Purva Pruthi   ppruthi@cs.umass.edu
University of Massachusetts, Amherst, USA   https://purvapruthi.github.io/

OBJECTIVE

I am a machine learning researcher with experience in applying machine learning to multiple domains like finance, agriculture, and biology. My research focuses on using principles of causal inference and probabilistic machine learning to build robust, data-efficient, and explainable intelligent systems.

EDUCATION

University of Massachusetts, Amherst   2018 – Present
Ph.D. Candidate, Computer Science
Advisor: Prof. David Jensen

University of Massachusetts, Amherst   2018 – 2021
M.S. in Computer Science; GPA: (3.95/4.0)
Advisors: Prof. David Jensen, Prof. Madalina Fiterau

Indian Institute of Technology, Roorkee, India   2011 – 2015
Bachelor of Technology in Computer Science and Engineering; CGPA: (8.5/10.0)
Advisor: Prof. Durga Toshniwal

RESEARCH PUBLICATIONS

Conference and Workshop Publications

[1] Amanda Gentzel, **Purva Pruthi**, and David Jensen. "How and why to use experimental data to evaluate methods for observational causal inference." *International Conference on Machine Learning.* PMLR, 2021.

[2] **Purva Pruthi**, Javier Gonzalez, Xiaoyu Lu, and Madalina Fiterau."Structure Mapping for Transferability of Causal Models." *Inductive Biases, Invariances, and Generalization in Reinforcement Learning Workshop, ICML 2020.*

[3] **Purva Pruthi**, Anu Yadav, Farheen Abbasi, and Durga Toshniwal. "How Has Twitter Changed the Event Discussion Scenario? A Spatio-temporal Diffusion Analysis." In *Big Data (BigData Congress), 2015 IEEE International Congress on,* pp. 733-736. IEEE, 2015.

Preprints

[4] **Purva Pruthi**, and David Jensen. "Compositional Models for Estimating Causal Effects" (2024). (In progress)

[5] Pracheta Amaranath, **Purva Pruthi**, Amanda Gentzel, David Jensen. "Characterizing and Applying Methods for Constructing Observational Data to Evaluate Treatment Effect Estimators" (2022). (In progress)

RESEARCH EXPERIENCE

University of Massachusetts, Amherst   May 2020 - Present
Knowledge Discovery Laboratory   *Advisor: Prof. David Jensen*

Studying the benefits and challenges of *modular* causal models [4] for reasoning about causal mechanisms in real-world computational systems, such as databases and software programs. Improve evaluation methods for causal inference using experimental and empirical datasets [1,5].

Google X, The Moonshot Factory   September 2021 - May 2022
Ph.D. AI Resident   *Advisors: Hongxu Ma, Brad Zamft*

Applied practical machine learning modeling and causal inference to solve challenging real-world problems as part of X's moonshot projects.

University of Massachusetts, Amherst   January 2019 - May 2020
Information Fusion Lab   *Advisor: Prof. Madalina Fiterau*

Transfer learning using causal dynamics model, personalized medical recommendations using off-policy data.

Amazon Research Center, Cambridge, UK   May 2019 – August 2019
Summer Research Intern   *Advisor: Javier Gonzalez*

Designed a transfer-learning framework for different games with visually changing features but the same underlying causal dynamics model.

INDUSTRY EXPERIENCE

Goldman Sachs, Bengaluru, India   June 2015 – Jul 2018
Quantitative Analyst, Operations, GIR Division

Goldman Sachs, Bengaluru, India   May 2014 – Jul 2014
Summer Analyst, Operations Division

HONORS AND AWARDS

UMass CICS Dissertation Writing Fellowship	2024
Data Science for the Common Good Fellowship	May 2023 - Aug 2023

TEACHING EXPERIENCE

Programming with Data Structures	Fall 2022
Optimization in Computer Science	Spring 2020
Machine Learning	Fall 2019
Introduction to Problem Solving	Spring 2019
Computer Systems Principles	Fall 2018

SERVICE AND OUTREACH

Reviewer/Program Committee: AAAI'24, AISTATS'24, AAAI'23, AISTATS'23, AISTATS'22	2022-2024
Data Science Industry Mentor for Chan Zuckerberg Initiative (CZI), Goldman Sachs	2023-2024
Mentor, Ph.D. Applicant Support Program, UMass CICS	2021
Mentor, EMBER Undergraduate Mentorship Program, UMass CICS	2021
Social Chair, UMass Graduate CS Women Group	2019-2020

OTHER ACADEMIC ACHIEVEMENTS

Selected to present and participate in CZI single-cell biology annual meeting 2023 in San Diego, California, USA

Selected to attend Deep Learning and Reinforcement Learning Summer School, 2019 in Alberta, Canada

Secured All India Rank 878 in Joint Entrance Examination, 2011 (out of 468,240 candidates).

Secured rank in top 300 in Indian National Chemistry Olympiad (InCho) in 2010.

Secured rank in top 500 in National Science Olympiads in 2008 and 2009.

RELEVANT GRADUATE COURSEWORK

Neural Networks: A Modern Introduction, Distributed Operating Systems, Mathematical Statistics, Research Methods for Empirical CS, Advanced Algorithms, Probabilistic Graphical Models, Machine Learning, Reinforcement Learning, Design and Analysis of Algorithms, Artificial Intelligence, Data Mining and Warehousing, Artificial Neural Networks and Applications, Graph Theory