Manu Lahariya

Born on April 20th, 1994

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🔗 https://mlahariya.github.io/

As a researcher, I am eager to learn, persistent, analytical, and look for creative solutions. My goal is to study how physical laws can assist the development of artificial intelligence and innovative solutions.

Scientific interests

- Physics Based Machine Learning
- Reinforcement learning
- Deep learning
- Smart Grids, Demand Response
- Soft Robotics

Education

2023. **PhD - Computer Science Engineering**, AI4SG Group Ghent University (Belgium)

2017. **Masters - Aerospace Engineering**, IIT-KGP (India)

2016. **Bachelor - Aerospace Engineering**, IIT-KGP (India)

Awards

- Best poster award runner-up in BuildSys 2019 conference
- Accuracy champion in data science competition by EXL analytics

Current Position

Mar. 2019 – Mar. 2023. **PhD Candidate**

Artificial Intelligence for Smart Grids group, Ghent university, Belgium
Research on physics-based machine learning, reinforcement learning, and statistical modeling for designing efficient control for different demand response applications in smart grids.

Selected Publications

M. Lahariya, F. Karami, C. Develder and G. Crevecoeur, **(2021)** Physics-informed recurrent neural networks for the identification of a generic energy buffer system, *IEEE DDCLS*, doi

M. Lahariya, N. Sadeghianpourhamami and C. Develder, **(2019)** Reduced state space and cost function in reinforcement learning for demand response control of multiple EV charging stations. *BuildSys* doi

List of all publications: https://mlahariya.github.io/about-me/publications

Experience

Aug. 2021 – Nov. 2021. **Research Intern**

Robust Autonomy and Decisions Group, University of Edinburgh, UK
Developed physics based framework to design close-loop control for dielectric elastomer soft robots using finite element methods, neural networks and reinforcement learning.

Jul. 2017 – Jul. 2018. **Forecasting expert**

Business Consulting, Decision Analytics Associate, ZS Associates, India
Involved in analysis of DeepAR algorithm (on SageMaker: AWS) for ex-factory sales forecasting, and development of a specialised sales forecasting package for pharmaceutical industry.

EU funded projects

Apr. 2021 – Ongoing. BIGG , PhD Researcher

Designing physics reinforcement learning based control for joint coordination of space heating systems. The objective of cost minimization is evaluated on real world residential households.

Jul. 2020 – Dec 2021. InduFLEX, moonshot , PhD Researcher

Developed physics informed recurrent neural networks based system identification and control for industrial processes (eg. Generic energy Buffers, Evaporative cooling systems)

Numerical tools		Transferable Skills	Languages		
Python, R	● ● ● ●	Interpersonal Skills	English	:	Fluent
Matlab, Excel	● ● ● ○	Communication Skills	Hindi	:	Native
Abaqus	● ● ○ ○	Project Management	Japanese	:	Beginner

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