Usama Khaliq

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Education

MSc Artificial Intelligence
2022 – 2023

London Metropolitan University — *London, United Kingdom*

- **Expected: First Class**
- **Key Modules:** Artificial Intelligence, Machine Learning, Data Warehousing and Big Data, Semantic Technologies, Cloud Computing and the Internet of Things, Computer Vision.

BSc London Metropolitan University
2019 – 2022

London Metropolitan University — *London, United Kingdom*

- **First Class Honours**
- **Key Modules:** Introduction to Information Systems, Fundamentals of Computing, Programming, Computer Hardware and Software Architectures, Logic and Mathematical Techniques, Databases, Professional Issues, Ethics and Computer Law, Networks and Operating Systems, Software Engineering, Data Structures and Specialist Programming, Creating a Winning Business, Mobile Applications, Formal Specification & Software Implementation, Distributed and Internet Systems.

Experience

MBFB
Nov 2022 – Jan 2023

Database Engineer — *London, United Kingdom*

- Designed and created a database for managing and creating invoices
- Engineered an efficient sales tracking database tailored to the client's needs.
- Identified key data points and established appropriate data types for precise storage.
- Optimized database relationships for enhanced efficiency.
- Developed user-friendly data management forms and queries.

Projects

Fine Tuning Large Language Models for summarization

- **Technologies used:** Python, Jupyter, Transformers, PyTorch, Cloud Computing
- Fine-tuning different LLMs on three datasets
- Fine-tuned multiple Large language models (Bart, Pegasus, Prophetnet) for text summarisation tasks.
- Utilized Python, Jupyter, Transformers, PyTorch, and Cloud Computing throughout the project.
- Quantitatively evaluated models using Rouge and BLEU metrics and performed qualitative human evaluations.
- Successfully improved model performance on the summarisation task, demonstrating the effectiveness of the fine-tuning process.

Classification using Convolutional Neural Network

- **Technologies used:** Python, Jupyter, Colab, PyTorch
- Classifying 450 Species of bird using CNN
- Developed a CNN project on Kaggle's Bird Species 450 dataset.
- Experimented with various CNN models and achieved 95.9% accuracy with fine-tuned ResNet-34 in the transfer learning approach.

Semantic Technologies inference

- **Technologies used:** Java, Spring Boot, Apache Jena, RDF/XML, SPARQL, HTML, JavaScript, Maven
- Used Apache Jena for parsing and querying ontologies.
- Built the application with a backend/frontend architecture, with java for backend and an HTML/JavaScript frontend.
- Engineered the application to load, display, query, and validate ontology files.
- Deployed the application as a JAR file on a local server using Spring Boot.
- Wrote SPARQL queries for various ontology retrieval tasks.
- Acquired in-depth knowledge of semantic technologies' role in AI, specifically in knowledge representation and ontology-based tasks.

Cartonify photo to cartoon

- **Technologies used:** Java, JavaScript, Payara, OpenCV
- Convert image to cartoon web application
- Engineered user-centric software enabling customisation for optimal photo cartoonification.
- Utilized OpenCV for flexible image processing, independent of the photo's content.
- Designed a solution that mimics artist-level photo edits, accessible to all, regardless of expertise.

Technical Skills

Frontend JavaScript, CSS, styled-components, HTML, jQuery

Backend Java, Python, Node.js, Visual Basic, Spring Boot

Database MySQL, SQL, ETL process, Hadoop

Developer Tools IntelliJ, Android Studio, Docker, Git, npm, Agile Methodology

Languages

Italian Native

English Full professional Proficiency

German Intermediate Proficiency

Urdu Intermediate Proficiency