BISWAJIT PARIA

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Research Interests

Bayesian Optimization, Decision Making under Uncertainty, Time Series Forecasting using NNs, Deep Learning

Education

Carnegie Mellon University, Pittsburgh, PA — Sep 2017 - Jul 2022 (tentative)
M.S., Ph.D. in Machine Learning. *Advisors:* Barnabás Póczos, Jeff Schneider
Fall 21 GPA: 4.05 (A+: 4.33, A: 4.0).

Indian Institute of Technology Kharagpur, India — Jul 2012 - Apr 2017
5-year Bachelors and Masters in Computer Science and Engineering
GPA 9.80 / 10.00, highest in class

Experience

Summer Research Intern — Google Research. Mountain View, CA, 2020
Hierarchical Time-Series Forecasting *with* Abhimanyu Das, Amr Ahmed
Proposed methods for forecasting of time series arranged in an hierarchy.

Summer Research Intern — Snap Research. Los Angeles, CA, 2018
Sparse Representations for Fast Retrieval *with* Ian En-Hsu Yen, Ning Xu
Proposed an approach to sparsify image embeddings in order to speed up retrieval using sparse matrix multiplication operations.

Summer Research Intern — University of Southern California. Los Angeles, CA, 2015
Interpretability of Learned Features for Clinical Time Series *with* Prof. Yan Liu
Proposed a strategy to interpret features learned by a deep neural network trained on clinical time series data.

Honours & Awards

Prime Minister of India Gold Medal — *IIT Kharagpur, 2017*
Awarded to the highest ranking student of the graduating class

Viterbi-India Scholar — *2015*
Funded summer internship at Viterbi School of Engineering, USC

ACM ICPC World Finalist (Team *BitBees*) — *2015*
One of 7 teams from India at the International Collegiate Programming Competition

Indian National Physics Olympiad (INPhO) Awardee — *2012*
for being among the top 30 candidates in India
Attended the team selection camp for the International Physics Olympiad (IPhO)

Indian National Mathematical Olympiad (INMO) Awardee — *2010 - 2012*
for being among the top 30 candidates in India
Attended the team selection camp for the International Mathematics Olympiad (IMO)

Kishore Vaigyanik Protsahan Yojana (KVPY) Scholar — *DST [1], Govt. of India, 2011*
for exceptional aptitude in basic sciences, 7th rank in India

Australian Mathematics Competition (AMC) Gold Medallist — *AMT [2], 2009*
One of 23 medallists in the world

Papers

V. Mehta, B. Paria, J. Schneider, S. Ermon, W. Neiswanger. *An Experimental Design Perspective on Exploration in Reinforcement Learning.* Accepted to EcoRL workshop at NeurIPS 2021

[1] Department of Science and Technology
[2] Australian Mathematics Trust

(arxiv, under conference submission).

B. Paria, R. Sen, A. Ahmed, A. Das. *Hierarchically Regularized Deep Forecasting.* Pre-print 2021. (arxiv, under submission)

B. Paria, W. Neiswanger, R. Ghods, J. Schneider, B. Póczos. *Cost-Aware Bayesian Optimization via Information Directed Sampling.* ICML Workshop on Real World Experiment Design and Active Learning, 2020. (paper)

K. Kandasamy, K. R. Vysyaraju, W. Neiswanger, B. Paria, C. R. Collins, J. Schneider, B. Póczos, E. P. Xing. *Tuning Hyperparameters without Grad Students: Scalable and Robust Bayesian Optimisation with Dragonfly.* Journal of Machine Learning Research (JMLR), 2020. (arxiv, paper)

B. Paria, C.K. Yeh, I.E.H. Yen, N. Xu, P. Ravikumar, B. Póczos. *Minimizing FLOPs to Learn Efficient Sparse Representations.* International Conference on Learning Representations (ICLR), 2020. (paper, code)

B. Paria, K. Kandasamy, B. Póczos. *A Flexible Framework for Multi-Objective Bayesian Optimization using Random Scalarizations.* Uncertainty in Artificial Intelligence (UAI), 2019. (oral presentation, arxiv, paper)

B. Paria, K.M. Annervaz, A. Dukkipati, A. Chatterjee, S. Podder. *A Neural Architecture Mimicking Humans End-to-End for Natural Language Inference.* arXiv, 2016. (arxiv)

A. Lahiri, B. Paria, P.K. Biswas. *Forward Stagewise Additive Model for Collaborative Multiview Boosting.* IEEE Transactions in Neural Networks and Learning Systems, 2016. (arxiv, paper)

Teaching

Teaching Assistantships:

Advanced Machine Learning	CMU, Spring 2019
Convex Optimization	CMU, Fall 2018
Deep Learning	IIT Kharagpur, Spring 2017
Machine Learning	IIT Kharagpur, Fall 2016

Math Olympiad Teaching 2012 & 2013
Taught number theory and combinatorics to high school students

Programming Skills

Proficient: Python, *Familiar:* C++, bash
Libraries: Tensorflow, PyTorch, numpy, sklearn

Relevant Courses

Advanced Introduction to Machine Learning	CMU, Fall 2017
Intermediate Statistics	CMU, Fall 2017
Statistical Machine Learning	CMU, Spring 2017
Probabilistic Graphical Models	CMU, Spring 2017
Advanced Statistical Theory	CMU, Fall 2018
Martingales	CMU, Fall 2018