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Flower Image Recognition

Have you ever taken a photo and wondered if your phone could identify what you're looking at? Today image recognition -the ability for machines to identify and classify objects, people, etc.- is becoming increasingly important for many applications from smartphone app development to security systems. The core of this technology is referred to as deep learning. Deep learning is a branch of artificial intelligence that uses artificial neural networks to recognize patterns in complex data such as images, audio and text.

In this project you will step into the role of a data scientist tasked with developing an AI algorithm to incorporate into an app which classifies different types of flowers. In this project you will train an image classifier - a VGG16 convolutional neural network (CNN) model. You can imagine this app will become a powerful tool in identifying plants - you will be able to use your phone to tell you if a flower is endangered, edible, etc.

You will work with a labeled dataset (a supervised learning model- tagged with the correct flower type) that consists of 102 different flower types. Your task will be to train the CNN model, evaluate and optimize its performance and test its accuracy. By the end of this case study you will have hands-on experience with deep learning to build your skills and foundations for creating smarter, image-driven technology.

[1] "The Significance of Deep Learning : Benefits, Challenges, and Beyond" *E-Spin* https://www.e-spincorp.com/deeplearning/#:~:text=Deep%20learning%20models%20surpass%20traditional,accuracy%20of%20deep%20learning%20models.

[2] Rohini G "Everything you need to know about VGG16" *Medium* https://medium.com/@mygreatlearning/everything-you-need-to-know-about-vgg16-7315defb5918

[3] Github Repository https://github.com/anordwall01/DS4002_CS3