

Education

MASTER OF DATA SCIENCE – RWTH Aachen – Germany, Aachen

September 2023

Majors: Computer science, Data science, Machine Learning

Relevant coursework: Machine Learning, Advanced Machine Learning, Combinatorial optimization, NLP

Thesis: Data integration in a data lake system

(Python – Flask – Spark – Postgres – ReactJS)

BACHELOR OF COMPUTER SCIENCE – Alexandria University – Egypt, Alexandria

June 2018

Majors: Computer science

Skills

- **Programming Languages:** Python (Tensorflow, Keras, Pandas, Numpy, Scikit-Learn, NLTK), **JAVA**, **SQL**, **JavaScript**
- **Data visualization:** Tableau, Matplotlib
- **ETL:** SSIS
- **NLP:** RNN, LSTM, Transformers, Language Representations
- **Statistical Modeling**
- **Machine Learning:** (Regression, SVM, Random Forest, XGBoost, KNN, KMeans)
- **Hypothesis testing**
- **Cloud:** GCP
- **Testing:** (Cypress - Enzyme)

Work Experience

DATA SCIENTIST (PART TIME) – DXFACTURE – Germany, Aachen

March 2023 - Present

- Developed a comprehensive **Tableau** dashboard for SweetConnect, showcasing CO2 emission and product pricing data, enhancing the company's ability to make environmentally conscious and cost-effective decisions.
- Collaborating with customers on projects to analyze and merge data from multiple **Excel** files.
- Designing and developing data pipelines (**Python**) for energy-related data, including weather data and prices, to enable efficient and reliable data processing and analysis.

SOFTWARE ENGINEER (PART TIME) – Exporto – Germany, Aachen

April 2022 - November 2022

- Optimized **SQL** queries to double the speed of search operations, significantly enhancing the user experience for Exporto customers.
- Designed and developed a global category search feature, boosting parcel processing efficiency for warehouse staff.

SOFTWARE ENGINEER INTERN (FULL TIME) – Amazon – Germany, Berlin

September 2021 - February 2022

- Designed, implemented (**React**), and tested (**Cypress – Enzyme**) advanced filters for AWS QuickSetup services, boosting customer engagement.
- Enhanced the user experience for QuickSetup, optimizing the user journey from the AWS website through service creation.
- Streamlined the development process by implementing a new workflow for **AWS Synthetics**, reducing the team's development time by 5% by enabling local testing without deploying code to gamma first.

DATA SCIENTIST (FULL TIME) – EJADA – Saudi Arabia, Riyadh

July 2018 - March 2020

- Collaborated with the business intelligence team to create a comprehensive dashboard using **SQL** and **Tableau**, effectively summarizing tax payments across various groups and tax types, enabling stakeholders to gain valuable insights and make informed decisions regarding taxation strategies.
- Acted as an external resource for the data engineering team, successfully delivering 20+ **ETL** packages to production

using Microsoft **SQL** and **SSDT**, contributing to the efficient management and transformation of data for enhanced business analytics and decision-making processes.

- Created a data pipeline to clean and merge tax registration data from various Excel files, resulting in a **Tableau** dashboard that provided a timeline of tax submission information for analysis and decision-making purposes.

Selected Projects

ESTIMATE DELIVERY TIME – Personal Project – Germany, Aachen, [Link](#) May 2023

- Conducted **exploratory data analysis** to identify key trends, including peak demand times and differences in delivery times across various markets, thereby gaining insights into factors influencing delivery times.
- Implemented machine learning algorithms like **Linear Regression** and **Random Forest** to predict delivery times, optimizing model performance through **feature selection** and hyperparameter tuning.
- Utilized statistical methods such as **best subset selection** and **p-value** calculations to identify and select the most relevant predictors for the model, improving model accuracy and interpretability.

MACHINE TRANSLATION WITH ATTENTION – Personal Project – Germany, Aachen, [Link](#) February 2023

- Developed a **translation model** between English and German using Google **Tensorflow**, improving the model's capability to handle long sentences and complex grammatical structures.
- The architecture consists of an **Encoder**, **Pre-attention Decoder**, and Main Decoder, where the initial inputs and outputs are processed through the encoder and pre-attention decoder, then the activations are combined to create the inputs for the attention layer. The output of this attention layer is finally passed to the main decoder, culminating in the translated output.

TEXT SUMMARIZATION WITH TRANSFORMERS – Personal Project – Germany, Aachen, [Link](#) December 2022

- Developed a Custom **Transformer** Model for **Text Summarization**: Used **TensorFlow** to engineer a transformer model from the ground up, incorporating Dot Product Attention and Causal Attention mechanisms, specifically tailored for efficient text summarization tasks.

MUSIC RECOMMENDATION ENGINE – Personal Project – Germany, Aachen, [Link](#) December 2022

- Designed and developed a personalized music recommendation engine, leveraging public Spotify datasets and a **machine learning (KNN)** algorithm, and utilized **Python** for **data cleaning** and **scraping**.
- Hosted the application on Streamlit, enabling personalized music recommendations for users.

SOLAR ANALYSIS FOR SOUTH GERMANY– Fraunhofer IAIS – Germany, Bonn, [Link](#) November 2022

- Conducted comprehensive **data analysis** on solar energy production in Bayern and Baden-Württemberg, utilizing **data cleaning** and **web scraping** techniques to gather relevant information, and examined factors such as tax incentives and potential solar station locations.
- Provided valuable insights to support research initiatives at Fraunhofer IAIS, contributing to the identification of key areas of study related to solar energy production in the region, leading to the initiation of new research questions and projects.

Achievements

- Google Cloud Machine Learning Engineer specialization (Coursera)
- 3rd place at Meta hackathon 2021 (3/10 teams)
- NLP Specialization (Deeplearning.ai)
- NLP Nanodegree (Udacity)
- Leetcode Monthly badge (3x)

Languages

Arabic: bilingual proficiency

English: Full professional proficiency

German: Elementary proficiency