RAZA UL AZAM

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EXPERIENCE

Master's Thesis Student - Machine Learning

Bosch Center for Artificial Intelligence (BCAI)

January 2020 – June 2020 Renningen, Germany

- Developed several deep learning models from scratch using Python, PyTorch and TensorFlow
- Computed uncertainty estimates from the models using concepts from Bayesian probability theory, statistics and linear algebra
- Performed extensive data analysis using Pandas, Matplotlib, Seaborn, OpenCV and Imblearn packages
- Designed a new classifier for detecting extraneous data and prototyped using model implementations in Scikit-learn (94% accuracy)
- Collaborated with the development team for putting models into production

Intern - Machine Learning

Robert Bosch GmbH

April 2019 – September 2019 Renningen, Germany

- Created custom layers for quantizing Neural networks as well as injecting and detecting faults using Keras (98% accuracy)
- Implemented anomaly detection methods for time-series data based on LSTMs and Auto-encoders in TensorFlow and Keras (90% accuracy)
- Improved the performance of the methods by 3% with Bayesian hyperparameter optimization
- Used Pandas and Seaborn for analyzing different datasets and Scikit-learn for prototyping Machine learning models

Working Student - Machine Learning and Optimization

Schaeffler Technologies AG & Co. KG

August 2018 – January 2019 Herzogenaurach, Germany

- Implemented different variants of Evolutionary algorithms in C++14
- Developed CUDA kernels for speed efficiency (6x)
- Loaded automotive datasets using SQL and analyzed using Pandas and Matplotlib
- Implemented different Machine learning models using Scikit-learn

Working Student - Software Development

Fraunhofer IIS

April 2018 – July 2018 Erlangen, Germany

- Improved rendering algorithms for the MPEG-H project and added new functionalities in C++14
- Performed test simulations on MATLAB and in a real environment
- Used agile methodologies for collaborating internally on the huge codebase

EDUCATION

Master of Science in Communications and Multimedia Engineering

Friedrich Alexander Universitaet Erlangen-Nuremberg (Germany)

October 2017 – August 2020

Note: 1.6/5.0 (**Thesis Note:** 1.0)
Specialization: Machine Learning

Summer Course on Artificial Intelligence (AI)

Middle East Technical University (Turkey)

August 2018 – September 2018

Theme: Impacts of AI on the humanity

Bachelor of Science in Electrical Engineering

Lahore University of Management Sciences (Pakistan)

August 2013 – May 2017

Note: 1.5/5.0

SKILLS

Python 3.7 | C++14 | SQL | MATLAB | CUDA | R | PyTorch | TensorFlow | Keras | Pandas | Scikit-learn | Seaborn | Scipy | OpenCV | Git | GitLab | MLflow | AWS | Flask | Docker | HTML | Spark | MapReduce model | MySQL | Latex | Kubernetes

LANGUAGES

German ●●○○○

English ●●●●●

PROJECTS

Data Science Project

https://github.com/razaulazam/DataScienceSampleProject

July 2020 – August 2020 Stuttgart, Germany

- Performed extensive data analysis on a sample dataset using Pandas and Seaborn library
- Identified relevant Machine learning algorithms for the target goal
- Prototyped the chosen algorithms using Scikit-learn
- Tools Used: Python 3.7, Pandas, Seaborn, Scikit-learn

Deep Learning Framework

https://github.com/razaulazam/DeepLearningFramework

December 2019 – April 2020 Stuttgart, Germany

- Conceptually implemented commonly used layers like Convolutional, Pooling, Linear, LSTM, Softmax and many others
- Implemented different Neural network initialization and regularization schemes
- Implemented several optimizers like SGD, RMSProp and ADAM used in Machine learning
- Tools Used: Python 3.7, Visual Studio (VS) Code

Machine Learning Algorithms

https://github.com/razaulazam/PatternAnalysisAlgorithms

September 2019 – December 2019 Stuttgart, Germany

- Conceptually implemented different Machine learning algorithms in C++14
- Developed Mean Shift clustering method and feature selection algorithms like PCA and IsoMap
- Implemented famous Random Forest method and Viterbi algorithm used with Hidden Markov Models (HMM)
- Tools Used: C++14, Visual Studio

Autonomous Gas Pipeline Inspection using UAV (Bachelor Thesis)

Lahore University of Management Sciences

May 2016 – May 2017 Lahore, Pakistan

- Navigated Quadcopter on a pipeline based on Computer vision algorithms in OpenCV exploiting Camera and Laser scanner data
- Fused the data from Camera and Laser scanner using Kalman filters
- Used Pololu MQ series gas sensors for detecting gas leakages from a pipeline
- Tools Used: C++14, MATLAB, ROS, Linux, OpenCV

CERTIFICATIONS

AWS Machine Learning

Udacity

July 2020 Stuttgart, Germany

- Used the important components of the AWS cloud service
- Studied the deployment process of Machine learning models using AWS

Intermediate Pandas Python Library for Data Science

Coursera

5 hours Stuttgart, Germany

- Studied advanced Pandas functions for performing efficient exploratory data analysis

MySQL Bootcamp

Udemy

In progress Stuttgart, Germany

- Learning how to construct advanced SQL queries with several practical exercises

Docker and Kubernetes Fundamentals

KodeKloud

In progress Stuttgart, Germany

- Learning the advanced concepts of Docker and Kubernetes that are an essential part of Machine learning production pipeline

Design of Computer Programs

Udacity

In progress Stuttgart, Germany

- Advanced course on design patterns in Python programming for achieving the optimal performance

REFERENCES

William Harris Beluch

- Research Engineer at BCAI (Bosch)
- @ william.beluch@de.bosch.com

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