ERDEM ÜNAL

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OBJECTIVE

With over three years of experience as a Machine Learning Engineer specializing in deep learning, I have undertaken a diverse range of responsibilities encompassing Cloud Architecture, Data Engineering, DevOps, and Software Development. These responsibilities have entailed tasks such as Cloud Migration, Business Data Analytics, Scheduled Data Pipelining, as well as Automated Rollback and Deployment Management. At present, I am four months into my current position, and I find myself rather dissatisfied due to the lack of clear vision and objectives. Unfortunately, I do not feel adequately rewarded, and the dynamic learning environment that characterized my previous job appears to have been lost. Consequently, I am actively seeking a full-time, preferably long-term role as a Solution Engineer or Data Architect, where I can reignite my passion for tackling intricate and demanding Data pipelining challenges.

SKILLS

Programming and Tools	Python, SQL, git, Bash, Terraform, Docker, Visual Studio Code
Cloud Platforms	Google Cloud (gcloud), Amazon Web Services (aws)
Google Cloud Components	Artifact Registry, Bigquery, Looker, Cloud Build, Cloud Function, Cloud Run
AWS Components	S3, Simple Notification Service (SNS), Key Management Service (KMS), Sagemaker Model & Pipelines, Elastic Container Registry (ECR)
Compute Services	Kubernetes Cluster, Virtual Machines, Google Compute Engine, Amazon EC2,
Data Analytics	BigQuery, Looker, Dashboards, Stackdriver, Cloud Logging and Monitoring
Data Storage (SQL, noSQL)	MySQL, PostgreSQL, Amazon S3, Google Cloud Storage, Azure Blob Storage, Redis, Firebase, BigQuery, Cloud SQL, Firestore, SAP BW
Data Processing	Apache Spark, Dataproc, Apache Airflow, Google Workflows, ELT Pipelining, CI/CD, Cloud Scheduler, Data Ingestion and Warehousing
Deep Learning	RNNs, CNNs, Generative Networks (GANs, VAEs, Flows), Autoregressive Models, Fairness, Pattern Recognition, Unsupervised Outlier Detection
	Google Vertex AI, AWS Sagemaker

EXPERIENCE

Machine Learning Engineer — Remote, May 2023 - Ongoing
EOS Technology Solutions GmbH — *Hamburg, Germany*

- Database migration from on-prem exasol database to AWS Redshift provisioned data warehouse
- Deploying end-to-end Train-Predict CI/CD Pipeline set-up AWS Sagemaker models using AWS CDK
- Creating 'How-To-Start at EOS' and 'how-to-mlops' tutorials for other team members. Teaching and documenting git, SQL, Python, AWS and cdktf.
- Establish and enforce data governance policies, including data access controls and data retention policies, to ensure data security and compliance within SageMaker, Redshift, and S3.
- Monitor resource utilization and optimize costs by implementing cost-saving measures such as Amazon S3 data lifecycle policies and resizing Amazon Redshift clusters based on workload requirements.

Data Engineer — Hybrid, Apr 2022 - April 2023
BMG - The New Music Company — *Berlin, Germany*

- ELT connection from SAP BW to BigQuery, BigQuery to Looker integration, LookML development
- ML-Ops lifecycle, end-to-end workflow, fully containerized application running on multitenancy Kubernetes cluster. Tools used: Redis, ArgoCD

- Deep Learning Research in Music Similarity, Tagging and Information Retrieval tasks targeting BMG Music Catalogue
- CI-CD pipeline using Bitbucket, Cloud Build, JIRA, Confluence
- Automated cloud operations (resource management, IAM permissions) using Terraform and GCP
- Participating in Data Engineering Weekly Meetings by reading and sharing experiences

Data Analyst May 2021 - January 2022
Anvajo GmbH *Dresden, Germany*

- Conducted research in unsupervised anomaly detection methods for microscopic imaging (Master's Thesis)
- Pre-processing of microscopic data for ML pipeline, CI-CD workflow, computationally efficient CNNs, variational and autoregressive generative models
- Robust detection of image samples and distributions using statistical and ML-based detectors
- Optimized inference time and cost of pretrained ML model on NVIDIA Jetson Nano
- References available upon request (Dr. Thomas Neumann)

Research Assistant May 2021 - Apr 2022
DiscoRet *Dresden, Germany*

- Participated in research studies and published "Enhancing Fairness of Visual Attribute Predictors" in ACCV Conference.
- Research topics: Fairness, Robust Generative Models (VAEs, GANs, INNs), Latent Space manipulation, Hyper-parameter optimization, Neural Architecture Search, AutoML
- References available upon request (Nishant Kumar) (Dmitrij Schlesinger)

Python Programmer Dec 2019 - May 2020
Helmholtz-Zentrum Dresden-Rossendorf *Dresden, Germany*

- Designed a UNIX command line tool that queries popular AI hubs for pre-trained weights of a given architecture
- References available upon request (Dr. rer. nat. Peter Steinbach)

C++ Programmer Dec 2019 - May 2020
TU Dresden CGV *Dresden, Germany*

- Applied ray tracing algorithms to further improve a Virtual Reality project using OpenGL and C++
- References available upon request (Prof. Dr. Stefan Gumhold)

Intern June 2018 - Sep 2018
Fraunhofer IIS/EAS *Dresden, Germany*

- Analysis of FinFET layouts and its implications to analog design

Intern June 2017 - Aug 2017
Saurer Schlafhorst *Übach-Palenberg, Germany*

- Involved in project groups related to hardware designs of new products, software solutions and repair shops

EDUCATION

Master of Science: Visual Computing 2019-2021
Department of Computer Science - Dresden University of Technology - Dresden, Germany
CGPA: 2.1 – GUT (German Grade)
Thesis: Out-of-distribution Detection for Microscopic Imaging
Publication: Enhancing Fairness of Visual Attribute Predictors
Topics: Deep Learning, Computer Vision, Computer Graphics, High Performance Computing, Data Visualization

Bachelor of Science: Electrical and Electronics Engineering 2015 - 2019

Department of Engineering - Bilkent University - Ankara, Turkey
CGPA: 3.19 - Honor Student (American Grade)
Final Project: LocInCampus - 2D outdoor localization system independent of GPS functioning in Bilkent University Campus borders
Topics: Telecommunications, Computational Neuroscience, Digital Signal Processing, Statistical Learning and Data Analytics, Reinforcement Learning, Computer Networks, Embedded Systems
- Bilkent IEEE Student Branch Active Member (2014-2016)
- Algorithms & Programming Course (JAVA) Grader and Tutor (2015-2017)

High School Degree 2010 - 2014
Bornova Anatolian High School - Izmir, Turkey
CGPA: 85.7/100

PUBLICATIONS

Enhancing Fairness of Visual Attribute Predictors
Authors: Tobias Hänel, Nishant Kumar, Dmitrij Schlesinger, Mengze Li, Erdem Ünal, Abouzar Eslami, Stefan Gumhold
Publication date: 2022
Conference: Proceedings of the Asian Conference on Computer Vision
Pages: 1211-1227

PROJECTS (GITHUB)

Out-of-distribution Detection for Microscopic Imaging (2021) Master's degree final project – Thesis

Analysis and design of SOTA anomaly detection approaches suitable for microscopic data while fulfilling the requirements of the hardware. Multiple unsupervised CNN-based classifiers and deep generative models are evaluated in terms of accuracy and efficiency.
Techs: Python, TensorFlow, Keras, PyTorch

Real-Time Video Segmentation (2021) Segmentation models trained on water images and then further transformed into CoreML environment and realtime mobile compatible water segmentation app is developed.
Techs: Python, PyTorch, Kaggle, ONNX, CoreML, Swift, Metal

ImageCluster (2021) Image clustering algorithm based on MPEG-7 Color Layout Descriptor using Java.

VR-Mesh View (2020) A Virtual Reality environment where you can load meshes and play with them.
Techs: C++, OpenGL, Steam VR, Visual Studio

DeepDoom (2018) A self defender algorithm for the popular gaming franchise Doom by using the essentials of reinforcement learning and Q-learning.
Techs: Python, Java, PyTorch, Kaggle, NetBeans

New York Times 5x5 Mini Crossword Puzzle Solver (2018) Machine learning project that solves the daily posted mini crossword puzzle at New York Times website based on the given clue
Techs: Java, JavaScript, HTTP5, Selenium, Eclipse, Sublime Text

Magnetic Levitation Circuit (2017) The circuit, built by using photo detectors and IR LED, suspends objects a set distance below an electromagnet

Audio Toolbox (2016) Atmel 8051 microcontroller based design that filters the given audio signal by using the principles of FIR filters

Space Shooter Game (2016) VHDL based shooting game using Basys3 FPGA board and VGA monitor.
Techs: VHDL, XILINX ISE Design Suite

Bilgiman Project (2016) Design of the backend database and website of Bilgiman Co. Ltd
Techs: C++, PHP, MySQL, HTML5, JavaScript, QT Creator, Sublime Text

BilShare (2015) Mobile based Android e-commerce application that lets students of Bilkent University sell, buy or borrow their goods and products
Techs: Java, Android, MySQL, HTML5, JavaScript, PHP, Android Studio

LANGUAGES

- English: *Fluent*
- German: *Intermediate*
- Turkish: *Native*

CERTIFICATES

- Received Merit Scholarship from Bilkent University (2016-2017)
- TOEFL IBT: 90/120 (2018)
- Awarded Fit (Sports) Challenge 1st Place (2018-2019)
- Bilkent Under Water Community 1* Scuba Diver (2016-2017)

INTERESTS AND HOBBIES

- Escaping European winter by working remote on the Southern Hemisphere
- Bodybuilding, calisthenics and swimming
- Development of webcrawlers, bot accounts and media content capturers
- Traditional quantitative investing and AI approach to investing