Sara Iftikhar

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Education

Master of Science in Electrical Engineering (DSSP) *Islamabad, Pakistan*

NUST, School of Electrical Engineering and Computer Sciences *2017 - 2020*

- Thesis title: "Formal Verification of E-Voting Protocols using Probabilistic Model Checking"

Bachelors of Electrical Engineering (Electronics) *Islamabad, Pakistan*

Air University *2013-2017*

- Thesis title: "Blind Spot Detection System for Vehicles"

Interest Domain

Development of data-driven models for tabular and time-series data

- Modelling water quality parameters (Antibiotic resistance genes) using supervised machine learning
- Modeling pollutant removal efficiency from industrial wastewater using artificial intelligence

Skills

Python

- Object-oriented programming
- Visualization (matplotlib, seaborn, plotly)
- Array manipulation (numpy, pandas)
- Data handling (.xlxs, .json, .csv, .h5, .nc)

Machine Learning

- TensorFlow (building and training neural networks for Tabular and Time series data)
- Scikit-learn (using differnt Ensemble methods, Decision trees and Neural network models for classification and regression problems)
- LightGBM, XGBoost, CatBoost
- Experiment Tracking (weights&biases)

Version Control

- git

Python Libraries

AutoTab (Owner)

Framework for machine learning pipeline optimization

https://autotab.readthedocs.io

easy_mpl (Owner)

Data visualization recipes

https://easy_mpl.readthedocs.io

AI4Water (Contributor)

Framework for data-driven modeling of tabular data with focus on hydrology

https://ai4water.readthedocs.io

Blogs

Adsorption capacity prediction on carbon-based materials using deep learning

https://ai4adsorption.readthedocs.io/

Comparison of different XAI methods for antibiotic-resistance genes occurrence at recreational beaches

https://xai-arg-jema.readthedocs.io

Publications

* Co-first author

Published

S. Iftikhar, A. Karim et al., "Prediction and interpretation of antibiotic-resistance genes occurrence at recreational beaches using machine learning models", **Journal of Environmental Management**, **(IF=8.7)**, https://doi.org/10.1016/j.jenvman.2022.116969

S. Iftikhar, N. Zahra, et al., "Artificial neural networks for insights into adsorption capacity of industrial dyes using carbon-based materials", **Separation and Purification Technology**, **(IF=8.6)**, https://doi.org/10.1016/j.seppur.2023.124891

Submitted

N. Zahra, **S. Iftikhar***, et al., "Probabilistic prediction of adsorption capacity of Phosphate onto biochars using machine learning methods", **Chemical Engineering Journal**, **(IF=15.1)**

R. Sumra, N. Zahra, **S. Iftikhar**, et al., "Florine-free hydrothermal synthesis of niobium carbide (MXene) for adsorption of Cr(VI) ions from aqueous solution and machine learning insights", **Journal of Hazardous Materials**, **(IF=13.6)**

In preparation

S. Iftikhar, et al., "Deciphering the relationship between antibiotic resistance and physio-chemical parameters of sewage water using machine learning"

Professional Experience

062016 - 072016 **Internee Engineer**, Pakistan Civil Aviation Authority

072016 - 082016 **Internee Engineer**, Pakistan Aeronautical Complex

Language Proficiency

English (IELTS 7.0)

Awards, Fellowships, & Grants

2016 **Final Year Project Research Grant**, National ICT R&D, Pakistan

References

Available upon request