Tunnel Lining Crack Detection Method by Means of Deep Learning

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Existing image processing programs for detecting structural damage such as cracks have required the fine-tuning of numerous parameters and experience-based expertise. We have developed a method of distinguish cracks from others using tunnel lining images with a deep learning applied. A classifier was created after learning from a large volume of images in two groups - either “presence of a crack” or “absence of a crack”. It recognizes the presence or absence of the crack successfully at a rate of more than 90%. Using a color-coded pixelated image to show the position of probable cracks, we proposed a hybrid detection method for analyzing cracks with a focus on there locations and the directions in which they progress.