Praharsh Nanavati
Project Assistant at the Indian Institute of Science

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Education and Research Experience

BS - MS : Indian Institute of Science Education and Research   **Bhopal**
*Major in Data Science & Engineering — Minor in EECS, **9.01** GPA*   *Aug 19 - May 24*
- **Coursework (Major):** Optimization, AI, Data Structures, Discrete Mathematics, Econometrics, Game Theory, Linear Algebra, Multivariable Calculus, Probability, Statistics, DS-ML, Algorithms, Databases, Computer Vision, Deep Learning, NLP, Spatial Data Science, Cloud Computing, Accelerated AI.
- **Coursework (Minor):** Theory of Computation, Computer Networks, Software Modelling, Process Mining, Network Science.
- **Relevant Course Projects:** PCL Detection, Effects of Sampling on the HSIC Dependence Measure, Algorithms for Fire Evacuation Planning, Counterfactual Generation Analysis, Identifying Crimes in Chicago, Leadership Romanticisation in Sports

XII : The Mother's International School   **New Delhi**
*Science Stream, XII: **92.25%***   *Apr 05 - May 19*

Publications

- *[Journal]* Constantinou A, Kitson NK, Liu Y, Chobtham K, Amirkhizi AH, Nanavati PA, Mbuvha R, Petrungaro B. **Open problems in causal structure learning: A case study of COVID-19 in the UK** Expert Systems with Applications. 2023 Dec 30;234:121069.

- Nanavati P, Prasad R. **CLIMAX: An exploration of Classifier-Based Contrastive Explanations**. In 2023 IEEE 5th International Conference on Cognitive Machine Intelligence (CogMI) 2023 Nov 1 (pp. 49-58). IEEE.

- Nanavati P, Nanavati AA. **Bowlership: Examining the Existence of Bowler Synergies in Cricket**. In International Conference on Complex Networks and Their Applications 2023 Nov 28 (pp. 124-133). Cham: Springer Nature Switzerland.

Research Experience

Indian Institute of Science, Bangalore   **Bangalore**
Project Assistant - I at CSA, Advised by Dr. Siddharth Barman   *Aug 24 - Apr 25*
- I am currently involved in two projects, in the realm of Causal Fairness Analysis.

Indraprastha Institute of Information Technology, Delhi   **New Delhi**
External MS Thesis, Advised by Dr. Ranjitha Prasad, and Dr. Karthikeyan Shanmugam (Google Deepmind)   *Sep 23 - Apr 24*
- We introduced a new method for representation learning that preserves ignorability and covariate matching constraints to estimate treatment effects amid hidden confounding and selection bias. *Yet to be submitted.*

Institut national de la recherche scientifique, Montreal   **Montréal**
MITACS Summer Research Intern, Advised by Dr. Leszek Szczecinski   *May 23 - Jul 23*
- Probabilistic modeling of draws within the elo-davidson rating algorithm using kalman filtering, and backend development.

Bayesian Artificial Intelligence Research Lab, QMUL   **London**
Visiting Researcher, Advised by Dr. Anthony Constantinou   *Oct 22 - Mar 23*
- Implementation of structure learning algorithms of causal DAGs from observational data [**Publication 1**].

Indraprastha Institute of Information Technology, Delhi   **New Delhi**
External BS Thesis, Advised by Dr. Ranjitha Prasad   *Jan 23 - Apr 23*
- We proposed CLIMAX, a post-hoc explainable technique that achieves better consistency and fidelity as compared to the available baselines (LIME and its derivatives) across modalitites. [**Publication 2**].

Indraprastha Institute of Information Technology, Delhi   **New Delhi**
Summer Research Intern, Advised by Dr. Ranjitha Prasad   *May 21 - Jul 21*
- Worked with ML Interpretability methods to gain insights in learning causal DAGs. I learnt about Causal inference and its applications in Explainable AI. We tried to incorporate influence functions in DAG Learning frameworks.

Student Awards

39th Conference on Uncertainty in Artificial Intelligence (UAI) **Pittsburgh**
Student Volunteer, sponsored by AUAI *Aug 23*

The 35th Annual Conference on Learning Theory (COLT) **London**
Student Attendee, sponsored by Deepmind *Jul 22*

Professor Ram Kumar Scholarship Recipient **Bangalore**
Invited participant at GAME-ARTS Workshop, Indian Institute of Science *Jul 24*

Learning Experience

CODS-COMAD – 2024 **Bangalore**
Invited Student Participant and Student Travel Grant Recipient *Jan 24*

Summer Institute in Computational Social Science at IIITH **Hyderabad**
Invited Student Participant *Jul 22*

ACM Winter School – FAccT, Sponsored by IBM Research **Bangalore**
Invited Student Participant *Jan 21*

Students' Undergraduate Research Conference – Azim Premji University **Bangalore**
*Invited Student Participant and Poster Presenter [**Publication 3**]* *Dec 19*

Interest & Technical Skills

Programming : Python, C, C++, Unix, SQL, Latex

Frameworks : Pytorch, Tensorflow, Keras

Research Interests : Causal Inference, Causal Discovery, Machine Learning, Network Science, Sports Analytics

Professional Contributions

∗ Reviewer
  · European Conference on Artificial Intelligence (ECAI), 2023
∗ Invited Talk on 'Causality and Network Science'
  · ACM Winter School on Network Science, 2024, Ahmedabad, (*https://rb.gy/5vbdbp*)
∗ Open-Source contributions in Causal Discovery and Causal Structure Learning at BayesAI.
  · Led by Dr. Pavan Sangha, Head of Data Science, Halfords
  · Was involved in BayesAI from October 2023 to July 2024.

Positions of Responsibility

Founding Chair **Bhopal**
ACM Student Chapter at IISERB *Oct 21 - Oct 22*

Head Of Outreach **Bhopal**
Enthuzia : IISERB's Cultural Fest *May 21 - Apr 22*

Member **Bhopal**
Student Development Council *Apr 20 - Feb 21*

Extra Curricular Activities

· 'Raaga' - Enthuzia (IISERB Cultural Fest)- Solo Singing- Winner- 2020
· 'Talent Fiesta'- MIS Cultural Fest - Second Runner Up - 2016
· Leh Leh Sports Badminton Tournament U-16 Semi-finalist - 2015
· Positive Personality Trait Award - Accolades Day - MIS - 2013

References

· Prof. Ranjitha Prasad, Assistant Professor, ECE Department, IIITD (**ranjitha@iiitd.ac.in**)
· Dr. Karthikeyan Shanmugam, Research Scientist at Google Deepmind (**karthikeyanvs@google.com**)