Adham Abdelazeem

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Professional Summary

Driven Machine Learning Engineer with a Master's in Biomedical Engineering. I have a solid background in computer vision techniques, machine learning, Python, and cloud computing, and I enjoy tackling tough problems and finding innovative solutions. My aim is to use my skills to develop intelligent systems that have a real-world impact. As a Machine Learning Engineer, I'm excited to bring my technical expertise and innovative problem-solving abilities to a dynamic team.

Education

- **Master of Science (M.Sc.) - Biomedical Engineering** Oct 2021 - Jun 2024
  Anhalt University of Applied Sciences, Köthen, Germany
  - **Master thesis topic:** "Feature Engineering, Machine Learning and Computer Vision-based Approach for Optimization of Pet Food Chunks"
  - **Relevant Coursework:** Machine Learning and AI, Advanced Programming (Medical Assistant ChatBot), Directed Research Studies (Interactive computer vision game), Biostatistics, Graphical Programming

- **Bachelor of Science (B.Sc.) - Biomedical Engineering** Oct 2013 - Jul 2018
  Minia University, Minia, Egypt
  - **Grade:** Very Good
  - **Bachelor thesis topic:** Artificial Pancreas (Automated Insulin Delivery System)

SKILLS

- **Programming Languages:** Python, Matlab
- **Programming frameworks:** TensorFlow, Scikit-learn, Numpy, Pandas, CV, FastApi, and Keras.
- **Technologies:** Azure, Docker, MySQL, Kubernetes, Kubeflow, MLFlow and Terraform.
- **Languages:** English (Full Professional Proficiency), German (Limited working proficiency B1).
- **Soft Skills:** Excellent in presentation, Action Oriented, Communicating effectively, Resilient, Self-Development, Planning and Aligning.

Work Experience

- **Data Scientist Intern / Thesis,** *Mars, Verden, Germany* May 2023 - Apr 2024
  - Utilized feature engineering techniques such as PCA, Correlation, and Wrapper methods to reduce 96.5% of features maintaining the same accuracy values.
  - Enhanced software capabilities using computer vision techniques.
  - Applied Machine Learning models such as Random Forest KNN, SVM, Multilayer Perceptron, Xtreme Gradient Boosting (xgb), and Logistic Regression.

- **Data Scientist Intern,** *ZUMMIT INFOLABS, Remote* Oct 2022 - Jan 2023
  - The role encompasses problem-solving skills by applying MLOPs, Data Pipelines, and various ML models algorithms such as Neural Networks, SVM, and Deep Learning.
  - Enhanced model accuracy by 10% through optimized hyper-parameter tuning.
  - Implemented solutions for basic ML problems such as House Price prediction, Digit classification, and prostate cancer detection.

- **Healthcare systems executive engineer**, *KHABEER, Cairo, Egypt* Nov 2020 – Apr 2021
  - Successfully integrated various lab devices, monitors, and medical devices with hospital information systems, enhancing data flow and operational efficiency within the healthcare setting.

- **Biomedical Sales Engineer**, *Arabic Chemical Consulting Center, Egypt* Jun 2020 – Oct 2020
  - Enhanced radiation protection measures for X-rays and CT rooms, promoting safer diagnostic practices.
  - Provided reliable Non-Destructive Tests (NDT) services.

- **Healthcare systems executive engineer**, *International Medical Center, Egypt* Apr 2019 – May 2020
  - Monitored and resolved issues within hospital information systems, maintaining uninterrupted and efficient hospital operations.

- **Biomedical Sales Engineer**, *Arabic Chemical Consulting Center, Egypt* Aug 2018 – Mar 2019

- Enhanced radiation protection measures for X-rays and CT rooms, promoting safer diagnostic practices.
- Provided reliable Non-Destructive Tests (NDT) services.

Hackathon

As a member of the team in the Reef Restoration Hackathon, we achieved a 7th-place finish by successfully conducting a coral classification task to differentiate between healthy and damaged corals. We utilized Convolutional Neural Network (CNN) techniques, including data augmentation and label balancing methods, to accomplish this task, and our work was evaluated using the Highest F1 Score.
Link: Home- Mars Coral (buildingcoral.com)

Projects

Repository link: https://github.com/Adham-Abdelazeem

Adham Abdelazeem

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02-Jul-2024

Dear Hiring Team,

I am excited to apply for the Machine Learning Engineer position. With a strong background in Machine Learning Operations, Computer Vision, and Python programming, I am eager to contribute to innovative projects and create impactful solutions in the field of machine learning.

During my time at MARS GmbH, I gained hands-on experience in all stages of the ML lifecycle, from data collection and preprocessing to model evaluation and hyperparameter tuning. My proficiency in Python, along with popular libraries like TensorFlow/Keras, NumPy, Pandas, and Scikit-Learn, has prepared me to tackle complex ML problems effectively.

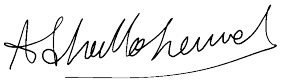
In addition to my practical experience, my academic projects have solidified my expertise in feature engineering and optimizing ML pipelines. I am also experienced in using cloud platforms like Microsoft Azure for scalable and efficient computing. My background in Computer Vision and Deep Learning, coupled with skills in MySQL and FastAPI, highlights my technical abilities and my capacity to deliver impactful solutions.

Beyond my technical skills, I am known for my strong communication abilities and my talent for translating complex technical concepts into actionable insights for stakeholders. My proactive approach and analytical mindset enable me to drive results efficiently.

I thrive in collaborative environments and enjoy working in small team settings where I can actively contribute to the success of diverse ML projects. I am particularly excited about the opportunity to explore cutting-edge technologies such as Kubernetes, MLflow, and Docker, as they align with my desire for continuous learning and growth.

Thank you for considering my application. I am eager to bring my expertise to your team and contribute to the important work you do in the field of machine learning. I look forward to discussing how my background and skills can benefit your organization in more detail.

Sincerely,
Adham Abdelazeem



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Adham Abdelazeem
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Date of Birth: 23.10.1994

Köthen, 01.07.2024

To Whom It May Concern,

I am writing to provide a reference for Adham Abdelazeem, who has recently completed his Master's degree in Biomedical Engineering with a focus on Machine Learning at Anhalt University of Applied Science.

I had the pleasure of working with Adham as his professor in two modules: Machine Learning and AI with a grade of 1.7 (German Grading System) and Directed Research Studies with a grade of 1.3 (German Grading System), as well as serving as his thesis supervisor for his Master's thesis. During this time, I have been consistently impressed by his technical expertise, dedication, and analytical skills.

Adham has demonstrated exceptional proficiency in Machine Learning and AI, he completed a project on classifying dishware images, where he effectively utilized computer vision techniques to detect objects in the image dataset and built neural network layers from scratch using Python as a programming language and its libraries such as TensorFlow. His ability to implement and optimize machine learning models was outstanding.

In Directed Research Studies, Adham excelled in both theoretical and practical aspects of machine learning and computer vision techniques. His final project, which involved detecting and identifying different hand gestures for the game (scissor paper rock) utilizing Mediapipe Python's package, was particularly noteworthy and demonstrated his ability to apply his knowledge to real-world problems on an embedded System.

As his thesis supervisor, I had the opportunity to closely observe Adham's research abilities and work ethic. His thesis, titled " Feature Engineering, Machine Learning, and Computer Vision-based Approach for Optimization of Pet Food Chunk" was a testament to his deep

understanding of machine learning principles and his innovative research approach. He demonstrated exceptional problem-solving skills, the ability to conduct thorough literature reviews, and a strong aptitude for experimental design and analysis.

In addition to his technical skills, Adham possesses personal qualities such as dedication, curiosity, and teamwork. He actively participated in class discussions, collaborated effectively with peers, and showed a keen interest in exploring new areas of research. His positive attitude and strong work ethic make them a pleasure to work with and a respected member of the academic community.

I am confident that Adham will excel in any future endeavors he chooses to pursue in the field of machine learning engineering. He has my highest recommendation, and I am more than willing to provide further information if needed. Please feel free to contact me.

Kind regards,

Prof. Dr Stefan Twieg

MARS
Petcare

Mars GmbH – Eitzer Straße 215 – 27283 Verden (Aller)

Reference

Mr Adham Abdelazeem born on October 23, 1994 was employed in our company from May 1, 2023 until April 30, 2024 in the Research & Developement department as a bachelor student.

Mars in Germany is part of the American family-owned company Mars, Incorporated, a branded goods manufacturer operating in more than 80 countries worldwide. The company currently employs around 2,200 people from over 50 nations at its six operating sites in the Mars Wrigley, Mars Petcare, Royal Canin and Mars Food divisions. Mars also manufactures many of its quality brands in Germany. World-famous brands such as WHISKAS®, PEDIGREE®, SHEBA®, CESAR®, PERFECT FIT™, CRAVE™, KITEKAT®, FROLIC®, DREAMIES™, CATSAN™ and ROYAL CANIN belong to Mars Petcare. In the Mars Wrigley division, the brands include M&M'S®, SNICKERS®, TWIX® and CELEBRATIONS® as well as WRIGLEY'S EXTRA®, AIRWAVES®. The Mars Food division is represented by brands such as BEN'S ORIGINAL™, MIRÁCOLI® and EBLY®.
Mars is proud to have received awards as an employee-oriented company. The family-owned company follows the guiding principle 'The world we want tomorrow starts with how we do business today'.

During his internship at Mars, Mr Abdelazeem worked on the implementation of image analysis techniques to measure dimensions of wet pet food semi-finished products. His work will improve existing methods used for quality control.

His main tasks and deliverables during the internship were as follows:

- Performing a literature review across different technical fields to gather dimension measurements based on quantitative methods.
- Implementation of all the dimension measurements in Python.
- Evaluation of all dimension measurements to describe existing wet pet food semi-finished products, through the use of various classification models.
- Selection of best dimension measurements through the use of various feature slection methods.
- Proposal of a methodology for quality control based on selected dimension measurements.

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mars.com

Sitz Verden
Amtsgericht Walsrode HRB 121589
USt-IdNr. DE116740134
Geschäftsführer: Tomasz Pawlowski,
Carsten Simon, Lars Sonnenberg

MARS
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Mr Abdelazeem possesses in-depth specialist knowledge, which he was able to apply profitably in practice on a daily basis.
He demonstrated good social skills and ability to work in a team, integrating himself in an R&D department with a highly multicultural team and various technical backgrounds, and creating a network for himself that he was able to use to solve technical issues and organise tasks for his project.
He has a good ability to familiarise himself rapidly, which always enabled him to grasp even very complex work content well within a very short time.
Mr Abdelazeem always dedicated himself to our company, often working beyond normal office hours, consistently displaying his high level of motivation.
Mr Abdelazeem was always exceptionally willing to learn.
He completed all his tasks, even under difficult working conditions and under time pressure.

He was highly appreciated by our company because of his very prudent and responsible way of working at all times.
Trustworthiness and absolute reliability characterised the work ethic of Mr Abdelazeem at all times.

Mr Abdelazeem achieved good work results.
During his internship, he was involved in several data science and statistics communities, with the purpose of increasing data literacy across Mars. As part of one of these communities, he also took part in an internal Hackathon, using machine and deep learning to propose a solution to a business problem.
We were always satisfied with the performance of Mr Abdelazeem in every respect.

He was highly appreciated and enjoyed great popularity because of his consistently very friendly, sociable and balanced disposition. His behaviour towards his mentor, colleagues and business partners was always exemplary in every respect.

The collaboration with Mr Abdelazeem was very pleasant and gratifying. We believe that he is well-suited for his chosen profession, would like to thank him for his consistently good performance and wish him continued success and all the best for his future career and private life.

Verden, April 30, 2024

Mars GmbH

Yilin Guo

Future Manufacturing Technology Programme Leader