

IDEATION PHASE

INTELLIGENT VEHICLE DAMAGE ASSESSMENT AND COST ESTIMATOR FOR INSURANCE COMPANIES

LITERATURE SURVEY

| TITLE | AUTHOR | TECHNIQUES | MERITS | DEMERITS |
|--|---|---|---|---|
| Car Damage Detection using Machine Learning | Girish N , Mohammed Aqeel Arshad | Transfer learning and a mask regional convolutional neural network (Mask RCNN) | The results were quite accurate even though a small dataset was used | the picture object regional mismatch problem |
| Image Based Automatic Vehicle Damage Detection | Srimal Jayawardena A thesis submitted for the degree of Doctor of Philosophy at The Australian National University | Monocular 2D/3D pose estimation 3D model-assisted segmentation Reflection detection | The project explores the problem of automatically detecting mild damage in vehicles using photographs taken at the scene of the accident. | This thesis proposes a solution which uses 3D Computer Aided Design for the discernment of car damage from the picture, the system only detects damage at the edge portion only. Detection of car damage through CAD software requires some knowledge about the software. |
| Damage Assessment of a vehicle and Insurance Reclaim | Vaibhav Agarwal , Utsav Khandelwal, Shivam Kumar , Raja Kumar , Shilpa M | Convolution Neural Network, Deep Learning, Image classification, RCNN and object detection. | It can categorize the proportion of damaged parts and determine whether they need to be replaced or repaired. | It only identifies the physical visible damage and not of the internal or the interior damage. |
| Convolutional Neural Networks for vehicle damage | R.E. van Ruitenbeek, S. Bhulai Machine | A damage detection model is developed to locate | A deep learning model that is able to accurately detect | Challenge in damage inspection is the robustness |

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| detection | Learning with Applications Volume 9, 15 September 2022, 100332 | vehicle damages and classify these into twelve categories. | and classify vehicle damages. The model is evaluated in a specially designed light street, indicating that strong reflections complicate the detection performance. | against different light conditions |
| Car Damage Assessment Based on VGG Models | Phyu Mar Kyu, Kuntpong Worartpanya | Deep Learning, Transfer Learning, Pre-Trained VGG models | It uses very small receptive fields instead of massive fields. | It is a huge network, which means that it takes more time to train its parameters. |
| Assessing Car Damage with Convolutional Neural Networks | Harit Bandi, Suyash Joshi, Siddhant Bhagat, Amol Deshpande | Image recognition, Image Net, Transfer learning, Convolution Neural Network | The epoch number for the best performance of validation accuracy | Large training data needed |