

Review of: "CNN-Based Road Damage Detection"

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Potential competing interests: No potential competing interests to declare.

Strengths:

- **Motivation:** The paper clearly outlines the importance of road damage detection for safety and cost reduction.
- **Technical Approach:** The use of CNNs for road damage detection is a relevant and promising approach.
- **Potential Impact:** The application of this technology for aiding road management has the potential for real-world impact.

Weaknesses:

- **Limited Methodology Details:** The paper lacks specifics on the CNN architecture, training process, and data pre-processing techniques.
- **Accuracy Claims:** While a 90% accuracy is mentioned, the paper doesn't discuss how it was measured or on what dataset.
- **Literature Review:** The discussion on existing methods is broad and could be strengthened by citing specific research and comparing their limitations to the proposed CNN approach.
- **Focus on Binary Classification:** The paper seems to focus solely on identifying whether damage exists, whereas real-world applications might benefit from classifying the specific type of damage (crack, pothole, etc.).

Points for Further Discussion:

- **Generalizability:** How well will the trained model perform on unseen road conditions or variations in lighting/weather?
- **Scalability:** The paper doesn't address the computational cost of training and deploying a CNN-based system for large-scale road networks.
- **Data Acquisition:** It would be beneficial to discuss strategies for collecting and labeling large datasets of road images with different damage types.

Overall:

The paper presents a good starting point for using CNNs for road damage detection. However, it would benefit from a more rigorous technical discussion and a deeper exploration of the challenges associated with real-world implementation.