CAR BRAND CLASSIFICATION USING DEEP LEARNING IN CNN

Department No: 18-PCA-016 **Abstract**

Image based vehicle insurance processing is an

important area with large scope for automation. In this paper we

consider the problem of car damage classiﬁcation, where some

of the categories can be ﬁne-granular. We explore deep learning

based techniques for this purpose. Initially, we try directly

training a CNN. However, due to small set of labeled data, it

does not work well. Then, we explore the effect of domain-speciﬁc

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Car Brand detection or Classification and identification is an important task in the area of traffic control and management. Typically, to tackle this task, large datasets and domain-specific features are used to best fit the data. In our project, we implement, train, and test several state-of-the-art classifiers trained on domain general datasets for the task of identifying the make and models of cars from various angles and different settings, with the added constraint of limited data and time.

Generally speaking, visual fine-grained classification can be very challenging due to more subtle differences between classes, compared to basic recognition or coarse classification, such as on ImageNet. Recognizing the makes and models for cars is one such task. For humans, this is usually a fairly straightforward task, especially for car aficionados. Cars can usually be identified by human eye due to certain key aspects, such has logos, hood ornaments, or lettering. However, due to the visual complexity of cars, this has traditionally been a hard task for computers. The main challenge for fine-grained classification is unarguably the very fine differences between different classes. Typically, to learn these minute differences, a large dataset is needed. However, in a setting with limited time, computational power, or data, this is not feasible. Computational power, or data, this is not feasible. In our project, we design, implement, and test a light weight end-to-end system that uses an out of the box deep learning framework to fine-tune pre-trained classifiers for a specific fine-grained classification test. Our approach is based on taking deep learning models trained on ImageNet, which typically have very general features, and changing as little as possible to fit our training data for classifying the Car models.

In this project I’m going to do using as front end such as **Python** and Some **AI** concepts like **Deep Learning, Computer Vision** and **State of art algorithms.** As a backend I’m going to do use to train a model the various kinds of car images in CSV data from. And UI designing components such as **HTML, CSS, Bootstrap** and **JavaScript.**

“Data is the new science. Big Data holds the answers.” Says **Angela Ahrendts**, **Senior VP** of Retail at **Apple 11**. I am choosing in this project because I’m very passionate about build my career path into Data Science and AI. As well as now a days people are always dependent on their daily and future life with the help of AI.