

TTC.PA.1623: CONSTRUCTION SITE SAFETY COMPLIANCE MONITORING ENRICHED BY MULTI-CAMERA WORKER RE-IDENTIFICATION



PROBLEM ADDRESSED

Construction worker re-identification and personal protective equipment detection across multiple cameras for continuous monitoring of site safety compliance over a large site area

APPLICATION AREAS



Smart construction
workers' safety
& site analysis



Smart transportation
traffic flow
analysis



Smart mobility
walkability
evaluation



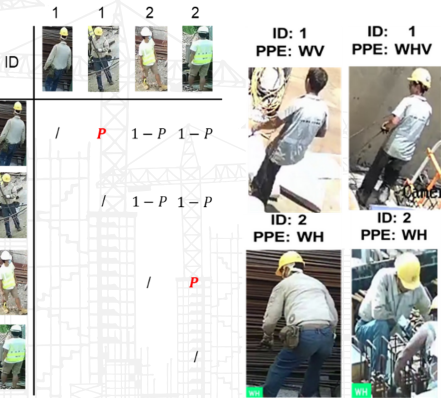
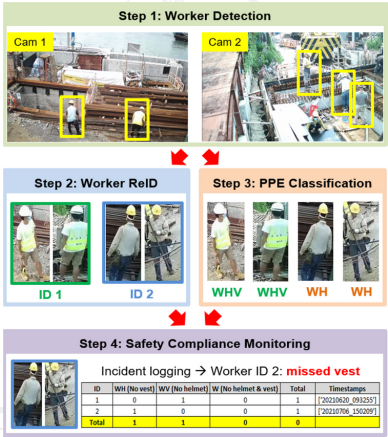
Aging city
elderly mobility
improvement



Smart retail
behavioural
analysis

TECHNOLOGY INNOVATIONS

- A new loss function named Similarity Loss facilitates ReID robustness of different convolutional neural networks
- A weighted-class model training strategy to enhance PPE classification given an imbalanced number of samples
- A mechanism of incident logging to identify PPE safety incompliance of workers walking over a large site area



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KEY IMPACTS & ADVANTAGES

Accurate worker ReID



4%

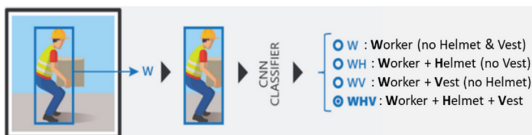
improvement over baselines

PPE classification



13%

improvement over baselines



Efficiently identify unsafe
behaviour of workers on
construction sites



Continuously log down any
incident of safety
incompliance for devising
safety measures

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