Hammad Ul Eaman Mir

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Owing to my passion for Data in the real world, it is my intense desire to work towards application of data science to solve real world problems. I believe my background, dedication and fondness for data will refresh me ever ready to learn and make useful contributions throughout my career as a Data Scientist.

EDUCATION

MSc. Data Science (Specialization in AI) **Sep 2021 – Aug 2022**
Newcastle University, Newcastle Upon Tyne, UK. Grade: Distinction

B.Eng. – Computer Science and Engineering **Jul 2015 – Aug 2019**
Islamic University of Science and Technology (IUST), J&K, India. Grade: 8.46/10 (Distinction)

SKILLS

Python (Numpy, Pandas, Matplotlib, Seaborn, Scikit Learn, TensorFlow, Keras, PyTorch)

R (TidyVerse, dplyr, ggplot, Tidy, plotly, Carat)

Mathematics (calculus, linear algebra, statistics, probability)

Machine Learning (linear + logistic regression, KNN, K-means, PCA, Bagging, Boosting, Decision Trees)

Deep Learning (MLP, ANN, CNN, RNN-LSTM, transformers, vision transformers)

Image Informatics Data Visualization SQL Git Power BI

RESEARCH EXPERIENCE/PROJECTS

Newcastle University **Newcastle Upon Tyne, UK**
Research Assistant *Sep 2022 – Dec 2022*

- In recognition of my dissertation work, I was given the opportunity to work with my supervisor on a research project at the Newcastle University.
- As a research assistant, I am working on biomedical image registration of three modalities (H&E, IMC, LA-ICP-MS) for breast cancer.

Master's Dissertation Project: *May 2022 – Aug 2022*

- Weakly Supervised Semantic Segmentation (WSSS) for Lung Adenocarcinoma using Vision Transformers:
  o Addressed the challenge of deriving pixel level labels (semantic segmentation) from image level labels for lung adenocarcinoma histopathology images and devised the first application of vision transformer for WSSS in histopathological images while exploring various methods for deriving pseudo-labels from vision transformers.
  o Yielded an IoU of 0.94 and 0.86 for normal and cancer tissues with the segmentation model trained on the pseudo-labels derived from vision transformers, refined by Pixel Adaptive Refinement (PAR).

ADDITIONAL MASTERS PROJECTS: SEP 2021 – APR 2022

- North of Tyne Combined Authority (NTCA) – Project Management Office (PMO):
  o Liaised with NTCA-PMO in a team of 5 to identify methods for improving collecting and presenting outputs data for effective reporting. Carried out root cause analysis and identified the main issues in the current methodologies at NTCA.
  o Performed in-depth numerical and graphical analysis through hypothesis testing, determining overall best practices for automated data preparation, efficient and effective reporting, and visualization, resulting in a reduction of current man hours on reporting by 70%

- Palmer Penguins Statistical Analysis:
  o Analysed the palmer penguin dataset (randomized subset based on personal student id) statistically to determine the best features for predicting the gender of penguins in R language.
  o Performed in-depth numerical and graphical analysis and along with hypothesis testing to determine the overall properties of the penguins in the dataset.

- Exploratory Data Analysis (EDA) - Learning Analytics:
  - Devised EDA on learning analytics dataset provided by Future Learn e-learning platform R programming language using Project Template as a guide to structure the project while following CRISP-DM methodology.
  - Tracked the project progress using Git and GitHub.

- Big Data Analysis on NYC Taxi Trip Dataset:
  - Cleaned and processed the dataset, removing outliers and keeping only the relevant information using PySpark. We compute the unit profitability, trip summary per zone and ranking.
  - We performed the operations on datasets of varying sizes, with *small* dataset containing 2.9m rows to *XXL* dataset containing 132.4m rows.
  - We performed the operations with delta and parquet data formats with delta performing a measure of over 4000% better than parquet owing to better optimization. Ensuring the use of collect calls at relevant processes also brings over 200% better performance.

- Acute Lymphoblastic Leukaemia (ALL) classification (Bachelor's Final Project):   Mar 2019 – Aug 2019
  - Achieved an accuracy score of 85% on the initial training data using popular deep learning architectures for leukaemia classification, further improved by fine-tuned architecture and patched images to over 78%.
  - Developed a custom convolutional neural network to best fit the dataset and increased the performance by over 8% to 93% classification accuracy.

INTERNSHIPS

Deep Learning Research Internship at IIT Mandi.   *Oct 2019 – Nov 2019*

- Acute Lymphoblastic Leukaemia (ALL) Detection Using Patch-Wise Image Segmentation and Deep Learning Models
  - Overcome the limitations of our previous approach for leukaemia classification and worked with patch-wise data and our own fine-tuned architecture for improved classification performance achieving an improved accuracy score of 72% over the previous attempt of 68% on the final testing dataset.

WORK EXPERIENCE

iQuasar Software Solutions   **Kashmir, India**

Technical Proposal Writer   *Nov 2020 – Sep 2021*

  - Researched business opportunities on various portals like FedBiz, Fed Connect, State portals, City portals, County portals, etc. best meeting the client profile.
  - Developed proposals for state and Local counties and analysed solicitations and requirement documents, Request for Proposal (RFP), RFQ, Amendments, Statement of Work (SOW), Performance Work Statement (PWS), etc.
  - Managed employee training for new team recruits over a three month period and offered continuous advice, guidance and mentorship on duties and best practices.
  - Identified and vetted potential subcontractors specific to RFP requirements.

LEADERSHIP EXPERIENCE

- Class Representative (IUST, 2 years).
  - Represented the students at the academic and administrative meetings delivering, student feedback, requests, and concerns.
- Disciplinary Committee Head (High School/Higher Secondary).
  - Hosted all High School/Higher Secondary events for 3 years, including seminars, house gatherings, and other functions.

HOBBIES/INTERESTS

Cycling, Tech Enthusiast, Drawing Pattern Sketches.