Crack Detection as a Weakly-Supervised Problem: Towards Achieving Less Annotation-Intensive Crack Detectors
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Contributions
1. Formulated crack detection problem as a weakly-supervised task and provided annotations
2. Proposed a strong baseline for the task
3. Tested the framework on four network architectures and three datasets

Motivation
- Semantic segmentation requires high annotation cost
- Difficult to design robust crack detectors, as cracks can form on any surface in many different shapes. As a result, new annotations are necessary in new environment.

Proposed Framework
- **Macro Branch**: regular supervised crack detector, predicts using global information
- **Micro Branch**: rule-based detector, predicts using localized information

Annotations
- **Synthesis Process**
  - Prepared synthetic and manual annotations for evaluation

Results
- Output samples

Conclusions
In this paper, we explored the weakly-supervised approach to the crack detection problem to reduce the annotation bottleneck, and showed its effectiveness. In the future, we would like make the Micro Branch more general, so it can be applied to other semantic segmentation tasks.

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