similarity. Demonstrated the performance of the method for active deep metric learning and active image classification using deep neural networks.

Active similarity learning and manifold graphs Fall 2019 - Summer 2022
Implemented active image classification strategies for semi-supervised classification on CIFAR-100 and DomainNet datasets. This project was funded by the *DARPA LwLL – Learning with Less labels* program.

Preference learning Fall 2019 - Summer 2022
The problem consists of estimating a user's preferences over a set of items. We use the ideal point model to localize a user in an embedding of items. Worked on a variety of problems involving localizing new items and users.

Switched Hawkes Processes Fall 2018 - Summer 2019
Developed the Switched Hawkes Process which can be used to model systems in which the parameters of the process dynamically change depending on some (known) external state. We propose a simple maximum likelihood estimation approach and apply our model to a real-world traffic sensor dataset to study traffic patterns during different configurations of the traffic lights at an intersection.

TEACHING EXPERIENCE

Mentor for undergraduate students
Yue Teng 2020 - 2022
Amran Mamuye, Eunsan Mo, Kerui Zhu, Robert Walker 2020 - 2021
Guided the above students to work on a research project focused on simultaneous localization and mapping using paired comparisons of distances.

Graduate Teaching Assistant Spring 2021
Georgia Tech ECE 6270 - Convex Optimization

Teaching Assistant June 2019
Hands-on-Tech Georgia Tech Day Camp - Machine Learning

Graduate Teaching Assistant Spring 2019
Georgia Tech CS 4641 - Machine Learning

Graduate Teaching Assistant Fall 2018
Georgia Tech ECE 8843/ISYE 8843/CS 8803/BMED 8813 -
Mathematical Foundations of Machine Learning

WORK EXPERIENCE

Intern Summer 2018
Hedge Fund Start-up, Atlanta, GA
Data management and data pre-processing of stock trade data & performance evaluation of trading algorithms

Research Intern, Microarchitecture Research Lab Fall 2016
Intel India - Intel Labs, Bangalore, India
Study and design of specialized hardware for Linear Algebra operations

Research Intern Summer 2016
Department of Electrical Communication Engineering
Indian Institute of Science, Bangalore, India
Target Self-Localization using Beacon Nodes

AWARDS

Registration and Travel Awards

Women in Data Science and Mathematics Workshop - IPAM — August 2023
UAI registration funding
ICML registration funding

Deep Learning Theory Workshop and Summer School — August 2022
Simons Institute, University of California, Berkeley

Women and Math workshop, IAS, Princeton — May 2022

ICML Diversity and Inclusion Fellowship — July 2020

MSDAS Workshop, UTD — June 2019

Hackathons

Winner, Technical Track, Hacklytics — February 2019
Data Science at Georgia Tech

Academic Awards and Scholarships

NITK Institute Gold Medal — 2017
1986 Batch Gold Medal — 2017
Prof. M. R. Shenoy Memorial Prize — 2017
Prof. K. M. Hebbar Gold Medal — 2017
NITK Surathkal Merit Scholarship — 2013 - 2017

WORKSHOPS ATTENDED

Women in Data Science and Mathematics — August 2023
Institute for Pure and Applied Mathematics
University of California, Los Angeles

Deep Learning Theory Workshop and Summer School — August 2022
Simons Institute, University of California, Berkeley

The Mathematics of Machine Learning — May 2022
Women and Math Program
Institute for Advanced Study, Princeton, NJ

Algorithmic Learning Theory Mentoring Workshop — March 2022
Online

Foundation of Data Science Summer School — August 2019
Georgia Institute of Technology, Atlanta, GA

Recent Developments on Mathematical/Statistical approaches in Data Science — June 2019
University of Texas at Dallas, Richardson, TX

SERVICE

Member, GT Mural Team — 2022
Reviewer, AIStats Conference — 2021
Reviewer, GT President's Undergraduate Research Award — 2021 - 2022
Teaching Volunteer, Shiksha, ACM NITK Student Chapter — 2016
Student Representative, NITK Student Council — 2013 - 2014