

AHMED KHAN SALMAN

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EDUCATION

UNIVERSITY OF HOUSTON | **Ph.D. in Atmospheric Science** | Current GPA: 4/4 (2020-Present)

UNIVERSITY OF HOUSTON | **M.S. in Mechanical Engineering** | **Specialization in Data Analysis Methods** | GPA: 3.867/4

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA (INDIA) | **B.E. in Mechanical Engineering** | GPA: 3.7/4

EXPERIENCE

University of Houston, Department of Earth & Atmospheric Sciences

Jan 2020 – Dec 2020

Title: Research Assistant

- Improved performance of Numerical models predicting Air Quality i.e. PM forecast by more than 15%
- Applied Machine learning to perform bias correction of the air quality models.
- Structured station data, remote sensing data and Numerical model data to train Machine learning models.
- Designing Surrogate RK3 solver to substitute WRF solver for expediting computational processing.
- Mathematically modeled Deep Neural Network to integrate inside WRF environment.
- Developed DNN solver for solving unsteady complex PDEs with high accuracy.

University of Houston, Department of Earth & Atmospheric Sciences

May 2018 – June 2019

Title: Deep Learning Researcher

- Assisting the research group to develop an AI weather forecast model to predict air quality for next 24 hours.
- Developed requested metrological data structure after cleansing, manipulation, imputation & normalization of the Big Data collected across several weather stations.
- Profiled data thoroughly using Python to select key variables impacting the performance of the model and gathered the required resources and insights from experts on board working with other projects.
- Designed an ensemble of machine learning models and increased the accuracy of forecast by 4%
- Deploying state of the art technology viz. Reinforcement Learning & Dynamic Mode Decomposition to improve the sensitivity of the current AI model to capture high peaks of Ozone forecast precisely.
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FIRST AUTHOR PUBLICATION

- *Ebrahim Eslami, Ahmed Salman, Yunsoo Choi, Alqamah Sayeed, Yannic Lops.* Data ensemble approach for real-time air quality forecasting using extremely randomized trees and a deep neural network. *Neural Computing & application Journal* (2019) doi:10.1007/s00521-019-04287-6.

SKILLS

- **Machine Learning**- Linear and Logistic Regression, PCA, SVM, Naïve Bayes, GBDT, Random Forest, Decision Tree, Anomaly Detection, Clustering, Error analysis
- **Deep Learning**- CNN, Neural Networks, Reinforcement Learning
- **SQL**- Data Extraction, Filtration, Joins, Grouping
- **Python**- TensorFlow, Keras, NumPy, Scikit, re, matplotlib, seaborn, pandas, SQLite,
- **Statistical Analysis**- MATLAB, SAS, R
- **Visualization**- Tableau, MS-Excel
- **Remote Sensing**: Kriging, Structuring 2D data, Imputation

ATMOSPHERIC SCIENCE COURSES

- Dynamic Meteorology
- Atmospheric Numerical modeling
- Applied Mathematics
- Air Pollution Meteorology
- Data analysis methods

CERTIFICATES

- Certificate in Machine Learning from Stanford University
- Certificate in SQL from University of California, Davis
- Certificate in Python from University of Michigan
- Certificate in Energy Trading Systems from UH