

INDIVIDUAL CONTRIBUTION REPORT:

CAR DAMAGE IDENTIFICATION MODEL

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Abstract: This project aims to build a custom Mask R-CNN model that can detect the area of damage on a car. The rationale for such a model is that it can be used by insurance companies for faster processing of claims if users can upload pics and they can assess damage from them. This model can also be used by lenders if they are underwriting a car loan especially for a used car.

Individual contribution and findings: The project was beneficial and I have learned a lot about Convolution Neural Network model creation while working on this project would not have been possible without the help and support of many individuals and the organization.

I have given the idea of the whole project and my role was to implement the third checking part of the prediction model. The whole integrated model was implemented by me.

According to the project development final report,

i) I have implemented the part of checking the exact damage location(Front, Rear, Side) for the provided car images of the test dataset. I have imported features and label encoders using the VGG16 model. After that I have implemented logistic regression to train the model. The path setting of the folders of labels and features was the most challenging thing during the model implementation. It has three categories of labels i.e- front, rear, and side. After creating the config file I have loaded the base model VGG16 to process the images(224,224) and excluded the top dense layer. After setting all of the parameters and preprocessing images encoded the labels. After trained the whole model I have saved the file in h5py format for the future deployment process. I have used the train test splitting and confusion matrix to fit the model. I have saved the classifier model in a pickle file. The accuracy of that model was around 70%.

ii) My other contribution was to integrate all of the four developed models made by the group individuals. It was the integrated part that had to deploy in web APIs through the Django frame. First I have loaded all of the four models based on VGG16 and pickle file to their path for checking purpose. Then I have executed every model accordingly in that integrated part by creating functions. Finally I have finished the model combination and created a function named engine that can take the input images and can check all of the criteria to detect a damaged car.

Individual contribution to project report preparation:

I am very much satisfied with my contribution to the final project report.

I have contributed a little bit to the final group project report by referring to the IEEE format and another kind of research paper. I have studied so many papers to upgrade the project report quality. I have provided the DFD and all of the required use case diagrams to enhance the features of our final report.

Individual contribution for project presentation and demonstration:

According to my contribution towards the project, I would like to demonstrate the part of the third checking process of the car damage detection and I would also like to present how to implement the integration part of the whole models using Django framework.

Full Signature of Supervisor:

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Full signature of the student:

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