Paving the Way: AI-Driven Pothole Detection with Computer Vision

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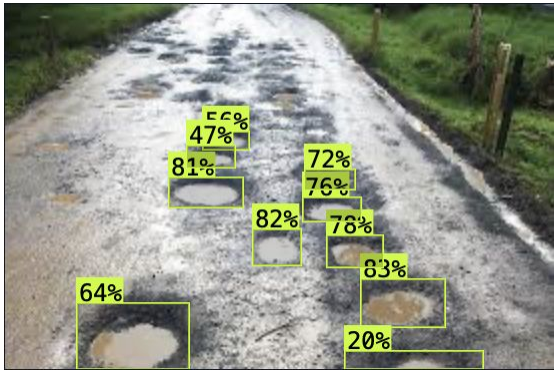
PROBLEM STATEMENT & DATASET

- Affect road safety and leads to accidents, vehicle damage, and traffic issues.
- Used data from Kaggle and Roboflow Universe for implementation.
- Train:Val:Test = 1390:133:67
- Preprocessing: resize to 640x640
  Augmentation: horizontal and vertical flip | 90° rotation | -15° to 15° rotation

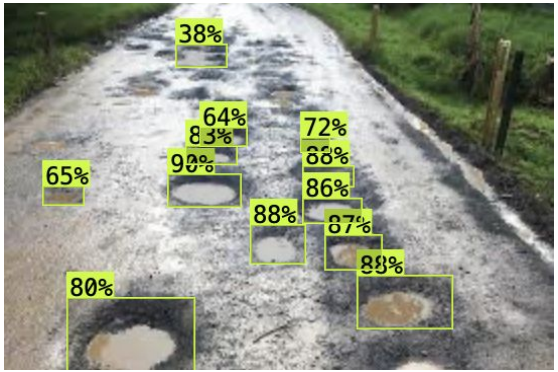
- Literature Review can be found in the project report.
- Codes have been uploaded on GitHub.

MODELS USED

1. Canny Edge Detector

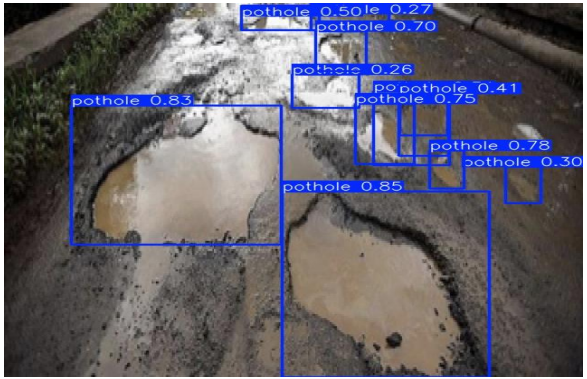


2. YOLOv11



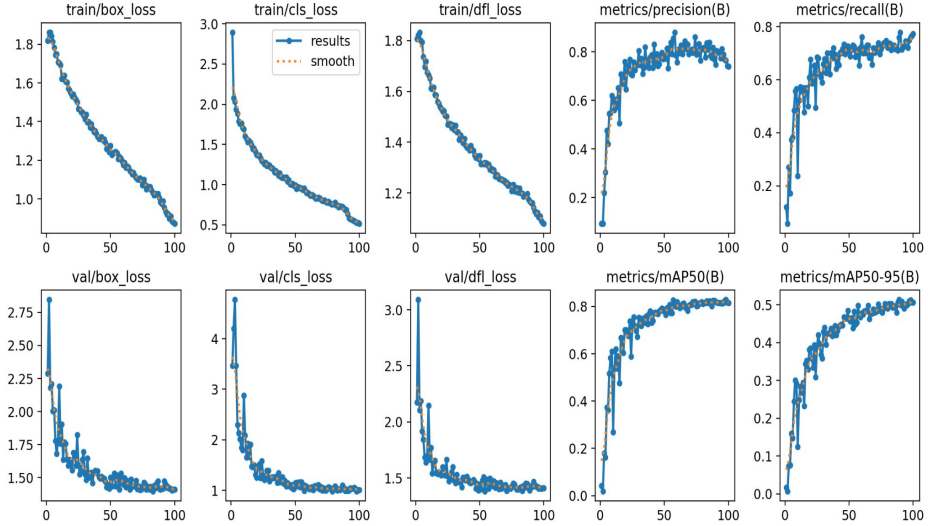
3. AutoML on Roboflow 3.0

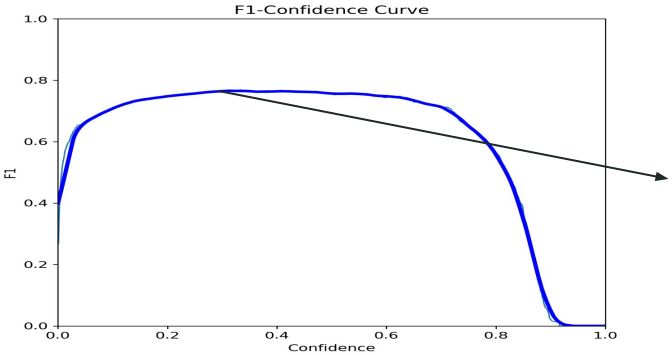
RESULTS



Model	Precision (%)	Recall (%)	mAP (%)
YOLOv11	76.8	**75.9**	**82.5**
Roboflow 3.0	**82.9**	69.1	80.2

YOLOv11





0.77 at 0.313

Roboflow 3.0