

## Automated Sewer Defect Inspection using a Detection Transformer

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### Abstract:

Sewer pipes are an essential public infrastructure of countries worldwide. They support wastewater transportation for processing or disposal. The harsh environments inside the sewer pipes can lead to the occurrence of various defects. Current crack detection approaches mainly focus on the surveillance camera (CCTV) to assess the condition of the sewer pipes. This process is considered a tiresome and laborious process. Therefore, a robust and efficient sewer defect detection system based on the transformer architecture is introduced in this manuscript. In addition, the system can provide explainable visualization for its predictions using the transformer's attention.

### Keywords:

crack detection, sewer defect, transformer, deep learning.