Title	Dataset Name	Dataset URL	Image	Classes	Split	Method Name	Accuracy of the model	Research Question	Pros and Cons	Citation
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 multi-scale info?	.Accurate, lightweight. Small dataset, lighting sensitive	1
Automated Pavement Crack Segmentation Using U-Net-Based Convolutional Neural Network	Crack500 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 U-Net + transfer learning improve pixel-level crack segmentation 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:85.27%,test:14.73%	CNN segmentation models: FPN, DeepLabv3, UNet-VGG19, UNet-ResNet101,	FPN: ~97% (visible & fusion), DeepLabv3: ~96% (fusion), Infrared images	Can CNN combined with IRT improve accuracy and efficiency of pavement	Fusion images with FPN give accurate, efficient crack detection, while infrare	3

						UNet, PSPNet, FCN	: 85–90%	crack detection under various conditions?	d-only images are less accurate and some models are resource-heavy.	
A potential crack region method to detect crack using image processing of multiple thresholding	German Asphalt Pavement Distress (Gap)	https://link.springer.com/article/10.1007/s11760-021-02055-8	509 images	Crack / Non-crack	Test set from 6 non-overlapping crops per image	MTM (Multiple Thresholding Method).	Precision 82%, Recall 81%, F1 83%		Pros: Adaptive, noise reduction Cons: Thicker cracks may be missed, sensitive to lighting	4

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keywords: {Roads;Probability;Support vector machines;Signal processing algorithms;Robustness;Topology;Surface cracks;Pavement crack detection;probability map;multi-scale neighborhoods;probabilistic generative mode;support vector machine},

2. S. L. H. Lau, E. K. P. Chong, X. Yang and X. Wang, "Automated Pavement Crack Segmentation Using U-Net-Based Convolutional Neural Network," in IEEE Access, vol. 8, pp. 114892-114899, 2020, doi: 10.1109/ACCESS.2020.3003638.

keywords: {Convolutional neural networks;Image segmentation;Network architecture;Training;Deep learning;Feature extraction;Convolutional neural network;deep learning;fully convolutional network;pavement crack segmentation;U-Net},

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keywords: {Computational modeling;Image segmentation;Complexity theory;Cameras;Measurement;Convolutional neural networks;Asphalt;Crack detection;convolutional neural network;infrared thermography;asphalt pavement},

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