Muhammad Ali Haider

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Professional Summary

Python | Data Science | Machine Learning | Statistics | Analytics | Operations Research | Mathematical & Computational Modeling

Software Skills - Python, SQL, R, Tableau, TensorFlow, Pytorch, Keras, Git

Work Experience

2/2022 – Present **Data Scientist,** Lowes – Charlotte, NC
I am responsible for developing and implementing advanced statistical and machine learning models to identify the consumer demand patterns and predict the sales lift for each assortment location pair due to severe weather events. My work directly impacts the company's revenue and profitability by ensuring that our stores are stocked with the right products to meet the needs of customers during and after severe weather events.

5/2021 – 09/2021 **Data Scientist,** Afiniti – Washington, DC
Build, train, test, and deploy machine learning models for millions of caller-agent interactions for the client, AT&T, to increase profitability and customer retention by up to 15%. Make call group pairs using K-means clustering and rank their difficulties using STAN optimization model. Ensure all pre and post deployment checks as well as data preparation.

6/2020 – 5/2021 **Data Scientist,** HTN Networks Inc (Cisco Partner) – Irvine, CA
Built XGBOOST and other boosting models to optimize internet traffic routing and identify malicious traffic for various clients with up to a 98% F1 score value.

6/2019 – 8/2019 **Data Science intern,** Rafay Systems - Sunnyvale, CA
Mathematically modeled the problem as a dynamic programming optimization algorithm to maximize the server utilization for a Silicon Valley Edge Computing Startup.

8/2017 – 1/2018 **Graduate Research Assistant- Computational Lab,** NC State University - Raleigh, NC
Computational modeling of environmental footprints across various levels of the supply chain.

9/2015 – 5/2017 **Engineering lab Assistant –** Istanbul Sehir University - Istanbul, Turkey
Course: ISE 521 Introduction to Operation Research and Industrial Engineering Topics.
Grading and helping students to solve and debug assignments in C++ and Python.

6/2014 – 9/2015 **Supply Chain Officer,** Lucky Cement Limited - Karachi, Pakistan
Reduce overall procurement lead time by coordination of inventory, logistics and suppliers.

Grad and Private Projects

1/2021 – 3/2021 **Multi-Variat forecast of stock prices using LSTM and Natural Language Processing (NLP)**
Developed an NLP based stock trading program that uses BERT model for tweet sentiments and does multi variate LSTM forecasting to predict the future ups and downs of stock with around 60% accuracy https://bit.ly/39mBnbw

1/2020 – 5/2020 **Computer Vision: Grocery item classifier using Convolutional Neural Network (CNN)**
Built a detection and classifier model based on pretrained VGG-16 model and CNN layers to distinguish 25 grocery store items. TensorFlow and OpenCV was used. The model achieved 85% accuracy on the unseen data. GitHub https://bit.ly/3rqad9G

6/2020 – 12/2020 **Natural Language Processing: A chatbot that is wise.**
Trained the model on 700 quotations from diversified domains (phycology, relationships, spirituality, etc.). The bot will give satisfactory answer to most of your hard questions by matching it with relevant quotations. Try it here http://www.thebhalol.com/

7/2020 – 11/2020 **A Generative Adversarial Network (GAN) for data augmentation**
Implemented Cycle GANs for data augmentation to double the number of images to be used by a computer vision model. The new artificial data generated improved the model performance by 10%.

3/2020 – 6/2020 **Intrusion Detection: Identifying malicious internet traffic.**

Identified network intrusion with F1 score of 0.997, using exploratory data analysis, feature engineering, and machine learning. Github link https://bit.ly/3mmUBD6

8/2019 – 12/2019 **Deep Learning: Prediction of Battery Life for NASA's Small Electric Aircraft**

A research project that aimed at predicting reaming battery life using SVM, Random Forest and deep learning on 4 million entry data from 9 different sensors. GitHub Link http://rb.gy/jfkhgz

8/2019 – 12/2019 **Natural Language Processing: Quora Insincere question classification**

Identify and flag insincere questions using LSTM, CNN and GRU. GitHub http://rb.gy/tlhia1

7/2019 – 12/2019 **Capacitated vehicle routing optimization: for Electric delivery truck**

Delivery trucks were subjected to capacity and battery charge life constraints that had to satisfy demands from 155 customers per day with time window constraints. The problem was formulated and solved using google OR Tools. Github Link https://bit.ly/3df6bfh

1/2019 – 5/2019 **Aircraft Maintenance scheduling optimization**

Optimized aircrafts maintenance schedule using Mixed Integer Linear programing (MILP) by CPLEX. GitHub link http://rb.gy/tpgmx1

Publications

Master thesis tile "The Assessment and Integration of Material Footprint in National Energy Development Plans''. Diss. 2017.

Kucukvar, M., Haider, M.A. and Onat, N.C., 2017. Exploring the material footprints of national electricity production scenarios until 2050: the case for Turkey and UK. Resources, Conservation and Recycling, 125, pp.251-263.

Kucukvar M., Onat, NC, Haider, MA. "Scarce Resource-dependence of the European Electricity Production Scenarios until 2050" The International Symposium on Sustainable Systems and Technology (ISSST), May 16-18, 2016, Phoenix, Arizona, USA

Kucukvar, M., Onat, N.C., Haider, M.A. and Shaikh, M.A., 2017. A global multiregional life cycle sustainability assessment of national energy production scenarios until 2050. In International Conference on Industrial Engineering and Operations Management Bogota.

First author and presenter At SPE International Intelligent Energy Conference, UAE 2013, SPE, the paper titled "Intelligent integrated management for new ventures in high risk developing countries" ISBN 978-1-61399-276-0. An energy sector firm's Supply chain KPI were developed using the Supply Chain Operation Reference Model (SCOR) model

Onat, NC, Haider, MA, Kucukvar M, "Material Dependence of National Electricity Generation Plans: The Case for Turkey and United Kingdom", Journal of Cleaner Production, 2017

Sen B, Kucukvar M., Onat, NC, Haider, MA, "Material Footprint of Alternative Fuel Vehicles: A Multi-Regional Input-Output Life Cycle Assessment", The journal of Energy and Environmental sciences, 2016.

Onat, N.C., Kucukvar, M., Toufani, P. and Haider, M.A., Carbon Footprint Analysis of Electric Taxis in Istanbul. 2017

Design of Supply Chain at Amreli steels limited and the study of the Supply Chain Operation Reference Model (SCOR, 2013- NED University Undergrad final project

Honors and Awards

North Carolina State University PhD Fellowship award, 2017
President and Founder of the Entrepreneur Society NED University, 2013. www.nedentrepreneurshipsociety.com

Educational Background

2020 **Master's - Operations Research** - North Carolina State University, USA

2017 **Master's - Industrial & System Engineering** - İstanbul Şehir Üniversitesi, Turkey

2013 **Bachelors - Industrial and Manufacturing -** NED University of Eng. and Tech, Pakistan