Lokesh Nagalapatti

Research Scholar with IITB, India

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A passionate researcher specializing in causal Machine Learning, focusing on designing models that enable human-in-the-loop editing of input instances to achieve user-specific objectives. My Ph.D. research explores Algorithmic Recourse, Treatment Effect Estimation, and related domains. Beyond my doctoral work, I have engaged with a diverse range of topics, including Federated Learning, robust representation learning for social networks, and evaluating data quality metrics, highlighting my versatility and drive to address complex challenges in Machine Learning. More recently, I have developed an interest in interpretable machine learning.

Work Experience

2024	Research intern at Microsoft Research India.
2019-2020	Research Software Engineer at IBM Research-India.
2016-2017	Member Technical Staff at Adobe R&D Systems, Bangalore
2015-2016	Software Development Engineer-1 at Samsung R&D Institute, Bangalore.

Publications

TMLR'25	**N Lokesh***, Pranava Singhal*, Avishek Ghosh, Sunita Sarawagi, Leveraging a Simulator for Learning Causal Representations from Post-Treatment Covariates for CATE.
AAAI'25	Manisha Padala, **N Lokesh**, Atharv Tyagi, Ramasuri Narayanam, Shiv Kumar Saini, Tab-Shapley: Identifying Top-k Tabular Data Quality Insights
NeurIPS'24 CRL Workshop	**N Lokesh***, Pranava Singhal*, Avishek Ghosh, Sunita Sarawagi, Leveraging a Simulator for Learning Causal Representations from Post-Treatment Covariates for CATE.
ICML'24	**N Lokesh***, Pranava Singhal*, Avishek Ghosh, Sunita Sarawagi, PairNet: Training with Observed Pairs to Estimate Individual Treatment Effect
AAAI'24	**N Lokesh**, Akshay Iyer, Abir De, Sunita Sarawagi, Continuous Treatment Effect Estimation Using Gradient Interpolation and Kernel Smoothing.
WACV'24	**N Lokesh***, Durga Sivasubramanian*, Ganesh Ramakrishnan, Rishabh Iyer, Gradient Coresets for Federated Learning
Neurips'22	**N Lokesh**, Guntakanti Sai Koushik, Abir De, Sunita Sarawagi, Learning Recourse on Instance Environment to Enhance Prediction Accuracy
AAAI'22	**N Lokesh**, R. S. Mittal, Ramasuri Narayanam, Is Your Data Relevant?: Dynamic Selection of Relevant Data for Federated Learning
ICDE'21	Eitan Farchi, Ramasuri Narayanam, **N Lokesh**, Ranking Data Slices for ML Model Validation: A Shapley Value Approach
AAAI'21	**N Lokesh**, Ramasuri Narayanam, "Game of Gradients: Mitigating irrelevant clients in Federated Learning". In: AAAI Conference on Artificial Intelligence
KDD'20 Tutorial	Overview and Importance of Data Quality for Machine Learning Tasks. In: 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining.
WSDM'20	Sambaran Bandyopadhyay, **N Lokesh***, Saley Vishal Vivek*, and M Narasimha Murty. 'Outlier resistant unsupervised deep archi-tectures for attributed network embedding'. In: 13^{th} ACM international conference on Web search and data mining (WSDM'20).
AAAI'19	Sambaran Bandyopadhyay, **N Lokesh**, and M Narasimha Murty. "Outlier Aware Network Embedding for Attributed Networks". In: AAAI Conference on Artificial Intelligence

Patents

USPTO	Training sample set generation from imbalanced data in view of user goals
USPTO	Generating task-specific training data
USPTO	Federated machine learning based on partially secured spatio-temporal data

USPTO	Federated learning data source selection
USPTO	Automatically detecting outliers in federated data
USPTO	Data quality assessment for unsupervised machine learning
USPTO	Machine-learning model retraining detection
USPTO	Quality assessment of machine-learning model dataset

Academic Overview

2021-Current	Ph.D. in Computer Science, the Indian Institute of Technology Bombay (IITB).
2017-2019	M.Tech. in Computer Science, the Indian Institute of Science (IISc), Bangalore. 9.0 CGPA. Distinction class.
2011-2015	B.E. in Computer Science and Engineering, College of Engineering Guindy (CEG), Anna University, Chennai. 8.83 CGPA. Distinction class.
2010-2011	Higher Secondary Education in Computer Science stream, State Board of Tamil Nadu, 9.825 CGPA.

Courses at IITB

AI	Advanced Machine Learning, Organizing web information, Learning of Autonomous agents, Optimization in machine learning

Courses at IISc

Theory	Design and analysis of algorithms, Graph theory, Real analysis (audit)
Systems	Database management mystems(DBMS), Operating System(OS), Program analysis and verification(PAV), Computer architecture (audit)
AI	Linear algebra, Probability, Pattern recognition and neural networks, Topics in pattern recognition(TIPR), Natural language understanding(NLU)

Achievements

Best Talk, RISC	Received the best talk award in the Research in Computer Science (RISC) event conducted at CSE Dept., IITB.
Best TA Award	Awarded the best TA award for the courses - AI/ML, Advanced ML by the CSE Dept., IIT Bombay.
PMRF	Selected for the Prime Minister Research Fellowship program to fund doctroral studies.
Innovation Award	Received at IBM Research-India in recognition of leading and driving brainstorming sessions in the team.
All Hands Award	Received at IBM Research-India in recognition of contributions to the problems of *representative set sampling* and *data homogeneity* in structured data. This solution is integrated in Data Refinery, a flagship product of IBM.
Gate'17	Secured All India Rank 189 in GATE [Graduate Aptitude Test in Engineering] (Computer Science). 99^{th} percentile.
NIPUN	Developed a POC, 3D Print preview and presented in NIPUN, an intra Samsung event. Secured second place and won prizes worth *INR 50,000/-*.
Advanced Coder	Cleared Advanced level Coding contest conducted in Samsung
Microsoft Code.fun.do	Developed a game in Unity for the Microsoft 3 day hackathon. Runner in the event and won a cash prize worth *INR 16,000/-*.

Invited Talks

2025	Invited to present "*PairNet*" at the Ploutos platform.
2024	Presented a poster on *"Using Simulators for Treatment Effect Estimation from Post-Treatment Covariates"* at IndoML-25.
2024	Presented a poster on *"Using Simulators for Treatment Effect Estimation from Post-Treatment Covariates"* at Amazon Research, Bangalore (supported by a travel grant).

2024 Delivered a talk on *"Using Simulators for Treatment Effect Estimation from Post-Treatment Covariates"* at Amex Labs, Bangalore.

2024 Delivered a talk on *"PhD Summary"* at Adobe Research, Bangalore.

2024 Presented on *"Continuous Treatment Effect Estimation"* at the IndoML Reading Group.

2023 Presented on *"Introduction to Causal Inference"* at Amex Research, Bangalore.

2022 Delivered a talk on *"Learning Recourse on Instance Environment to Enhance Prediction Accuracy"* at Adobe Research India.

2020 Presented on *"Business Analytics / AI-Enabled Business"* at the Management Development Programme, Department of Management, JDBI Kolkata.

2019 Delivered a talk on *"Outsmarting the Outliers in Social Networks"* at the CS Department, College of Engineering Guindy.

Responsibilities

Instructor at VJTI Faculty for the course Algorithms Lab, a UG course for 2^{nd} yr IT students at VJTI, Mumbai.

Instructor at VJTI Taught, and handled courses ML Lab UG, ML Lab PG, at VJTI Mumbai.

TA at IITB served as a TA for the courses Data Structures and Algorithms, Theoretical Machine Learning, Advanced Machine Learning, AI/ML during multiple offerings.

TA at NPTEL Taught a basic course on Linear Algebra for Undergraduate GATE aspirants through the NPTEL portal.

TA - Spring, 2020 Served as a Teaching Assistant for the course *Deep Learning*, offered by Prof. Sargur N. Srihari.

CSA-UGSS Organizer of CSA Under Grad Summer School at IISC, an event for engg. Undergraduates in India

NSS NSS unit II volunteer in 2011, 2012 and Core committee member in 2014 at CEG

Vidhaigal'14 Organizer of Vidhaigal'14 an event conducted for specially abled school children in Chennai

Abacus'14 Organizer of events DB-Mania a Database event, Reverse Coding a Coding event in Abacus, CS department. Symposium at College of Engineering, Guindy.

References

Available on request.