Dr. Steffen Illium
Machine Learning Expert
Data Scientist
Researcher

Data & Contact

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in steffen-illium

git steffen (Gitea)

Areas of Expertise

Machine Learning & Data Science
Deep Learning (PyTorch focus)
Computer Vision & Sequential Data
Anomaly & OOD Detection
Reinforcement Learning
Data Augmentation & Synthesis
Model Design & Evaluation

Technical Skills

Programming: Python (Expert; incl. Packaging, Testing, CI/CD), SQL & NoSQL, LaTeX, Bash/Shell
Libraries: PyTorch, Pandas, NumPy, Optuna, FastAPI, Scikit-Learn, OGR/GDAL, Scikit-Spatial
Tools & Platforms: Docker, Kubernetes, Git, Linux Server Admin (Arch, NixOS, Debian), MLflow (concepts), Basic Cloud (Azure/GCP)
Concepts: MARL, MLOps, RAG, LLMs

Languages

German (*Native*)
English (*Fluent / C1*)
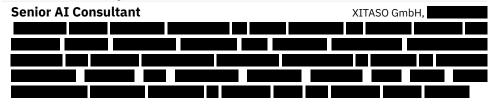
Awards

Best Poster Award, ICAART (2024)

Summary

AI Research Engineer with 6+ years of experience designing, implementing, and evaluating state-of-the-art Machine Learning models, particularly using Python and PyTorch. Proven ability in Computer Vision, sequential data, and anomaly detection, contributing to foundational research (multiple publications) and practical applications. Passionate about tackling complex challenges at the intersection of AI research and robust software engineering.

Motivation

Eager to apply expertise to Helsing's mission of protecting democracies through advances in AI capabilities in the defense sector. Significantly motivated by the opportunity to contribute to robust, state-of-the-art solutions serving our us and our allies.

Professional Experience

Senior AI Consultant   XITASO GmbH, ▮▮▮▮▮▮▮
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Research Assistant & PhD Candidate   LMU Munich, 2018 - 2024
Conducted doctoral research focused on Deep Learning for sequential data, computer vision, and self-learning systems, also in resource constraint environments. Developed and evaluated novel models, contributing significantly to research projects. Managed project tasks, communicated with research partners, and supervised Bachelor's/Master's students (29 theses, 4 seminar projects). Tought and organized iOS/Android practical seminars, BSc and MSc seminars and Python courses, effectively communicating complex concepts. Led conference organizations and magazine editorial board.

Education

PhD Computer Science (Dr. rer. nat.)   LMU Munich, 2018 - 2024
Grade: ▮▮▮▮▮▮▮▮▮▮
Focus: Data Science, Neural Networks, Sequential Data, Computer Vision.

MSc Geo-Informatics   Augsburg University, 2014 - 2018
Grade: ▮▮▮▮▮▮▮▮
Thesis: Novel Deep Neural Network for clustering of topological spatial data.

BSc Geography   JGU Mainz, 2010 - 2015
Grade: ▮▮▮▮▮▮▮
Focus: Computer-based analysis, Geodata systems, Remote sensing

Selected Publications & Talks

Papers
2024 *VoronoiPatches: Evaluating a New Data Augmentation Method.* ICAART;
2024 *Emergence in Multi Agent Systems: A Safety Perspective.* ISoLA;
2022 *Towards Anomaly Detection in Reinforcement Learning.* AAMAS;
2021 *Vision Transformers for Primates Classification [...].* Interspeech;
2021 *Acoustic AD for Machine Sounds based on Image Transfer Learning.* ICAART;

Talks
2024 "GenAI interface..." Bitkom Group of ML Experts;
2024 "Data-driven knowledge extraction..." Bitkom Bitzip;
2019 Panelist "Data & AI in Open Source" OpenMunich;

Associations
2024 Company Representative in AI Expert Groups (Bitkom, VDMA & IPAI)

Further information

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