# Identifying Modular Construction Worker Tasks Using Computer Vision

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## ABSTRACT

Modular construction is increasingly being seen as an attractive method for delivering building projects due to advantages in safety, quality, and lead-time. Despite these benefits, this method still relies heavily on human labor, which causes variability in factory assembly-line performance that can erode performance benefits of modular construction. Continuous improvement methods can alleviate some of these issues, but they also require continuous monitoring of human worker's performance. Due to limitations of manual time study and automated sensor-based monitoring methods, recently computer vision-based methods have gained momentum in identifying the activities of construction workers from the videos of onsite construction. Therefore, this paper explores the use of computer vision-based human activity recognition techniques to identify and classify worker activities in modular construction videos. Computer vision-based tracking method has been used to track the human workers in each frame and Resnet-50 network has been used to classify the activity of tracked workers. Evaluation of this framework has achieved higher than 90% accuracy and recall in testing.