

Paramita Koley

Affiliation: Assistant Professor, IIIT Bhubaneswar

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Webpage **Google Scholar** **DBLP Profile**

Research interests

My research focuses on modeling and learning from complex temporal phenomena using machine learning. In particular, I work on **temporal event sequence modeling** with **Temporal Point Processes**, aiming to capture and interpret fine-grained event dynamics in continuous time. I am also interested in **generative modeling of temporal data**, with an emphasis on scalable and expressive sequence generation.

Another strand of my work explores **temporal predictive learning on graphs**, including applications such as delay prediction in transportation and other dynamic networked systems. In parallel, I work on **sustainable AI**, focusing on **energy-efficient inference and optimization for large language models**, with the goal of reducing computational cost while preserving performance.

Education

Doctor of Philosophy	Indian Institute of Technology, Kharagpur
Computer Science	July 2018 - February 2024

***Supervisor:** Prof. Niloy Ganguly and Prof. Sourangshu Bhattacharya.*

***Thesis title:** Robust learning in asynchronous event data and multi-agent team competition.*

Master of Engineering	Indian Institute of Science, Bangalore
Computer Science	2011 - 2013

Grade: 6.4/8

Bachelor of Engineering	IEST, Shibpur
Information Technology	2006 - 2010

Percentage: 76.6%

Higher Secondary	Tarakeswar Mahavidyalaya
WBCHSE	2004 - 2006

Percentage: 95.1%

Secondary	Tarakeswar Girls' High School
WBBSE	2004

Percentage: 91.6%

Work experience

Assistant Professor	IIIT Bhubaneswar
Computer Science	August 2026 - Present

Research Scientist	CSE, IIT Kharagpur
PI: Prof. Niloy Ganguly	March 2026 - August 2026

National Post Doctoral Fellow (SERB)	Machine Intelligence Unit, ISI Kolkata
Mentor: Prof. Malay Bhattacharya	March 2024 - March 2026

Chanakya Post Doctoral Fellow
Advisor: Prof. Niloy Ganguly.

AI4ICPS Hub Foundation (IIT Kharagpur)
January 2024 - March 2024

Research Scientist
PI: Prof. Pawan Goyal

CSE, IIT Kharagpur
August 2023 - January 2024

Summer Research Intern
PI: Prof. Manuel Gomez Rodriguez

MPI-SWS, Kaiserslautern, Germany
May 2019 - July 2019

- *Conducted research on human-assisted regression problems in machine learning; the work resulted in a publication at AAAI 2020.*

Research Scholar
Supervisor: Prof. Saketha Nath J.

Indian Institute of Technology Bombay
July 2013 – March 2016, March 2017 – January 2018

- *Conducted doctoral research in machine learning, focusing on kernel methods. The doctoral program was interrupted for a maternity break from March 2016 to March 2017 and was subsequently not completed.*

Ongoing Sponsored Projects

External stimuli-aware Temporal Modeling for Continuous Time Dynamic Graphs

Machine Intelligence Unit, ISI Kolkata
Sponsored by: SERB
Role: PI
Duration: March, 2024 - March, 2026
Budget: 30 Lakh

Peer Reviewed Conference/Journal Publications

- **RSTGCN: Railway-centric Spatio-Temporal Graph Convolutional Network for Train Delay Prediction.** Koyena Chowdhury, **Paramita Koley**, Abhijnan Chakraborty, Saptarshi Ghosh. IEEE Transactions on Intelligent Transportation Systems, (Accepted: Aug 2026), doi: 10.1109/TITS.2026.3726308.
- **Benchmarking the Energy Savings with Speculative Decoding Strategies.** Rohit Dutta, **Paramita Koley**, Soham Poddar, Janardan Misra, Sanjay Poddar, Naveen Balani, Niloy Ganguly, Saptarshi Ghosh. EACL 2026 (Findings) (Core rank A).
- **Brevity is the soul of sustainability: Characterizing LLM response lengths.** Soham Poddar*, **Paramita Koley*** (equal contribution), Janardan Misra, Niloy Ganguly, Saptarshi Ghosh. ACL 2025 (Findings) (Core rank A*).
- **Towards Sustainable NLP: Insights from Benchmarking Inference Energy in Large Language Models.** Soham Poddar*, **Paramita Koley*** (equal contribution), Janardan Misra, Niloy Ganguly, Saptarshi Ghosh. NAACL 2025 (Core rank A).
- **ExPERT: Modeling Human Behavior under External Stimuli Aware Personalized MTPP.** Subhendu Khatuya, Ritwik Vij, **Paramita Koley**, Samik Dutta, and Niloy Ganguly. AAAI 2025 (Core rank A*).
- **Differentiable Change-point detection in temporal point process.** **Paramita Koley**, Harshavardhan Alimi, Shrey Singla, Sourangshu Bhattacharya, Niloy Ganguly, Abir De. AISTATS 2023 (Core rank A).

- **Offsetting Unequal Competition Through RL-Assisted Incentive Schemes.** Paramita Koley, Aurghya Maiti, Sourangshu Bhattacharya, and Niloy Ganguly. IEEE Transactions on Computational Social Systems 10(1): 285-296 (2023).
- **Demarcating Endogenous and Exogenous Opinion Dynamics: An Experimental Design Approach.** Paramita Koley, Avirup Saha, Sourangshu Bhattacharya, Niloy Ganguly, Abir De. ACM Trans. Knowl. Discov. Data 15(6): 99:1-99:25 (2021)
- **Regression under Human Assistance.** Abir De, Paramita Koley, Niloy Ganguly, Manuel Gomez-Rodriguez. AAAI 2020 (Core rank A*).
- **Generative Maximum Entropy Learning for Multiclass Classification.** Ambedkar Dukkipati, Gaurav Pandey, Debarghya Ghoshdastidar, Paramita Koley, D. M. V. Satya Sriram. ICDM 2013 (Core rank A*).

Teaching Experience

Introduction to Computing

Fall 2024–2025

Machine Intelligence Unit, Indian Statistical Institute, Kolkata

- Instructor for an undergraduate course for first-year BSDS students, covering foundational computing concepts through lectures and hands-on laboratory sessions. Topics included programming fundamentals, and introduction to algorithms, and data structures.

Awards and Fellowships

- Recipient of **SERB National Postdoctoral Fellowship** (2024), Science and Engineering Research Board (SERB), Government of India; hosted at the Machine Intelligence Unit, Indian Statistical Institute (ISI), Kolkata.
- Recipient of **Chanakya Postdoctoral Fellowship** (2024) for advanced research in Artificial Intelligence and Machine Learning.
- Recipient of **ACM/IARCS Travel Grant** to attend the International Conference on Artificial Intelligence and Statistics (AISTATS 2023).

Academic Achievements

- Secured **All India Rank 8** in Graduate Aptitude Test in Engineering (GATE), Computer Science and Engineering, 2011.
- Secured **Rank 17 statewide** in the West Bengal Higher Secondary Examination with 95% marks.

Professional Service/Activities

- Served as reviewer for leading international conferences: WSDM 2025, WSDM 2024, AISTATS 2026, AISTATS 2023, AAAI 2026, AAAI 2022.
- Served as PC member for leading international conferences: WSDM 2025, WSDM 2024, CIKM 2026, CIKM 2025
- Served as a volunteer at the International Conference on Distributed Computing and Networking (ICDCN 2023), IIT Kharagpur.
- Attended IndoML 2022 at the IIT Gandhinagar, and IndoML 2023 at the IIT Bombay, supported by travel grants.
- Attended a Summer Research Internship at the Max Planck Institute for Software Systems (MPI-SWS), Kaiserslautern, Germany (2019), under fellowship.

- Attended the CODS-COMAD 2019, Kolkata, India, supported by travel grants.
- Attended the IFCAM Summer School, IISc Bangalore, India (2014).

Mentorship

During my PhD and postdoctoral tenure, I have mentored research students across PhD, B.Tech, M.Tech/M.Phil, and undergraduate programs at IIT Kharagpur and ISI Kolkata.

- **PhD completed.** Soham Poddar, Subhendu Khatuya
- **PhD Ongoing.** Koyena Chowdhury, Mainack Choudhury, Rohit Dutta
- **M.Tech projects.** Rajanyo Paul (MTP).
- **B.Tech/B.Stat projects.** Aurghya Maiti (BTP), Harshavardhan Alimi (BTP), Akanksha Das (B.Stat, ISI Kolkata)

Technical abilities

Course TA	Machine Learning, Programming and Data Structure, Information Retrieval
Relevant courses	Machine Learning, Graphical Models, Information Retrieval, Scalable Data Mining, Optimization, Algorithms and Data Structures
Programming Languages/Tools	Python, PyTorch

Language proficiencies

- English, Bengali, Hindi