

## INDIVIDUAL CONTRIBUTION REPORT:

### CAR DAMAGE IDENTIFICATION MODEL

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**Abstract:** The aim of this project is 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 learn a lot about Convolution Neural Network model creation while working on this project however , it 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 models. The whole integrated model was implemented by me.

According to the project development final report,

i) I have implemented the part of checking exact damage location(Front,Rear,Side) for the provided car images of the test dataset. I have imported features and label encoder using VGG16 models. After that I have implement logistic regression to train the model. The set of the folder of labels and features path was most challenging thing during the model implementation. It has three category 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 safed the file in h5py format for the future deployment process. I have used train test splitting and confusion matrix to fit the model. I have save the classifier model in a pickle file. The accuracy of that model was around 70%.

ii) My another contribution was to integrated all of the four developed model made by the group individuals. It was the integrated part which had to deploy in a web APIs through Django frame. First I have loaded all of the four models based on VGG16 and pickle file to their path for checking perpose. Then I have executed each and every model accordingly in that integrated part by creating functions. Finally I have finished the model combination and created a function name engine which 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 grateful to Kalinga Institute Of Industrial Technology for their guidance and constant supervision as well as for providing necessary information regarding the project and also for their support in completions of the project. I would like to express my gratitude towards Prof. Biswajit Sahoo for his support, cooperation and

encouragement of the project which helped me to contribute towards the project report. I contributed a little bit to the final group project report by referring the IEE format and another kind of research paper. I have studied so many papers to upgrade the project report. I provide the DFD and all of the 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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