ARN - Laboratory 05

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**HE
IG** VD

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Introduction

Our application is made in the context of the course ARN (Apprentissage par réseau de neurone) At the HEIG-VD. Its goal is to classify different types of nuts. In order to achieve this goal, we decided to take several pictures of cashew nuts, hazelnuts, and pecans with various backgrounds, various specimens and various angles. Depending on the result, we will then eventually add pictures from the web.

We will use MobileNet V2, which is a pre-trained convolutionnal network. We will then add some layers and train them to our specific application.

Our application could be used for various purpose. For example, allow users to identify different nuts, for allergy purpose. This could also be used for industrial application when sorting nuts or detecting allergens in food.

The problem

The problem is to be able to identify and differentiate between 3 sorts of nuts: pecan, hazelnuts and cashews, using a camera on a portable device.

Data preparation

We took photos of the different nuts on various background (color, texture) with various angles and zoom.

TODO: data augmentation, crop, zoom, format, …

Model creation

TODO: parameters, …

Results

TODO: screenshots, confusion matrix, etc

Conclusion

TODO: ARN IS FUN