

**Experience:****Data Engineer****GROPYUS GmbH, Germany**

May 2022 – Jan 2026

- 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
- Deployed various applications and services on Azure using Kubernetes
- Developed data pipelines using Dagster to generate PowerBI reports of graph data from our data fabric
- Developed a tool using OpenAI GPT and Langchain to talk with RDF KG and generate SPARQL queries

**Research Assistant****UKP Lab, Darmstadt, Germany**

January 2021

- Successfully completed the interview process and received an offer from this prestigious institution. However, I ultimately decided not to pursue the opportunity due to financial considerations

**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](https://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](https://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 separately! Developed only using Pytorch. [github.com/maqbookhan/Transformer\\_classifier\\_pytorch](https://github.com/maqbookhan/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/maqbookhan/nmt](https://github.com/maqbookhan/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/maqbookhan/project-NLP](https://github.com/maqbookhan/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](https://oranjehq.blogspot.com)

### ACCS

A Rapid Microsoft word document format changer.

[maqhq.blogspot.com](https://maqhq.blogspot.com)

### Skills:

#### Programming Languages

Python                      Java                      Javascript

#### Python Frameworks

Pytorch                      Scikit-Learn              Numpy                      Pandas                      Langchain

RDFLib                      PySHACL                      FastAPI                      PyTest                      Dagster

#### ML/NLP

Transformer                      BERT                      LSTM                      NMT                      Attention

Word embeddings              Sequence to Sequence models                      Huggingface

#### Databases

Elasticsearch                      Triple stores & MongoDB                      Vector                      SQL

SPARQL                      stores

#### Tools

Docker                      Git                      Regex                      Kubernetes

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)