Aadhithya SANKAR

Senior ML Engineer | Software Developer

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I build complex ML pipelines, train models to see and fix problems. Informatics graduate from TUM.

SKILLS

Core Skills	ML model deployment, ML model training and design, Software Engineering, DevOps and MLOps
ML Domains	Representation Learning, Semantic Segmentation, Generative Modeling, Domain Transfer, Anomaly Detection, Object Detection, Prompt-based models
ML Frameworks and Libraries	pyTorch, ONNX, scikit-learn, SciPy, pandas, pytorch lightning, huggingface transformers
ML/DevOps Tools and Frameworks	Ray Serve ,Docker, gitlab CI, github Actions
Cloud Computing	GCP, AWS, AWS ECR, AWS SageMaker, AWS EC2, AWS S3
Other Tools	git, linux, numpy, dvc, FastAPI, Flask, tensorboard, pydantic, mlflow, rabbitmq, bash

EXPERIENCE

April 2023 – Present — **Senior Machine Learning Engineer, HASTY GMBH, Berlin**

- leading the design and development of our in-house scalable model inference platform.
- Research, development and deployment of prompt-based segmentation and detection models.
- Training and deployment of Semantic and Instance Segmentation and Object Detection Models.
- Software and backend engineering.

ray-serve | python | pyTorch | GCP | git

November 2021 – February 2023 — **ML Engineer | Image Analysis Scientist , ULTIVUE EMEA SRL, Munich**

- Developed and trained AI models for Segmentation, Domain Transfer and Object Detection.
- Created ML training pipelines using AWS SageMaker.
- Implemented data management pipelines with version control using Git, DVC, and AWS S3.
- Developed core python packages to handle Image annotations and to interact with external Software API.
- Contributed to Software Design and MLOps workflows.

pyTorch | AWS SageMaker | AWS ECR | DVC | AWS S3 | earthly | gitlab CI | git

October 2019 – December 2020 — **Master Thesis, TECHNICAL UNIVERSITY OF MUNICH, DEEPC GMBH, Munich**

- Worked on learning disentangled feature representations in the latent space for Brain MRI scans using Flow-based generative models.
- Used Flow-based generative models to generate synthetic Brain MRI images.
- Showed improvement in downstream anomaly detection task using learned representations.
- arxiv : 2103.10868 .

Representation Learning | Generative Modeling | Anomaly Detection | pyTorch | sacred

June 2019 – February 2021 — **Junior data Scientist | Working Student, DEEPC GMBH, Munich**

- Research and Development of state-of-the-art Deep Learning approaches for segmentation, fracture detection, object detection problems.
- Software Engineering tasks in the areas of data processing and pipelining.
- Scientific work which was accepted at the 2021 ICML AI for Healthcare Workshop. arxiv link : 2003.08469 .

pyTorch | Anomaly detection | Segmentation | Object Detection

EDUCATION

2021 **MSc Informatics**, Technical University of Munich, Munich.
Courses : Deep Learning, Object Detection and Tracking, Machine Learning, Machine Learning for Computer Vision, Mining Massive Datasets, NLP.
Grade : 1.5 (Best : 1.0, Worst : 4.0)

2017 **Bachelors in Computer Science and Engineering**, Anna University, Chennai.
Grade : 8.24 (Best : 10.0, worst : 5.0)

Research and Projects

RAJINI++ 2022

github.com/aadhithya/rajiniPP

An esoteric programming language based on the iconic dialogues of Rajinikanth(Indian Actor). Supports features such as conditional statements, for and while loops, functions, etc.

python | rply | interpreter

GLOWin : A Flow-based Invertible Generative Framework for Learning Disentangled Feature Representations in Medical Images 2021

arxiv : 2103.10868

We propose a Flow-based generative framework that is able to learn disentangled feature representations of brain MRI images. We evaluate the disentangled representations and showcase our model's ability to generate images with predetermined characteristics

Generative Modeling | representation Learning

AdaIN-pytorch 2021

github.com/aadhithya/AdaIN-pytorch

PyTorch implementation of "Arbitrary Style Transfer in Real-time with Adaptive Instance Normalization" by Xun Huang, Serge Belongie.

Neural Style Transfer | pyTorch | ONNX

GAN-ZOO-PYTORCH 2021

github.com/aadhithya/gan-zoo-pytorch

A collection of GAN implementations in pyTorch.

Generative Models | pyTorch

Train, Learn, Expand, Repeat. 2019

arxiv:2003.08469

A recursive training strategy to perform the task of semantic segmentation given only very few training samples with pixel-level annotations. The paper was accepted into the ICLR 2020 workshop on AI for Affordable Healthcare.

Semantic Segmentation

SparseCaps-pytorch 2021

github.com/aadhithya/SparseCaps-PyTorch

PyTorch implementation of "Sparse Unsupervised Capsules Generalize Better" by David Rawlinson, Abdelrahman Ahmed and Gideon Kowadlo.

Capsule Networks | pyTorch

Languages

English ●●●●●
German ●●●○○
Tamil ●●●●●
Hindi ●●●●○

References

Dr. Rubén Cárdenes

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Dr. Seong Tae Kim

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