Intelligent Vehicle Damage Assessment & Cost Estimator for Insurance Companies

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LITERATURE SURVEY

S.No	Author/ Publication Year	Title	Methodology	Advantages	Disadvantages
1.	Phyu Mar Kyu, Kuntpong Woraratpanya, 2021	Car Damage Assessment Based on VGG Models.	CNN models on ImageNet dataset to perform different tasks of localization and detection. YOLO object detection model to train and detect damage region as their important pipeline to improve their performance of damage detection.	Transfer learning and regularization can work better than those of fine tuning. Pretrained models assess its location and security which help insurance companies to solve claim leakage problems.	CNN cannot accurately calculate the level of damage part. Sometimes overfitting occurs.

2.	Najmeddine Dhieb, Hakim Ghazzai, Hichem Besbes Yehia Massoud, 2019	A Very Deep Transfer Learning Model for Vehicle Damage Detection and Localization.	Combination of deep learning, instance segmentation, and transfer learning techniques for features extraction and damage identification.	Transfer learning significantly reduce the training times when it uses the weight of pretrained VGG models. It has progress on how to classify problems when the small dataset was not enough to train a CNN model.	A traditional CNN model can be very time consuming to perform image classification tasks and identify the correct weights for the network by multiple forward and backward iterations.
3.	U. Waqas, N. Akram, S. Kim, D. Lee and J. Jeon, t , 2012	Damage Assessment of a vehicle and Insurance Reclaim.	Deep learning techniques, Moire effect Detection, Mobile Net model is proposed with transfer learning for classification.	It is a hybrid approach which provide only authentic images to algorithm for damage classification as input. moiré effect detection and metadata analysis are performed to detect fraudulent images	The main drawback was that Images in bad lighting, awkward angles, and vehicle models in a small dataset to achieve automation is difficult but still the range is broad.

4.	Li Ying & Dorai Chitra, 2012	Applying image analysis to auto insurance Triage	Image analysis and pattern recognition are applied to automatically identify and characterize automobile damage.	Because of the advancement of image analysis and pattern recognition technologies, the auto insurance industry could significantly benefit.	The drawback is that the automobile damaged can be analyzed only having white background otherwise it will be not able to give the desired results.
5.	Srimal Jayewardene', 2013	Image based automatic vehicle damage detection	This approach requires 3D computer aided design (CAD) modes of the considered vehicle to identify how it would look if it were undamaged.	Automatically detecting the damage of the vehicle using photographs clicked at the accident site is extremely functional as it can greatly decrease the rate of processing insurance claims, and it will also provide greater conveniences for customers who are making the best use of this functionality.	Vehicles have very reflective metallic bodies the photographs taken in such an uncontrolled environment can be expected to have a certain amount of inter object reflection. Application of standard computer vision techniques is a very challenging task

6.	Phyu Mar Kyu,Kuntpong Woraratpanya ,2020	Car damage detection and classification	CNN model is trained on ImageNet dataset. After fine tuning the dataset, transfer learning with L2 regularization is applied	Pre-trained VGG model not only detect damaged part of a car but also assess its location and severity.	Transfer learning and regularization can work better than those of fine tuning.
7.	M.Wassel, 2019	A Secure AI-driven Architecture for Automated Insurance Systems: FraudDetection and Risk Measurement	Blockchain, data analysis, machine learning, AI for damage identification.	Proposed classifiers ensure not only the best accuracy in detecting fraudulent claims but also can classify different types of fraud for insurance unlike the existing solutions.	The major drawback of the proposed model is that it only identifies the physical visible damage and not of the internal or the interior damage.