Paramita Koley

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Research Interests

My broad area of research interest is machine learning. My current research involves solving various challenges in modeling discrete event sequences, particularly using various neural Temporal point process models. Some examples of the current problems I am working on are:

- ▷ Robust temporal data modeling through subset selection
- ▷ Change-point detection in temporal data
- ▷ Human-assisted linear regression
- ▷ Multi-agent reinforcement learning using the actor-critic framework in various competitive team-games

Education

Doctor of Philosophy
CSE, IIT Kharagpur, India
2018-Present

Master of Engineering
CSA, IISc Bangalore, India
2011-2013
CGPA : 6.4/8.0

Bachelor of Engineering
Information Technology, IIEST Shibpur, India
2006-2010
Percentage : 76.6%

Projects

1. **Incentive design in unequal competition** Here, we address the problem of designing dynamic incentives in team-based competitive games where two teams do not have equal capabilities using a multi-agent reinforcement learning framework.

2. **Human-assisted machine learning models** Here, we address the problem of designing human-assisted machine learning models in a linear regression setup.

3. **Demarcation of Marked Temporal Point Process** Here, we explore various designing algorithms for demarcating heterogenous and homogenous messages from given streamed messages over a network using a marked temporal point process framework.

4. **Generative Maximum Entropy Learning for Multiclass Classification (ME Thesis at IISc)** Here, we address the feature selection problem in the multiclass problem with many features like text classification with a huge vocabulary.

5. **Differentiation-based Active Multi-task Learning(at IIT Bombay)** Here, we address the problem of active sample selection in a multitask learning problem. For active selection, we propose a general approach that can be applied to various multitask learning frameworks i.e., multitask learning via sharing task relationship matrix or learning shared feature representation.

Peer Reviewed Conference/Journal Publications

1. Paramita Koley, Aurghya Maiti, Sourangshu Bhattacharya, and Niloy Ganguly. "Offsetting Unequal Competition Through RL-Assisted Incentive Schemes." IEEE Transactions on Computational Social Systems (2022).

2. Paramita Koley, Avirup Saha, Sourangshu Bhattacharya, Niloy Ganguly, Abir De: Demarcating Endogenous and Exogenous Opinion Dynamics: An Experimental Design Approach. ACM Trans. Knowl. Discov. Data 15(6): 99:1-99:25 (2021)

3. Abir De, Paramita Koley, Niloy Ganguly, Manuel Gomez-Rodriguez: Regression under Human Assistance. AAAI 2020.

4. Ambedkar Dukkipati, Gaurav Pandey, Debarghya Ghoshdastidar, Paramita Koley, D. M. V. Satya Sriram: Generative Maximum Entropy Learning for Multiclass Classification. ICDM 2013.

Relevant courses

▷ Linear Algebra, Graph Theory, Probability and Random Process, Convex and Combinatorial Optimization, Foundation and Advance Topics in Machine Learning, Pattern Recognition and Neural Networks, Graphical Models, Information Retrieval, Scalable Data Mining.

Teaching Assistantship

▷ Information Retrieval by Prof. Saptarshi Ghosh - 2021

▷ Machine Learning by Prof. Saptarshi Ghosh - 2020

▷ Natural Language Processing by Prof. Niloy Ganguly - 2019-2020

▷ Foundation of Algorithm and Machine Learning by Prof. Sourangshu Bhattacharya - 2018-2019

▷ Convex Optimization by Prof. Ganesh Ramakrishnan : January - April 2015.

▷ Computer Programming (Undergraduate) by Prof Deepak B. Phatak and Supratik Chakraborty : July-December 2014.

▷ Machine Learning by Prof. Saketha Nath J. : January - April 2014.

▷ Linear Optimization by Prof. Sundar Viswanathan : August - December 2013.

Technical Skills

▷ Languages: Python, C, MATLAB.

Academic Achievements

▷ Secured rank 8 in GATE (Graduate Aptitude Test in Engineering) 2011.

▷ Secured rank 17 in West Bengal Higher Secondary examination by securing 95% marks .

References

▷ Prof. Niloy Ganguly, Department of CSE, IIT Kharagpur.

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▷ Prof. Sourangshu Bhattacharya, Department of CSE, IIT Kharagpur.

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