Saurabh Mathur

PhD Student
Department of Computer Science
University of Texas at Dallas
Mailing address: 1225 E Renner Rd.,
2123B, Richardson, TX – 75082

(812) 650-8527
saurabhmathur96@gmail.com
https://saurabhmathur96.github.io/

Education

Present	**Ph.D.** in Computer Science University of Texas at Dallas, Advisor: Sriraam Natarajan
May 2020	**M.S.** in Computer Science Indiana University, Bloomington, Advisor: David Crandall Thesis: *Bayesian Uncertainty Estimation for Deep Neural Networks*
April 2018	**B.Tech.** in Information Technology Vellore Institute of Technology, Advisor: Daphne Lopez Project: *Image Caption Generation System*

Research Experience

August 2021 – Present	**Graduate Research Assistant** StARLinG Lab, University of Texas at Dallas Research Area: *Human-allied Probabilistic Models*
May 2019 – August 2019	**R&D Intern** Synopsys, Mountain View Project: *Neural Machine Translation System to generate verilog assertions*
January 2019 – May 2019	**Research Assistant** Prof. Roni Khardon's Lab, Indiana University, Bloomington Project: *Bayesian topic models for a dataset of 94,000 geotagged Irish folktales*
May 2016 – July 2016	**R&D Intern** Microsoft Technology Center, Bengaluru Project: *Matrix factorization based Movie Recommendation system*

Publications

Note: * indicates equal contribution.

- Athresh Karanam*, **Saurabh Mathur***, Sahil Sidheekh* and Sriraam Natarajan. A Unified Framework for Human-Allied Learning of Probabilistic Circuits. *The 39th AAAI Conference on Artificial Intelligence (AAAI-25)*
- Sahil Sidheekh*, Pranuthi Tenali*, **Saurabh Mathur***, Erik Blasch, Kristian Kersting, Sriraam Natarajan. Credibility-Aware Multi-Modal Fusion Using Probabilistic Circuits. *The 28th International Conference on Artificial Intelligence and Statistics (AISTATS 2025)*

- **Saurabh Mathur**, Veerendra P. Gadekar, Rashika Ramola, Peixin Wang, Ramachandran Thiruvengadam, David M. Haas, Shinjini Bhatnagar, Nitya Wadhwa, Garbhini Study Group, Predrag Radivojac, Himanshu Sinha, Kristian Kersting and Sriraam Natarajan. Modeling multiple adverse pregnancy outcomes: Learning from diverse data sources. *The 22nd International Conference in Artificial Intelligence in Medicine (AIME 2024)*

- **Saurabh Mathur**, Alessandro Antonucci and Sriraam Natarajan. Knowledge Intensive Learning of Credal Networks. *The 40th Conference on Uncertainty in Artificial Intelligence (UAI 2024)*

- Sahil Sidheekh, Pranuthi Tenali*, **Saurabh Mathur***, Erik Blasch and Sriraam Natarajan. On the Robustness and Reliability of Late Multi-Modal Fusion using Probabilistic Circuits. *The 27th International Conference on Information Fusion (FUSION 2024)*

- **Saurabh Mathur**, Sahil Sidheekh, Pranuthi Tenali, Erik Blasch, Kristian Kersting and Sriraam Natarajan. Credibility-aware Reliable Multi-Modal Fusion Using Probabilistic Circuits. *The 2nd Workshop of Deployable AI (DAI) at AAAI 2024*

- **Saurabh Mathur**, Alessandro Antonucci and Sriraam Natarajan. Learning Credal Conditional Probability Tables with Qualitative Knowledge. *The 2nd Workshop of Deployable AI (DAI) at AAAI 2024*

- Neel Shah, **Saurabh Mathur**, Prashanth Shanmugham, Xilong Li, Ravi R Thiagarajan, Sriraam Natarajan and Lakshmi Raman. Neurologic Statistical Prognostication and Risk Assessment for Kids on Extracorporeal Membrane Oxygenation: Neuro SPARK. *ASAIO Journal 2023*

- Athresh Karanam*, **Saurabh Mathur***, Sahil Sidheekh* and Sriraam Natarajan. Bayesian Learning of Probabilistic Circuits with Domain Constraints. *The Sixth Workshop On Tractable Probabilistic Modeling (TPM) at UAI 2023*

- **Saurabh Mathur**, Vibhav Gogate and Sriraam Natarajan. Knowledge Intensive Learning of Cutset Networks. *The Sixth Workshop On Tractable Probabilistic Modeling (TPM) at UAI 2023*

- **Saurabh Mathur**, Vibhav Gogate and Sriraam Natarajan. Knowledge Intensive Learning of Cutset Networks. *The 39th Conference on Uncertainty in Artificial Intelligence (UAI 2023)*

- **Saurabh Mathur**, Athresh Karanam, Predrag Radivojac, David M. Haas, Kristian Kersting and Sriraam Natarajan. Exploiting Domain Knowledge as Causal Independencies in Modeling Gestational Diabetes. *Pacific Symposium on Biocomputing (PSB 2023)*

- Athresh Karanam*, **Saurabh Mathur***, David M. Haas, Predrag Radivojac, Kristian Kersting and Sriraam Natarajan. Explaining Deep Tractable Probabilistic Models: The sum-product network case. *The 11th International Conference on Probabilistic Graphical Models (PGM 2022)*

- Athresh Karanam*, **Saurabh Mathur***, David M. Haas, Predrag Radivojac, Kristian Kersting and Sriraam Natarajan. Explaining Deep Tractable Probabilistic Models: The sum-product network case. *The Fifth Workshop On Tractable Probabilistic Modeling (TPM) at UAI 2022.*

- **Saurabh Mathur** and Daphne Lopez. A scaled-down neural conversational model for chatbots. *Concurrency and Computation: Practice and Experience 2018.*

Service

- **Workflow Co-chair**. AAAI 2024.

- **Reviewer (Conferences).** AISTATS 2024, NeurIPS 2024

- **Reviewer (Journals).** DAMI, JAIR, DMKD

Teaching & Mentoring Experience

January 2024 – May 2024	**Mentor for ACM Undergraduate Research** University of Texas, Dallas Project: *Identifying persuasion techniques in social-media posts*
January 2024	**Tutorial on Deep Tractable Probabilistic Models** The Seventh Joint International Conference on Data Science & Management of Data (CODS-COMAD 2024) with Sahil Sidheekh, Athresh Karanam & Sriraam Natarajan
May – July {2021, 2022, 2023}	**Mentor for Summer Research Program for high school students** University of Texas, Dallas Project: *Machine Learning for tabular Healthcare data sets*
August 2020 – May 2021	**Graduate Teaching Assistant** University of Texas, Dallas Courses: *Introduction to Machine Learning, Software Defined Networking, Programming Language Paradigms, Introduction to Programming Video Games*
January 2019 – May 2020	**Associate Instructor** Indiana University, Bloomington Courses: *Image Processing, Elements of AI, Computer Vision*

Projects

- **Semantic and Instance Segmentation**. Deep image segmentation methods for robot navigation.
- **Speech to Text Engine**. Deep learning based end-to-end speech recognition system.
- **Clickbait Detector**. Deep text classifier to tag clickbait headlines on social-media.
- **Optical Character Recognition System**. Bayesian unigram model and Hidden Markov Model.
- **VITacademics**. Node.js server to aggregate academic metrics.