

Master Thesis Project - IT Data and Customer Solutions

工作职责

This thesis proposes a comparative study of advanced object detection (OD) architectures applied to the task of anomaly detection. Moving beyond widely adopted models such as Mask R-CNN and YOLO, the research will explore alternative state-of-the-art approaches, including D-FINE and other top-performing models featured on the literature. The study will involve implementing these models and evaluating their performance on a dataset specifically designed for detecting anomalies in real world scenarios. Key evaluation metrics will include mean Average Precision (mAP) and Intersection over Union (IoU), with a particular focus on the impact of IoU-based loss functions for object detection.

The goal is to assess the performance of object detection architectures in identifying and localizing anomalies in tire images, providing insights into their suitability for real-world industrial applications.

Study how do different state-of-the-art object detection architectures compare in terms of classification, accuracy, efficiency, and robustness when applied to real world anomaly detection, and what is the impact of IoU-based loss functions on their performance.

职位要求

- Training Area in Computer Science, Artificial Intelligence, Data Science or similar;
- Good understanding of computer vision and deep learning concepts;
- Knowledge of machine learning algorithms and evaluation metrics;
- Familiarity with object detection architectures (e.g., YOLO, Mask R-CNN, D-FINE);
- Proficiency in Python and deep learning frameworks (e.g., PyTorch, TensorFlow);
- Experience with dataset preparation, annotation tools, and data augmentation;
- Ability to implement and fine-tune deep learning models;
- Skills in performance evaluation and result analysis using metrics like mAP and IoU;
- Familiarity with version control tools (e.g., Git) and experiment tracking.

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Please note:

- Mandatory to be studying in a Portuguese University, ready to start Master Thesis Project.
- To initiate on the 2nd Semester of 2025-2026.

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关于我们

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