SUBHOJYOTI MUKHERJEE

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Research Interests Active learning, Reinforcement Learning, Online Learning, Multi-armed bandits.

Education

University of Wisconsin-Madison, Madison, USA — Fall 2019 – current
Ph.D., Electrical & Computer Engineering
Adviser: Dr. Robert Nowak and Dr. Josiah Hanna

University of Wisconsin-Madison, Madison, USA — Fall 2019 – 2021
M.S, Electrical Engineering
Adviser: Dr. Robert Nowak

Indian Institute of Technology Madras, India — 2015–2018
M.S (Research), Computer Science
Advisers: Dr. Balaraman Ravindran and Dr. Nandan Sudarsanam

West Bengal University of Technology, Kolkata, India — 2009–2013
Bachelor of Technology, Computer Science & Engineering

Publications

1. **Subhojyoti Mukherjee***, Ardhendu Tripathy*, Robert Nowak, *"Chernoff Sampling for Active Testing and Extension to Active Regression"*. [Paper], Accepted in The 25th International Conference on Artificial Intelligence and Statistics **(AISTATS-22)**.
2. Blake Mason, Romain Camilleri, **Subhojyoti Mukherjee**, Kevin Jamieson, Robert Nowak, Lalit Jain, *"Nearly Optimal Algorithms for Level Set Estimation"*. [Paper], Accepted in The 25th International Conference on Artificial Intelligence and Statistics **(AISTATS-22)**.
3. Samarth Gupta, Shreyas Chaudhari, **Subhojyoti Mukherjee**, Gauri Joshi, Osman Yagan, "*A Unified Approach to Translate Classical Bandit Algorithms to the Structured Bandit Setting*", *Accepted in IEEE International Conference on Acoustics, Speech and Signal Processing **(ICASSP-21)***. [Paper]
4. Samarth Gupta, Shreyas Chaudhari, **Subhojyoti Mukherjee**, Gauri Joshi, Osman Yagan, "*A Unified Approach to Translate Classical Bandit Algorithms to the Structured Bandit Setting*", *Accepted in IEEE Journal on Selected Areas in Information Theory **(2020)***. [Paper]
5. **Subhojyoti Mukherjee**, and Odalric-Ambrym-Maillard, "*Distribution-dependent and Time-uniform Bounds for Piecewise i.i.d Bandits*", *Accepted in Thirty-sixth International Conference on Machine Learning **(ICML-19)***, Workshop on Reinforcement Learning for Real Life 2019 track [Poster]. [Paper]
6. **Subhojyoti Mukherjee**, Ardhendu Tripathy, and Robert Nowak, "*Generalized Chernoff Sampling: A New Perspective on Structured Bandit Algorithms*", *Accepted in Thirty-seventh International Conference on Machine Learning **(ICML-***

21), Workshop on Theoretical Foundations of Reinforcement Learning [Poster]. [Paper]

7. **Subhojyoti Mukherjee**, and Odalric-Ambrym-Maillard, "*Distribution-dependent and Time-uniform Bounds for Piecewise i.i.d Bandits*", *Accepted in Thirty-sixth International Conference on Machine Learning **(ICML-19)***, Workshop on Reinforcement Learning for Real Life 2019 track [Poster]. [Paper]
8. **Subhojyoti Mukherjee**, K.P. Naveen, Nandan Sudarsanam, and Balaraman Ravindran, "*Efficient UCBV: An Almost Optimal Algorithm using Variance Estimates*", *Proceedings of the Thirty-Second Association for the Advancement of Artificial Intelligence **(AAAI-18)***, main conference track [Oral].[Paper]
9. **Subhojyoti Mukherjee**, K.P. Naveen, Nandan Sudarsanam, and Balaraman Ravindran, "*Thresholding Bandits with Augmented UCB*", *Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence **(IJCAI-17)***, main conference track [Oral + Poster]. [Paper]

Preprints

1. **Subhojyoti Mukherjee**, Josiah Hanna, Robert Nowak, *"ReVar: Strengthening Policy Evaluation via Reduced Variance Sampling"*. [Paper], In submission to UAI 2022.
2. **Subhojyoti Mukherjee**, Devin Conathan, Robert Nowak, *"MultiQA Active Learning: An Empirical Study of Active Learning on QA Datasets over Moderate Data Regime using BERT"*, In submission to ACL Rolling Review (April 2022)

Research Internships

1. **CMU, ECE Dept., Pittsburgh, USA:** From 10th June, 2019 to 16th August, 2019. Host Dr. Gauri Joshi.
2. **Adobe Research, San Jose, USA:** From 22nd January, 2018 to 20th April, 2018. Host Dr. Branislav Kveton.
3. **INRIA, SequeL Lab, Lille, France:** Frrom 1st September, 2017 to 28th November, 2017. Host Dr. Odalric Maillard.

Master's Thesis (EE, UW-Madison) **Active Sequential Hypothesis Testing with Extension to Active Regression and Multi-armed Bandits**

Master's Thesis (CS, IIT Madras) **Finite-time Analysis of Frequentist Strategies for Multi-armed Bandits**

Collaborators

1. Dr. Robert Nowak, ECE Department, UW-Madison
2. Dr. Josiah Hanna, CS Department, UW-Madison
3. Dr. Kevin Jamieson, CS Department, UW-Washington
4. Dr. Ardhendu Tripathy, CS Department, MS & T
5. Dr. Balaraman Ravindran, CSE Department, IIT Madras
6. Dr. Gauri Joshi, ECE Department, CMU, Pittsburgh
7. Dr. Branislav Kveton, Google Research, Mountain View, USA
8. Dr. Odalric-Ambrym Maillard, INRIA, SequeL Lab, Lille, France

Teaching Experience

Teaching Assistant, UW-Madisont 2019–current
Matrix Methods in Machine Learning - Prof. Robert Nowak
Mathematical Foundation in Machine Learning - Prof. Robert Nowak
Teaching Assistant, UMass Amherst 2018–2019
Natural Language Processing - Prof. Mohit Iyyer
Design of Algorithms - Prof. Daniel Sheldon
Teaching Assistant, IIT Madras 2015–2018
Introduction to Programming - Prof. Raghavendra Rao B. V.
Reinforcement Learning(twice) - Prof. Balaraman Ravindran
Compiler Design - Prof. Rupesh Nasre

Professional Activities

Reviewer Reviewed for AISTATS 2021, UAI 2021, ICMLA 2021, RARL Workshop at ICML 2021, UAI 2022.

Relevant Coursework [more information]

Introduction to Machine Learning	Reinforcement Learning
Natural Language Processing	Linear Algebra and Random Processes
Multi-variate Data Analysis	Data Analysis for Research
Artificial Intelligence	Design and Analysis of Algorithms

Relevant Languages

C, C++, Java, Javascript, Python, PyTorch

Award Grants and Fellowship

1. UW-Madison Chancellor's Opportunity Fellowship 2019-20.
2. UW-Madison ECE Welcome Award of USD 3000.
3. IIT Madras student travel grant of USD 2300.
4. Google travel grant of USD 1700.
5. AAAI grant of USD 500.
6. Microsoft travel grant of USD 1435.

Other Achievements

Ranked 1150/155190 candidates in Graduate Aptitude Test in Engineering **(GATE)** 2014.
Secured 98.93 percentile in Common Admission Test **(CAT)** 2014 among 196988 candidates.

References

Dr. Robert Nowak
Assistant Professor
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Dr. Josiah Hanna
Professor
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CS Dept, UW-Madison

Dr. Branislav Kveton
Machine Learning Scientist
bkveton@amazon.com
Amazon's lab, Berkeley

Dr. Odalric Maillard
INRIA Researcher (CR1)
odalricambrym.maillard @ inria.fr
SequeL Team, INRIA Lille, France

Dr. Balaraman Ravindran
Professor
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CS Dept, IIT Madras

Dr. Nandan Sudarsanam
Assistant Professor
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DoMS, IIT Madras