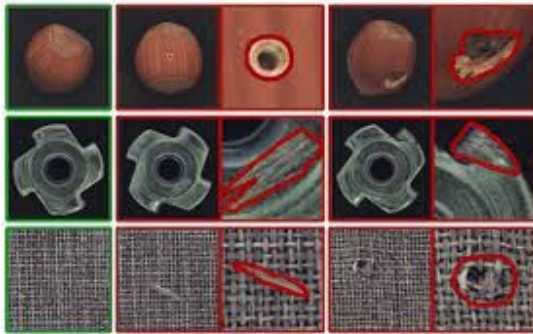


Thesis / Hiwi

Deep learning and machine learning methods for Anomaly Detection in industrial image processing

Backgrounds

Anomaly Detection (AD), has received considerable attention in a variety of applications such as computer vision, biometrics, machine learning etc. An anomaly is defined as observations that does not conform to the expected normal behavior. The goal of anomaly detection is to identify such anomalies which could represent errors, fraud, or other types of unusual events and to highlight them for further investigations.



Source <https://www.mvtec.com/company/research/datasets>

Job Description

Your topics will be related to one of the latest Anomaly Detection research directions, including few-shot/zero-shot learning, leveraging Large Vision Language Model (VLM) such as CLIP for zero-shot learning, using LLM for text features prompting, multi-modalities anomaly detection (medical domain). As a thesis, HiWi / WiHi students, you will explore state-of-the-art AD algorithms, optimise algorithms, establish data pipelines, etc. The detailed tasks and job scope might be adjusted during the projects.

Required Qualifications

- Strong programming skills (Python, C++, at least one comparable programming language)
- Basic skills in Bash Unix shells
- Deep learning and machine learning fundamental
- Version control (e.g. Git, GitHub, GitLab)
- Familiarity with libraries such as Pytorch, Pytorch Lightning, Hydra, Numpy, SciPy (preferred)

What We Offer

- The employment is as HiWi/WiHi or thesis students
- A longer-term collaboration is desired, and the projects can potentially be extended to a Bachelor's or Master's thesis.
- The regular working hours will be 6 – 15 hours per week with flexible working hours
- Cutting-edge computing environment
Getting involved in state-of-the-art research topics
- Potential participate in the top conference workshop, CVPR 2024 VAND (Visual Anomaly and Novelty Detection)

Prof. Dr.-Ing. Johannes Steigmaier
Lehrstuhlinhaber
Lehrstuhl für Bildverarbeitung

Jin Er
Wissenschaftlicher Mitarbeiter

ICT Cubes
Kopernikusstraße 16
52074 Aachen
GERMANY

er.jin@lfb.rwth-aachen.de

Please send your application via email and includes the following documents

- Short CV
- Transcript of Records
- A short description of your experiences, courses, industry work, internship, project.