

# Enhancing Accelerator Diagnostics: Real-Time ML-Driven Image Analysis

Accurate beam image analysis is a cornerstone of accelerator diagnostics. A critical challenge in this domain is the reliable identification of regions of interest (ROI), especially when electron beam parameters change significantly—often causing traditional algorithms to falter. This proposal aims to investigate whether machine learning techniques can significantly enhance the accuracy and robustness of ROI detection in quasi real-time. The project will involve developing, training, and evaluating ML models tailored for online image analysis, with the goal of boosting diagnostic performance.

## Group

MXL

## Project Category

B3. Research on accelerators

## Special Qualifications

computing, machine learning, python

## DESY Site

Hamburg

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