Georgii Mikriukov

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Professional Summary

PhD Candidate in AI with **4+ years of experience** in **machine learning** and **deep learning**, specializing in **computer vision, NLP, and explainable AI**. Extensive hands-on experience in developing and evaluating CNNs, ViTs, LLMs, and **multi-modal** architectures. Proven expertise in large-scale multi-modal **information retrieval** and **model verification**, particularly in remote sensing and autonomous driving.

Proficient in **Python**, and key **ML/DL libraries** (e.g., PyTorch, Transformers, scikit-learn). Experienced in **cloud computing** (AWS: S3, EC2), **containerization** (Docker), and SQL/NoSQL data **storage** systems. Strong skills in technical writing, presentations, invention disclosure drafting, and collaborative research.

Experience

AI Research Scientist | Jan. 2022 – Present
Continental AG, AI Lab Berlin

- Developed **verification** and **debugging** modules for computer vision **production AI systems** (YOLO-like, DETR, etc.).
- Designed **adversarial defence** techniques, **model selection** methodologies, and **outlier** identification techniques.
- Built and deployed AI systems with **PyTorch, AWS** (S3, EC2), and **Docker**.
- Contributed to **R&D projects** for internal and external clients in **automotive AI safety** solutions.
- **Filed patents** and inventions, authored research papers.
- Contributed to **open-source projects** with licence **compliance** oversight (BlackDuck).
- **Collaborated** with product owners, software developers, ML engineers, MLOps teams, and legal compliance experts.
- **Mentored interns** and students.

Research Associate | Dec. 2020 – Dec. 2021
Technische Universität Berlin, Remote Sensing Image Analysis Group

- Implemented **modality fusion** and **self-supervised** retrieval with CNNs and LLMs (BERT, OPUS-MT).
- **Reduced training costs** through self-supervised learning, eliminating the need for labeled data.
- Improved **large-scale text-image retrieval** performance by 6% using advanced DL techniques.
- Optimized DL workflows with PyTorch, Slurm, and Docker for **scalable model training**.
- Contributed to the BigEarth **research project**.
- **Mentored students** on AI and remote sensing research projects.

Research Associate | Nov. 2019 – Aug. 2020
Fraunhofer FOKUS / Technische Universität Berlin, Next Generation Networks Group

- Led consortium formation and **submitted research grant proposal** (ERA-NET Horizon 2020).
- Contributed to the LIMBO **research project**.
- Developed RESTful APIs in Python for **real-time sensor network analysis** with InfluxDB for **time-series** data storage.

Research Associate | Jan. 2018 – Oct. 2019
Hochschule Mittweida, Forensic Science Investigation Lab

- Developed **cyber-forensics tools** for text and audio analysis.
- Built a Java-based data crawler for Telegram with MongoDB for **forensic data collection and storage**.
- Implemented **NLP algorithms for text analysis**: mining, language identification, and topic extraction using Java.
- Developed noisy **speech classification models** using TensorFlow and CMUSphinx for audio analysis.
- Contributed to Security and Safety Solutions for Automation and Fabrication **research project**.

Education

(Ongoing) Doctor of Engineering | Apr. 2022 – Present
Promotionszentrum IWIT, Hochschule Anhalt, Köthen, Germany

MSc in Information Management | Oct. 2015 – Jul. 2017
Hochschule Anhalt, Köthen, Germany

MEng in Automation of Technological Processes | Sep. 2015 – Jun. 2017
Perm National Research Polytechnic University, Russia

BEng in Automation of Technological Processes | Sep. 2011 – Jun. 2015
Perm National Research Polytechnic University, Russia

BEc in Economics and Enterprise Management | Sep. 2011 – Jun. 2015
Perm National Research Polytechnic University, Russia

Skills

Programming Languages	Python, Java, SQL, Bash
AI / ML / DL	CV, XAI, NLP, GenAI, AI Safety, Self-Supervised Learning, Multimodal Learning
Deep Learning Frameworks	PyTorch, TensorFlow, scikit-learn, transformers, pandas, numpy, etc.
MLOps & Deployment	Git, Docker, AWS (S3, EC2), Slurm
Data & Storages	SQL (Oracle, Firebird), NoSQL (MongoDB, Cassandra, InfluxDB)
Soft Skills	Mentorship, project coordination, technical presentations, and technical writing
Languages	English (C1), German (B2), Russian (native)

Patents

EP4421682	Method for finding the cause of detection failures of an artificial neural network

Publications

ICASSP 2022	Unsupervised Contrastive Hashing for Cross-Modal Retrieval in Remote Sensing
ICIP 2022	An Unsupervised Cross-Modal Hashing Method Robust to Noisy Training Image-Text Correspondences
***XAI 2023**	Evaluating the Stability of Semantic Concept Representations in CNNs
ECML 2023	Quantified Semantic Comparison of Convolutional Neural Networks
XAI 2024	The Anatomy of Adversarial Attacks: Concept-based XAI Dissection
ECCV 2024	Concept-Based Explanations in Computer Vision: Where Are We Going?
IJCV 2025	Local Concept Embeddings for Analysis of Concept Distributions in Vision DNN Feature Spaces
XAI 2025	On Background Bias of Post-Hoc Concept Embeddings in Computer Vision DNNs

*Best industry paper award: Awards – The World Conference on eXplainable Artificial Intelligence

References

Dr. Andreas Weinlich
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