INTELLIGENT VEHICLE DAMAGE ASSESSMENT AND COST ESTIMATOR FOR INSURANCE COMPANIES

LITERATURE SURVEY:

U. Waqas, N. Akram, S. Kim, D. Lee and J. Jeon [1], they presented the Image-based vehicle insurance processing. In this paper consideration of the problem of car damage classification, where categories include medium damage, huge damage and no damage. Based on deep learning techniques, Mobile Net model is proposed with transfer learning for classification.To tackle the fake image uploading a hybrid approach is proposed to provide only authentic images as input. In this regard, moiré effect detection and metadata analysis are performed to detect fraudulent images. For damage classification 95% and for moiré effect detection 99% accuracy is achieved. The main drawback was that Images in bad lighting, awkward angles, variety in vehicle models, images taken in rain or snow, minor scratches on vehicles, etc.

Phyu Mar Kyu and Kuntpong Woraratpanya [2], they presented the sense of Artificial Intelligence (AI) based on machine learning and deep learning algorithms which can help to solve the problem for insurance industries for damage analysis. In this paper, they applied deep learning-based algorithms, VGG16 and VGG19, for car damage detection and assessment in realworld datasets. The algorithms detect the damaged part of a car and assess its location and then its severity. It discovers the effect of domain-specific pre-trained CNN models. Then it applies transfer learning in pre-trained VGG models and use some techniques to improve the accuracy of the system. From their results, the performance of VGG19 is better than VGG16. After analysing and implementing the models, it finds out that the results of using transfer learning and L2 regularization can work better than those of fine-tuning. The drawback of this model was since car damaged assessment is a specific domain, it is lack of publicly available datasets for car damaged images with labelling. Training a model with a small dataset is the most challenging.

Li Ying & Dorai Chitra [3], presented the CNN Model for the auto insurance claims process, improvements in the First Notice of Loss and rapidity in the investigation and evaluation of claims could drive significant values by reducing loss adjustment expense. This paper proposed a novel application where advanced technologies in image analysis and pattern recognition are applied to automatically identify and characterize automobile damage. Success in this will allow some cases to proceed without human adjusters, while others to proceed more efficiently, thus ultimately shortening the time between the first Notice of Loss and the final pay-out. It is a belief that, with the advancement of image analysis and pattern recognition technologies, their idea

could evolve into a very promising application on the are of auto insurance industry. The main drawback in this model was that the damaged can be analyzed only having white background and the study also indicates that there may be an error in the result.

Najmeddine Dhieb, Hakim Ghazzai, Hichem Besbes, and Yehia Massoud [4], they presented automated and efficient deep learning-based architectures for vehicle damage detection. The proposed solution combines deep learning, instance segmentation, and transfer learning techniques for features extraction and damage identification. Its objective is to automatically detect damages in vehicles. Numerical results reveal that our transfer learning proposed solution, based on Inception-ResnetV2 pre-trained model followed by a fully connected neural network, achieves higher performances than another pretrained model, i.e., VGG16. The transfer learning could significantly reduce the training times when it uses the weights of pretrained VGG models. The main drawback of this model was A reduction of model training time is also the most challenge. Typically, a traditional CNN model process may take days or even weeks to complete it using GPUs.

M.Wassel [5], they presented a Secure AI driven Architecture for Automated Insurance Systems: Fraud Detection and Risk Measurement. The proposed solution combines 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.

REFERENCES:

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