Mohamad Khalil, Ph.D.
Data Scientist with a flair for multidisciplinary problem solving
Newcastle upon Tyne, UK

Employment

Artificial Intelligence Researcher *HSBC, London - Mar 2023 – Present*

- Develop an artificial intelligence literacy skill plan and establish a data science ambassador network across global business and functions.
- Oversee the planning and development of product roadmaps for AI cards and data asset projects to ensure compliance with regulatory requirements.
- Develop and manage weekly and monthly reporting and performance insights on data remediation activities to address audit points.
- Use analytics expertise to deliver insights that support business improvement and resolve issues.
- Contribute to the development of the AI Center of Excellence, delivering best practice guidelines and support for AI initiatives across HSBC, and serving stakeholders throughout the bank.
- Led responsible AI training sessions and deliver presentation to the AI ambassador network.
- Deliver group-wide AI ethics workbook and artifacts to support the operationalization of HSBC's ethical principles for AI and big data.
- Manage Project MindForge, focusing on the development of AI ethics framework and delivering a technical report on AI governance in financial services.

Artificial Intelligence Researcher *Alan Turing Institute, London - Sep 2022 – Mar 2023*

- Developed a data quality python script for the AI Cards product to support data remediation efforts and comply with regulatory requirements.
- Engaged with the engineering team to deploy the data quality tool into production.
- Collaborated with BI department to design custom business intelligence dashboard, improving reporting to senior management.
- Contributed to the writing of two consultation papers: one addressing AI strategy and the other on ethics and governance of AI in financial services.

Research Assistant *Newcastle University, Newcastle upon Tyne - Mar 2022- Sep 2022*

- Project: "Net Zero Geothermal Research for District Infrastructure Engineering".
- Applied a long short-term memory model for time-series forecasting to predict the impact of climate change on building energy demand, achieving a 12% improvement in forecast accuracy compared to the benchmark.
- Project: "CRITiCaL - Combatting cRiminals In the Cloud".
- Predicting and classifying cyber-crime in the cloud using logistic regression based on user log data from servers.

Graduate Teaching Assistant *Newcastle University – Feb 2022 – Jun 2022*

- Led weekly practical sessions for postgraduate-level machine learning and deep learning modules.

Application Analyst *Fenwick, Newcastle upon Tyne - Sep 2020 - Mar 2021*

- Identified and rectified inconsistencies in basket sales, leading to a savings of £55,000.
- Automated the generation of reports to stakeholders, leading to an improvement in business processes.
- Led the analysis of business and commercial trends, providing recommendations to the management team.

Data Support Analyst *Fenwick, Newcastle upon Tyne - Dec 2018 to April 2020*

- Streamlined routine tasks through automation, reducing manual efforts by 65%.
- Leveraged Python to clean and transform raw data, enhancing overall data quality.
- Conducted data quality assessments on various Management Information (MI) reports to ensure data consistency.
- Analysed sales data and organized it into report formats to streamline business processes.

Education

Ph.D. in Machine Learning Newcastle University - April 2020 – Sep 2024

- Thesis: "Machine learning applications for energy demand forecasting".
- Developed machine learning and statistical models to forecast building energy consumption. Explored time-series forecasting, time-series analysis, machine learning, deep learning, statistical analysis.

Visiting research scholar KU Leuven - November 2023 – December 2023

- Received the global Turing fellowship for conducting research abroad at KU Leuven.
- Contributed to the development of data-driven energy forecast benchmark toolkit, part of IEA annex 82 activities.

MSc in Big Data University of Stirling - Sep 2017 – Sep 2018

- Masters dissertation: "performed data analysis to assess the impact of smoking point-of-sale legislation among adolescent".

BSc. in Information Technology Ebla Private University - Sep 2009 – Mar 2015

- Bachelors dissertation: "utilized machine learning models for imputing missing data".

Skills

Data Science	Programming	Tools	Personal Strength
• Machine learning	• Python	• Pandas	• Project management
• Statistics		• NumPy	• Flexibility
• Scientific research		• Excel	• Self-motivation
• Deep learning	• SQL	• Scikit-Learn	• Science communication
• Forecasting		• Tensorflow	• Consulting
• Feature engineering	• Git	• Keras	• Stakeholder management
• Data analysis		• Statsmodel	• Problem-solving
• Data visualisation		• Darts	

SELECT PUBLICATIONS

- **M. Khalil**, S. McGough, Z. Pourmirza, M. Pazhoohesh, S. Walker, "Machine Learning, Deep Learning and Statistical Analysis for forecasting building energy consumption — A systematic review", Engineering Applications of Artificial Intelligence.

- **M. Khalil**, S. McGough, Z. Pourmirza, M. Pazhoohesh and S. Walker, "Transfer Learning Approach for Occupancy Prediction in Smart Buildings," 2021 12th International Renewable Engineering Conference (IREC),

- **M. Khalil**, A. S. McGough, H. Kazmi and S. Walker, "A Global Data-driven Forecasting Approach for Buildings Energy Demand Prediction," 2023 IEEE 6th International Conference on Big Data and Artificial Intelligence (BDAI).

- A. Canaydin, C. Fu , A. Balint, **M. Khalil**, C. Miller, H. Kazmi, "Interpretable domain-informed and domain-agnostic features for supervised and unsupervised learning on building energy demand data", Applied Energy.