Arjun **Roy**

Machine Learning | Researcher

About me

I am Arjun Roy, a researcher with five years of experience in machine learning research. Currently, I am employed by L3S Research Center in Hannover to work on the BIAS project funded by the Volkswagen Foundation. I am also a visiting researcher at the Research Institute CODE in Munich, working on the EU project MAMMOTH. Current areas of study focus include FairML, Multi-task Learning, Multi-objective Learning, Deep Reinforcement Learning, Multi-modal Learning, and Natural Language Processing. I hold a master's degree in Mathematics and Computing from the Indian Institute of Technology Patna and am currently pursuing a doctorate in machine learning at Freie Universität Berlin.

Contact

Born on 07/03/1989, Age 33

roy@l3s.de

arjun.roy@unibw.de

+49 15166421952

Alte Landstraße 16
85521 Ottobrunn, Germany

arjun-roy-fub

arjunroyihrpa

arjun roy

@arjunroyihrpa

Languages

English - Professional Knowledge

German - Basic Knowledge

EDUCATION

2021-Ongoing

Doctorate — Berlin, Germany
Freie Universität Berlin
Dept. of Mathematics and Computer Science
Working on the topic of Multi-criteria of fairness-aware Machine Learning under the guidance of Prof. Dr Eirini Ntoutsi.

2017-2019

Master Degree — Patna, India
Indian Institute of Technology Patna
Dept. of Mathematics
Received Master of Technology degree in Mathematics & Computing with the thesis title 'Fake News Detection' under the guidance of Prof. Dr Pushpak Bhattacharyya, Dr Asif Ekbal, and Prof. Dr Stefan Dietze.
Degree: 9.16/10 CPI (German 1.4)

2013-2016

Master Degree — Kolkata, India
St. Xavier's College (IGNOU)
Dept. of Computer Science
Received Master of Computer Application degree with the thesis title 'Online Journal Management' under the guidance of Assoc. Prof. Shalabh Agarwal.
Degree: 62.14/100 (1st Division)

WORK EXPERIENCE

2019-Today

Researcher — Hannover, Germany
L3S Research Center
Working on project BIAS funded by VW foundation. It is an interfaculty research initiative composed of experts from philosophy, law, and computer science. My responsibility here is to coordinate with the philosophical, and the legal teams to understand the principles of societal BIAS and fairness, and then develop noble algorithm to evaluate and mitigate BIAS which also aligns with the anti-discrimination laws. The technical challenge addresed here is a multi-objective problem of fairness aware learning problem with respect to multiple protected attributes and high predictive performance with respect to all the classes.

2022-today

Visiting Researcher — Munich, Germany
Research Institute CODE
Workin on project MAMMOTH funded by European Commission. My job is to develop the necessary tools and techniques for the discovery and mitigation of (multi-)discrimination in tabular, visual, and graph data. The goal is to demonstrate through pilots the developed solutions into three relevant sectors of interest: a) finance/loan applications, b) identity verification systems, and c) academic evaluation.

2022-2022

Visiting Researcher — Thessaloniki, Greece
Information Technologies Institute-CERTH
Workin on the topic of 'Grouping Fairness-aware Multi-Tasking NN'. My focus here was to develop algorithms that in training performs a network architecture search within a Multi-task Learning setup that groups tasks together to improve per-task fairness and accuracy (positive and fairness-aware transfer of inter-task information).

Soft Skills and Strengths

Creative | Flexible | Confident | Innovator | Problem Solving | Team Work | Leadership | Good Communication | Diplomacy | Patience

Professional Skills

- Coding
- Debugging
- DBMS

Programming Languages

- Python
- C,C++
- Java
- SQL
- HTML, JSP

Deep Learning Frameworks

Pytorch | Keras | Tensorflow

Teaching Skills

- Tutorials, Artificial Intelligence (UniBw, 2023)
- Tutorials, Reinforcement Learning (FUB, 2021-22)
- Tutorials, Data Mining (LUH, 2020-21)

Other Interests

- Guitar
- Chess
- Gym
- Travels
- Climbing
- Books

Download My CV

Download my CV via the QR below.

PUBLICATIONS

Total citations: 175

Iosifidis, Vasileios, Arjun Roy, and Eirini Ntoutsi. "Parity-based cumulative fairness-aware boosting". In: *Knowledge and Information Systems* 64.10 (2022), pp. 2737–2770.

Le Quy, Tai, Arjun Roy, Gunnar Friege, and Eirini Ntoutsi. "Fair-Capacitated Clustering." In: *EDM*. 2021.

Le Quy, Tai, Arjun Roy, Vasileios Iosifidis, Wenbin Zhang, and Eirini Ntoutsi. "A survey on datasets for fairness-aware machine learning". In: *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery* 12.3 (2022), e1452.

Roy, Arjun, Kingshuk Basak, Asif Ekbal, and Pushpak Bhattacharyya. "A deep ensemble framework for fake news detection and multi-class classification of short political statements". In: *Proceedings of the 16th International Conference on Natural Language Processing*. 2019, pp. 9–17.

Roy, Arjun and Asif Ekbal. "MulCoB-MulFaV: Multimodal Content Based Multilingual Fact Verification". In: *2021 International Joint Conference on Neural Networks (IJCNN)*. IEEE. 2021, pp. 1–8.

Roy, Arjun, Pavlos Fafalios, Asif Ekbal, Xiaofei Zhu, and Stefan Dietze. "Exploiting stance hierarchies for cost-sensitive stance detection of Web documents". In: *Journal of Intelligent Information Systems* 58.1 (2022), pp. 1–19.

Roy, Arjun, Jan Horstmann, and Eirini Ntoutsi. *Multi-dimensional discrimination in Law and Machine Learning – A comparative overview*. 2023. DOI: 10.48550/ARXIV.2302.05995. URL: https://arxiv.org/abs/2302.05995.

Roy, Arjun, Vasileios Iosifidis, and Eirini Ntoutsi. "Multi-fairness under class-imbalance". In: *Discovery Science: 25th International Conference, DS 2022, Montpellier, France, October 10–12, 2022, Proceedings*. Springer. 2022, pp. 286–301.

Roy, Arjun, Prashant Kapil, Kingshuk Basak, and Asif Ekbal. "An ensemble approach for aggression identification in English and Hindi text". In: *Proceedings of the first workshop on trolling, aggression and cyberbullying (TRAC-2018)*. 2018, pp. 66–73.

Roy, Arjun and Eirini Ntoutsi. "Learning to Teach Fairness-aware Deep Multi-task Learning". In: *Proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD)*. 2022.

Awards

- DAAD (Deutscher Akademischer Austauschdienst) Scholarship in Germany for Master's Thesis work (2018)
- Graduate Aptitude Test in Engineering (GATE): secured national top 3% rank in India, awarded scholarship for master's studies.

Workshop

- **GIAN** workshop on Neural Machine Translation, by IITP-AI-NLP-ML group, speaker Prof. Andy Way, Dublin City University, Ireland (2017)