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ABSTRACT

PRESENTATION

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Boulalem Merainani is a postdoc researcher at Inria in Rennes and Gustave Eiffel University in Nantes, France. He is working in the field of vision-based structural health monitoring. He received master's degree in 2013 and PhD in 2017 in mechatronics at the M'Hamed Bougara University in Algeria. He received a scholarship in 2016 to complete his PhD within MOCIS team at the CRISTAL laboratory.

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MONITORING OF MOVING RAIL-ROAD CARS THROUGH INFRARED THERMAL VISION: STUDY OF HOT BOX DETECTION ON RECONSTRUCTED SCENES WITH AND WITHOUT DEEP LEARNING APPROACHES

Railway safety faces a critical challenge from overheated axle bearings, commonly known as hot boxes. Early detection is, therefore, of utmost importance. Departing from the complexity and resource-heavy nature of current hot box detectors, a new and affordable thermal vision-based wayside monitoring method is proposed. It combines panoramic thermal images with deep learning (DL)-based object detection algorithm. Panoramas were created, from thermal image sequences collected, by cooled and uncooled cameras, during field experiments on both freight and passenger trains. The results yielded promising perspectives, notably in maintaining high safety standards, at a more budget-friendly cost.