

Education

MASTER OF DATA SCIENCE – RWTH Aachen – Germany, Aachen

September 2023

Majors: Computer science, Data science, Machine Learning

Thesis: (BIG DATA) Data integration in a data lake system

BACHELOR OF COMPUTER SCIENCE – Alexandria University – Egypt, Alexandria

June 2017

Majors: Computer science

Skills

- **SQL** (SQL Server, MySQL, PostgreSQL)
- **Python** (Pandas, NumPy, SciPy, Matplotlib, Scikit-learn, XGBoost, NLTK, Pyspark, Pytorch)
- **Tableau**
- **Statistical Modeling, Machine Learning**
- **A/B Testing**
- **GCP**
- **Docker, Git**
- **NLP** (Transformers, BERT, DeBERTa, ELECTRA)

Work Experience

DATA SCIENTIST – DXFACTURE – Germany, Aachen

Feb 2022 - 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.
- Conducted correlation and regression analysis to investigate the impact of external temperatures on factory machinery power consumption, thereby enhancing power usage estimates through accurate weather forecasting.

SOFTWARE ENGINEER – 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 – Amazon – Germany, Berlin

September 2021 - February 2022

- Designed, implemented (**React**), and tested (**Cypress – Enzyme**) advanced filters for AWS QuickSetup services, boosting customer engagement.
- 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 – EJADA – Saudi Arabia, Riyadh

July 2017 - March 2020

- Leveraged machine learning models to detect unusual tax filing patterns, providing an early warning system for potentially **fraudulent** activities, thus ensuring the integrity of tax collection processes.
- Applied **clustering** algorithms to segment the Saudi Arabia Tax Authority's taxpayer base into distinct groups, enabling personalized approaches to tax compliance and enhancing the efficiency of revenue collection.
- 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.

Selected Projects

PREDICTIVE RISK MODELING FOR PROPERTY TITLES – Personal Project – Germany, Aachen, [Link](#) June 2023

- Developed a predictive machine learning model using Random Forest with Principal Component Analysis (PCA) to estimate the overall title risk for properties, based on property information and historical title defect data.
- Achieved a precision of 0.879 and recall of 0.889, providing a robust basis for making profit-maximizing recommendations for decision threshold adjustments during production.

CHURN-PREDICTION – Personal Project – Germany, Aachen, [Link](#) May 2023

- Analyzed extensive user data to predict user churn, a crucial metric in the gaming industry. Utilized exploratory data analysis and feature engineering to develop significant features, and applied machine learning models like Logistic Regression and Random Forest, achieving a high accuracy of 96% in churn prediction.

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.

SENTIMENT ANALYSIS ON REVIEWS – Personal Project – Germany, Aachen, [Link](#) February 2023

- Utilized **Python** to perform sentiment analysis on 14,000 reviews on IMBD.
- Applied deep learning to produce a final model with an accuracy of 88%

A/B TESTING EMAIL-SIGN-UP – Personal Project – Germany, Aachen, [Link](#) December 2022

- Designed and executed an **A/B test** for Urban Wear's pre-launch email sign-up page, using **Python** and **statistical methods** to compare the effectiveness of different submit button colors.
- Analyzed test results to provide data-driven recommendations, enhancing decision-making processes and maximizing email collection efforts.

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)