Sara Iftikhar

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Website: `https://sara-iftikhar.github.io`

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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

- Visualization (matplotlib, seaborn, plotly)
- Object-oriented programming
- 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

easy_mpl (Owner)
Data visualization recipes
`https://easy_mpl.readthedocs.io`

AutoTab (Owner)
Framework for machine learning pipeline optimization
`https://autotab.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

Adsorption of Cr(VI) ions onto fluorine-free niobium carbide (MXene) and machine learning prediction with high precision
https://envai103.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

R. Ishtiaq, N. Zahra, **S. Iftikhar**, et al., "Adsorption of Cr(VI) ions onto fluorine-free niobium carbide (MXene) and machine learning prediction with high precision", **Journal of Environmental Chemical Engineering**, **(IF=7.7)**, https://doi.org/10.1016/j.jece.2024.112238

Submitted

N. Zahra, **S. Iftikhar***, et al., "Probabilistic prediction of adsorption capacity for phosphate ion removal onto biochar materials using machine learning algorithms with a large dataset", **Bioresource Technology**, **(IF=11.4)**

In preparation

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

Professional Experience

june2016 - july2016	**Internee Engineer**, Pakistan Civil Aviation Authority
july2016 - august2016	**Internee Engineer**, Pakistan Aeronautical Complex
june2021 - october2021	**Lab Technician**, Ulsan National Institute of Science & Technology, South Korea
june2022 - october2022	**Lab Technician**, Ulsan National Institute of Science & Technology, South Korea
may2020 - march2023	**Teacher**, Dot & Line, Pakistan
june2023 - february2024	**Remote Reseacher**, Environmental AI, Pakistan
march2024 - present	**Reseache Assistant**, IDE, King Abdullah University of Science and Technology, Kingdom of Saudi Arabia

Language Proficiency

• English (IELTS 7.0)

Awards, Fellowships, & Grants

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

References

Available upon request