Title	Dataet Name	Dataset URL	Image	Class-es	Split	Met-hod Name	Acc-uracy of the model	Rese-arch Ques-tion	Pros and Cons	Citati-on
Automatic Pixel Level Pavement Crack Detection Using Information of Multi Scale Neighborhoods	Crack Forest Dataset (CFD)	https://github.com/cuilimeng/CrackForest dataset	118 images	2 — Crack / Non Crack	60% Train / 40% Test	PGM + SVM	F1 =88%, Precision =91%, Recall =86%	How to detect cracks at pixel level Using MultiScale info?	.Accurate, lightweight . Small dataset, .lighting sensitive	1
Automated Pavement Crack Segmentation Using U-Net Based Convolutional Neural Network	Crack 500 Dataset	https://github.com/yhlleo/Crack500	6040 images (3792 train / 2248 test)	2 — Crack / Non Crack	U-Net (ResNet-34 encoder + SCSE + One Cycle LR)	U-Net (ResNet-34 encoder + SCSE + One cycle LR)	F1 = 95.55%, Precision = 96.6%, Recall = 94.5%	How can UNet + transfer learning improve pixel level Crack segmenta-tion accuracy?	.High F1 accuracy .Uses transfer learning & SCSE .Limited dataset size .Sensitive to lighting/ noise	2
Asphalt Pavement Crack Detection Based on CNN and Infrared Thermography	IR Crack	https://github.com/lfangyu09/IR-Crack-detection	448 images	2 (crack/ Non crack)	Train: 85.25 %,test: 14.73 %	CNN segme-ntation models: FPN, DeepL-abv3, UNet VGG19, UNet ResNeT101, UNet, PSPNet, FCN	FPN: ~97% (visible & fusion), DeepLAbv3: ~96% (fusion), Infrared images: 85–90%	Can CNN combined with IRT improve accuracy and efficie-ncy of Pavement crack DetectiOn Under various Conditi-ons?	Fusion Images with FPN give accurate, efficient Crack detection, While infrared Only images are less accurate and some Models Are resource heavy.	3

A potential crack region method to detect crack using image processing of multiple thresholding	German Asphalt Pavemen-t Distress (Gap)	https://link.springer.com/article/10.1007/s11760-021-02055-8	509 images	Crack / Non crack	Test set from 6 non overlappig crops per image	MTM (Multi-ple Thresh olding Metho-d).	Precision 82%, Recall 81%, F1 83%		Pros: Adaptive, noise reduction Cons: Thicker cracks may be missed, sensitive to lighting	4

Citations:

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