

# MUHAMMAD AMJAD RAZA

*(PhD in Engineering)*



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I am passionate about developing statistical and machine learning models for large and complex data sets to solve real world problems. My aim is to build applications of data science to extract actionable insights using complex data sets. In my free time, I enjoy learning and practicing cloud computing, blockchain technology, web development (for fun), app development using flutter and building dashboards for data science presentations.

**Keywords:** Data Scientist, Statistical data analysis, Big data (spark, pyspark), Data Analytics, Data Mining, Machine Learning, Probability theory, Neural networks, Bayesian Target tracking, Distributed Monte Carlo simulations

## TECHNICAL SKILLS

**Proficient:** Python- data science libraries, Apache Hadoop Spark-Pyspark, Pycharm IDE, Git, Excel, Using Remote Linux servers, Jupyter Lab/Notebooks, Latex, Dash (develop interactive dashboards and web apps), Machine Learning pipelines, Deep Learning (Tensorflow), yaml, toml, Sphinx Documentation in Python, Managing large scale python projects.

**Other Frameworks:** Facebook's pyTorch, Uber's Michelangelo, Django, Facebook's React (JavaScript UI development), JavaScript, Solidity (Ethereum Smart Contract Language), Gatsby.js, Docker, Jenkins, Google Cloud

**Used previously:** R, MySQL, Qlik Sense, SQLite, Scala, IMB Watson analytics

## PROFESSIONAL EXPERIENCE

**Aug 2016 - Present, Quantitative Researcher, Portland House Group Melbourne, Australia:** Working on building and back testing trading strategies for stock market focused on US Market.

- Performing Exploratory Data Analysis (EDA) to extract actionable insights using large, complex and noisy data sets, building tools for pre and post trade portfolio analysis.
- Machine Learning data pipelines (Complete Project with docs, setup.py, pip package)
- Large-scale data analysis using the PySpark DataFrame API and HDFS.
- Time Series Modeling (e.g ARIMA, Filtering) and Machine Learning.
- Building interactive dashboard in Dash with plotly-express

**Mar 2013 – Jul 2016, Academic tutor, EEE, University of Melbourne, Australia:** Acted as a demonstrator for the following graduate courses: Probability and random models (ELEN90054) and Communication systems (ELEN90057).

**Sep 2015 - Oct 2015, Associate, Pilot Aptitude Training Systems, Australia:** Developed and introduced a novel concise format of NEO personality Inventory (Pilot's personality review test) reports suitable for non-expert clients.

**Sep 2013 - Feb 2014, Survey Coordinator, Metropolis-Research, Australia:** Conducted surveys for local city councils involving new projects. Processed and analyzed the results for multiple clients.

**Mar 2012 - July 2012, Senior Marketing Associate, Samsung Construction and Trading, South Korea:** Worked on the following projects, Roy Hill iron ore project and Liquefied Natural Gas (LNG) projects in India and Singapore. Some of the responsibilities were

- To find upcoming global Engineering Procurement and Construction (EPC) projects

- To collect and compile competitor's and client's data
- To develop corporate business proposals and presentations for executives
- To study the mergers and acquisitions affecting company business

**Oct 2008 - Mar 2010, Technical associate, Mobilink, Pakistan:** Worked as network operation center engineer in Mobilink. Duties were as follows

- Installation and commissioning of the new network entities required for the expansion
- Liaison between planning team and vendors
- Provided nationwide support for regional teams
- Worked solely on a project to gather the network connectivity data and developed an interactive platform for network visualization

## **RESEARCH EXPERIENCE**

**Jul 2012 – Jul 2016, Post Graduate student, University of Melbourne, Australia:** Worked on distributed estimation using Monte Carlo simulation methods considering multi-sensor network(s) and constraints on the communication bandwidth. We developed three novel algorithms with and without considering clutter measurements. This project was carried out under the supervision of a Professor Robin Evans.

**Mar 2010 - Feb 2012, Post Graduate student, Hanyang University, South Korea:** Investigated the data clustering using a novel approach of interval type-2 fuzzy logic methods. We also studied the fuzzy logic systems for machine learning, image processing and pattern classification.

## **EDUCATION**

**Jul 2012 - Jun 2016, PhD,** Electrical and Electronics Engineering (EEE) Department, University of Melbourne, Australia

**Mar 2010 - Feb 2012, MSC,** EEE Department, Hanyang University, South Korea, CGPA: 3.89/4.0

**Sep 2004 - Sep 2008, BSC,** EEE Department, University of Engineering and Technology Taxila, Pakistan, Grade: 85%

## **ACHIEVEMENTS AND EXTRA-CURRICULAR ACTIVITIES**

- Melbourne Datathon2016, our team selected in top 5
- National ICT Australia and University of Melbourne post graduate award for PhD
- Treasure for graduate family group at University of Melbourne
- Volunteer work for Cancer Council Victoria
- Riding a bike as a semi-professional and member of Melbourne University cycling club & Cycling Victoria

## **PUBLICATION(S)**

- Published PhD and Master Thesis, with three publications. (Details can be provided)

## **REFERENCES**

- Can be furnished upon request