Muhammad Ali Haider

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Interests

Machine Learning | Data Science | Operations Research | Optimization | Computation & Mathematical Modeling | Forecasting

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

Work experience

8/2020 – Present **Data Scientist- Operations Research,** HTN Networks Inc (Cisco Partner) – Irvine, CA
Network automation using machine learning, reinforcement learning and operations research.

6/2019 – 7/2019 **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. This helped in reducing the operational cost of the company by up to 25% on a simulated data.

1/2018 – 5/2018 **Grad Consultant,** MUFG Bank – New York, NY
- Utilized advanced analytics and data visualizations tools to achieve supplier consolidation
- Developed a hierarchy of KPIs that helped the bank in making more informed decisions.

8/2017 – 1/2018 **Graduate Research Assistant- Computational Lab,** NC State University - Raleigh, NC
- Computation modeling of environmental footprints across various levels of the supply chain.
- Used optimization algorithms to determine the best energy mix for the environment, that results in minimal cost and carbon footprint, using United Kingdom and Turkey's electricity production data.
- Used ARIMA forecasting and statistical signifiance testing to forecast electricity demand.
- Extensive use of Matlab, Tableau, R, and Excel.

9/2015 – 5/2017 **Teaching 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.

Related Course work

CSC 522 Automated Learning and Data Analysis
OR 791 Data science for Industrial Engineering
ISE 760 Applied Stochastic Models
OR 505 Linear Programming
CSC 505 Design and Analysis of Algorithms
OR 589 Application of Data Science in Health Care
ISE 582 Data Science for Business
ECE 523 Machine Learning
OR 709 Dynamic programming
ISE 754 Logistic Engineering
ISE 723 Production Planning, Scheduling, and Inventory Control

Relevant Grad School Projects

1/2019 – 5/2019 **Aircraft Maintenance scheduling optimization**
Course: ISE 754 Logistics engineering

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

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

Course: CSC 522 Automated learning and data analysis

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

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

Course: OR 791 Data science for industrial engineering

Predicted reaming battery life using SVM, Random forest and deep learning on 4 million entry data from 9 sensors. GitHub Link http://rb.gy/jfkhgz

1/2019 – 5/2019 **Capacitated vehicle routing optimization: for Electric delivery truck**

Course: ISE 754 Logistics engineering

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 Gurobi and python

8/2017 – 1/2018 **Kaggle: Rossman Store Sales prediction**

Course: ISE 582 Data Science for Business GitHub Link https://rb.gy/bvbuqt

Honors and awards

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

Software Skills

Proficient: Tableau, Python, C++, Java, MATLAB, Excel, R, SQL, CPLEX, Gurobi

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