Case Study

Computer Vision AI
Intel® Geti™ Platform

Monitoring Pedestrian Rail Crossings with Computer Vision AI

Pedestrian incursions into railway crossings while the signals indicate an oncoming train are a dramatic safety issue and point of liability for rail infrastructure operators. Such trespass incidents are not only dangerous for those involved but often cause train delays that inconvenience the public and cost the UK rail industry millions of pounds per year, in addition to the resources it spends on investigations.[1] Automated sensing solutions that use computer vision (CV) to address these issues have been hampered by the low-quality images from decades-old cameras at crossings that are prohibitively expensive to replace.

The Intel® Geti™ platform dramatically accelerates training of CV models using an active training approach. Active learning involves keeping the human experts in the loop as the model learns and becomes better. Sensing Feeling is using the Intel Geti platform in its work with a UK rail operator to detect and deter trespassing incidents on the railway. The Sensing Feeling Trespass Reduction and Deterrence System (TREDS) performs near-real-time analytics of the video feeds at the remote distributed sites of the rail crossings. Edge processing avoids the latency and bandwidth limitations involved with transmitting raw video feeds back to a central point. TREDS does transmit telemetry metadata based on the video feeds for centralized, systemwide analytics and reporting.

The outdated cameras were previously unable to deliver sufficient image quality to support training deep learning models for this implementation. The Intel Geti platform makes it possible for TREDS to efficiently train custom models despite the poor image quality. At the same time, it accelerates model development and enables models to be changed and expanded by non-technical users. Using a training set of just a few dozen images or a short video to start, a human operator can identify and label pedestrians and other objects of interest in the frame and then either confirm or correct inferences made by the model to iteratively refine it for accuracy. The solution provides deterrence alarms at the crossing site and alerts response personnel. It is designed to be low-cost, autonomous, and deployable anywhere in the rail network to help keep pedestrians safer and trains running without incident.

Learn more about the Intel® Geti™ platform at

geti.intel.com and Sensing Feeling at sensingfeeling.io

Solution provided by:

[1] https://www.stripes.com/news/untrained-at-lakenheath-rail-crossing-pedestrians-drivers-don-t-heed-1.90498

0922/NA/MESH/349351-001US