maqboolurrahim@gmail.com   **Maqbool ur Rahim Khan**

 maqboolurrahim   maqboolkhan

Experience:

Data Engineer   **GROPYUS GmBH, Germany**   May 2022 – Present

- Developing Data-fabric using knowledge graphs to enable next-gen data driven smart buildings
- Developed a tool to generate a RDF knowledge graphs from various data sources in just few seconds using Python & RDFLib
- Used unit-testing using Pytest and SHACL shapes with Pyshacl to validate graphs
- Worked on a research product which estimates global warming potential, carbon emission and other sustainability KPIs of our buildings using Okobaudät dataset
- Evaluated various ML methods to match construction materials, and concluded LLM can do it best!
- Developed a tool using OpenAI GPT and Langchain to talk with RDF KG and generate SPARQL queries

Student Research Assistant   **DICE Research Group, Germany**   July 2020 – September 2021

- Lead development of a chatbot (IDA) which let you upload datasets and generate visualization using natural language
- Helped in project management, development of Natural language engine and dockerized the project and created CI/CD pipelines using Jenkins

Software Engineer   **Syqlo.de, Germany**   June 2018 – June 2020

- Developed a web-based manager for a house connection surveying app using Angular and Firebase

Software Developer Engineer   **Symantec Inc, Pakistan**   November 2016 – March 2018

- Worked on a real-time dashboard using tools including Angular 1, Sockets, Python's Django and MongoDB

NodeJS Developer   **Interactive Cells, Pakistan**   March 2016 – October 2016

- Worked with NodeJS & Cassandra DB to develop REST APIs and migration scripts for an Ad-tech startup

Projects:

Let Me help   Hackathon project

- A hackathon project which let user to control computer using natural language instruction. I team up with a friend and we implemented SOTA research papers and were **finalist**! Later Claude introduce same functionality. I also wrote detailed blog post. github.com/Stettiner-Valley/LetMeHelp

RDF-to-Text (NLG task)   **Master's thesis (grade 1.5)**

- Researched Knowledge graphs (RDF)-to-text generation using *Generative Adversarial Networks (GANs)*
- Developed my solution in a pipeline fashion (5 stages) using Pytorch and WebNLG corpus
- Used LSTM as a generator, CNN model as a discriminator, and Monte-Carlo as a Policy Gradient method
- Trained and evaluated 3 neural networks using SLURM workload manager on UPB's Nvidia GPUs clusters

IDA   **Master's project (grade 1.3)**

- A chatbot for data-scientist, Co-lead the team of 8 fellow students and developed visualizations and Natural Language Engine. github.com/dice-group/ida-pg

Classifier using Transformer's Encoder   Personal project

- As Transformer is a sequence-to-sequence model so was curious to explore how to use Encoder separatly! Developed only using Pytorch. github.com/maqboolkhan/Transformer_classifier_pytorch (6 Github ⭐)

Project NMT

- A project where I explored LSTM and Transformer from scratch, pre-trained word embeddings and Huggingface models for Neural Machine Translation using Pytorch. github.com/maqboolkhan/nmt

Project NLP   Personal project
- A project where I implemented basic tasks of NLP e.g., Classification using statistical and deep learning approaches. github.com/maqboolkhan/project-NLP

A Web Search Engine   **Bachelor's final year project**
- A search engine focused on query understanding and grouping relevant results using Naïve Bayes. Developed using NLTK, Flask, Nodejs and Elasticsearch DB.

Oranje   The Simplest Java Code Editor. oranjehq.blogspot.com
ACCS   A Rapid Microsoft word document format changer.
                                        maqhq.blogspot.com

Skills:

Programming Languages	Python	Java	Javascript	
Python Frameworks	Pytorch	Scikit-Learn	Numpy	Pandas	Langchain
	RDFLib	PySHACL	FastAPI	PyTest	
ML/NLP	Transformer	BERT	LSTM	NMT	Attention
	Word embeddings	Sequence to Sequence models			Huggingface
Databases	Elasticsearch	Triple stores & SPARQL	MongoDB	Vector stores	SQL
Tools	Docker	Git	Regex	AWS (Sagemaker. & EC2)	
	Jupyter Notebooks	CI/CD			

Education:

Masters in **Computer Science (Major in AI)** Paderborn University, Germany   Mar 2018 - Sept 2021
Bachelors in **Computer Engineering** Sir Syed University of Engineering, Pakistan   Jan 2012 - Dec 2015

Extra Circular Activities:

- **Student** at **ACL Mentorship program**   (Aug 2021)
- **First Pakistani Winner** of **Firefox OS Global App Dev Competition**   (Nov 2014)
- **Third Position** in two days **Scayle Hackathon**   (Nov 2016)