Salman Khaliq

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Career Profile

A Machine Learning Scientist with a sound working knowledge of Calculus, Linear Algebra, Probability and Statistics, working in this field since 2009 and have worked on multiple types of projects and have published 7 peer reviewed publications and has recently led a team of 50+ data scientists from a very diverse background and demographics under Omdena's platform.

Relevant Experience

- **Omdena** **New York,** USA (Remote)
  Machine Learning Engineer (Task Lead) (06/2022) – Present
  - ✓ Led a team of 50+ data scientists and machine learning practitioners in the end-to-end project "AI for Climate Change: Mitigate Greenhouse Gases Emissions by reducing the energy consumption of buildings".
  - ✓ The dataset contains 86k+ instances with 63 features and a target column.
  - ✓ Brought down the MAE from 0.57 to 0.18 and improved R2 score from 0.21 to 0.70

Skills: Python · Machine Learning · Mentoring · Git · Leadership · Project Management · Pandas · NumPy · Supervised Learning · Artificial Neural Networks · Multivariate Statistics · TensorFlow · Keras · Stacking and Blending Ensemble

- **Rutgers, The State University of New Jersey** **New Jersey,** USA
  Research Assistant (Dept. of Cell Biology and Neuroscience) (08/2017) – (05/2020)
  - ✓ Designed a Multi-Modal Neural Network model on MATLAB using the Hodgkin-Huxley model, mimicking the lucid behavior expressed by Alzheimer's patients, and presented it at Cell Biology and Neuroscience Retreat.
  - ✓ Developed a PCL-PEGDA nanofiber mat for sustained delivery of uric acid and analyzed the therapeutic benefit of uric acid following glutamate-induced excitotoxicity by performing reactive oxygen species (ROS) assay and live-dead cell assay on organotypic slices and recently published this research in the Journal of Tissue Engineering and Regenerative Medicine.
  - ✓ Presented the above research at BMES Conference in front of 80+ people.
  - ✓ Furthermore, also presented the preliminary results of this research at NEBEC Conference as well

Skills: MATLAB · R Programming · Partial Differential Equations · Multivariate Statistics · Instrumentation · Tissue Engineering · Drug Discovery · Data Mining · Hodgkin-Huxley Equations · Mathematical Modelling

- **Lahore University of Management and Sciences** **Lahore**, Pakistan
  Research Assistant (Department of Mathematics) (08/2012) – (07/2013)
  - ✓ Developed a mathematical model of GABAB R modulated synaptic plasticity to study the effects of GABAB on the pre-synaptic and post-synaptic calcium currents in pyramidal cells of hippocampus.
  - ✓ Took non-credit course work on Non-linear dynamical systems, Real Analysis, and Set Theory.

Skills: MATLAB · Partial Differential Equations · Non-Linear Dynamical Systems · Set Theory · Real Analysis · Hodgkin-Huxley Equations · Mathematical Modelling

- **NED University of Engineering and Technology** **Karachi**, Pakistan
  Research Assistant (Department of Biomedical Engineering) (01/2009) – (12/2011)
  - ✓ Supervised the following senior year projects:
    - Modelling of ECG waveform characteristics to predict myocardial infarction.
    - Design of bio-muscular signals using computerized EMG
  - ✓ Collaborated with Pakistan Atomic Energy Medical Commission and developed a MATLAB-based mathematical model for the early diagnosis of coronary artery disease and calculated sensitivity, specificity, and various statistical parameters to

check for the validity and consistency of the model. This project was accepted for conference presentation in ICCAD 2011.

- ✓ Developed shortest path planning algorithms for PeopleBOT in structured environment and it was accepted for presentation in ICMLC 2011 and was also nominated to be published in Elsevier's Journal, Procedia Engineering.
- ✓ Performed a research study that was focused on the differences between linear statistical models and Neural Networks Model for the forecasting of Rainfall in Northeast region of Pakistan. This work was also accepted in ICESE conference, 2010.

Skills: MATLAB · Minitab · SPSS · Data Collection · Data Cleaning · Exploratory Data Analysis · Mathematical Modelling · Artificial Neural Networks · Time-Series Analysis · Regression · Classification

- **Queen's Elite and King Heights Academy,** **Toronto,** Canada
  Lecturer and Course Developer (High School) (08/2020) – Present
  - ✓ Have been teaching Calculus and Vectors, Pre-Calculus, Data Management and Statistics

Related Publications

- M. A. Azam, S. A. A. Salam, S. H. R. Rizvi, **S. Khaliq** et. al. (2011). **Artificial Intelligence Based Shortest Path Planning and Navigation of Mobile Robots PeopleBOT in Structured Environment**. (recommended by ICMLC 2011 for publication in Procedia Engineering, ISSN: 1877-7058, Elsevier).
- **Khaliq S.,** Shinbrot T., Firestein BL. (Jan 2018), **Multi-Nodal Neural Networks**. Cell Biology and Neuroscience Retreat, New Brunswick
- **Khaliq S.,** Zafar SF., Usmani BA., (October 2011). **Statistical Analysis of the parameters of patients with Coronary Artery Disease and a Mathematical model for its early diagnosis**. Paper ID Code: ICCAD 2011 A-324-0008-00317, Venice, Italy
- **Khaliq S.,** Zafar SF., Usmani BA., (August 2010). **Forecasting Rainfall over North-Eastern Region of Pakistan: A Comparison between Linear and Neural Network Models**. Paper ID Code: SG69000, International Conference on Environmental Science and Engineering (ICESE), Singapore

Education

- **Boot Camp in FinTech** (02/2022) – (08/2022)
  University of Toronto

  Project 1: Stock Screener Using Technical Analysis and Efficient Frontier [GitHub]
  Project 2: TradingView Like App with Stock Screener, Live Sentiment Analysis and Stock Prediction Using ML
  [have secured funding for this project and working on MVP right now]
  Project 3: Object Detection App [Currently working on it]

- **DataCamp** (2019) – Present
  27 Courses Completed, 4 Projects Completed
- **MS in Biomedical Engineering** (09/2017) – (05/2020)
  Rutgers, The State University of New Jersey
- **BS in Biomedical Engineering** (01/2006) – (12/2010)
  NED University of Engineering and Technology