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Assigned Pixel Label-Based Crack Identification in Steel Structures via Encoder-Decoder Network

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ABSTRACT

This study investigates the impact of assigned pixel labels in images on the accuracy of fatigue crack identification using an encoder-decoder network. To obtain the target, the following steps are conducted. Firstly, images contained fatigue cracks from the steel structures at different perspective distortions are collected. Secondly, three data sets are built by assigning different pixel labels based on the image characteristics, and then they are resized to a fixed size to fit the computational ability of a personal computer. Thirdly, three crack detectors are trained, and their performance is evaluated on the test data set. The results revealed that the proposed model successfully identified fatigue cracks in images. Also, the crack detector trained with two classes showed higher performance in both mean accuracy (mAcc) and mean intersection over union (mIoU), compared to the other crack detectors.

REFERENCES

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