



Image Classification of Coffee Leaf Pests and Diseases

INTRODUCTION



EM JAGER

- Data scientist
- Plant science
- Sustainable agriculture,
Ecuador coffee farms

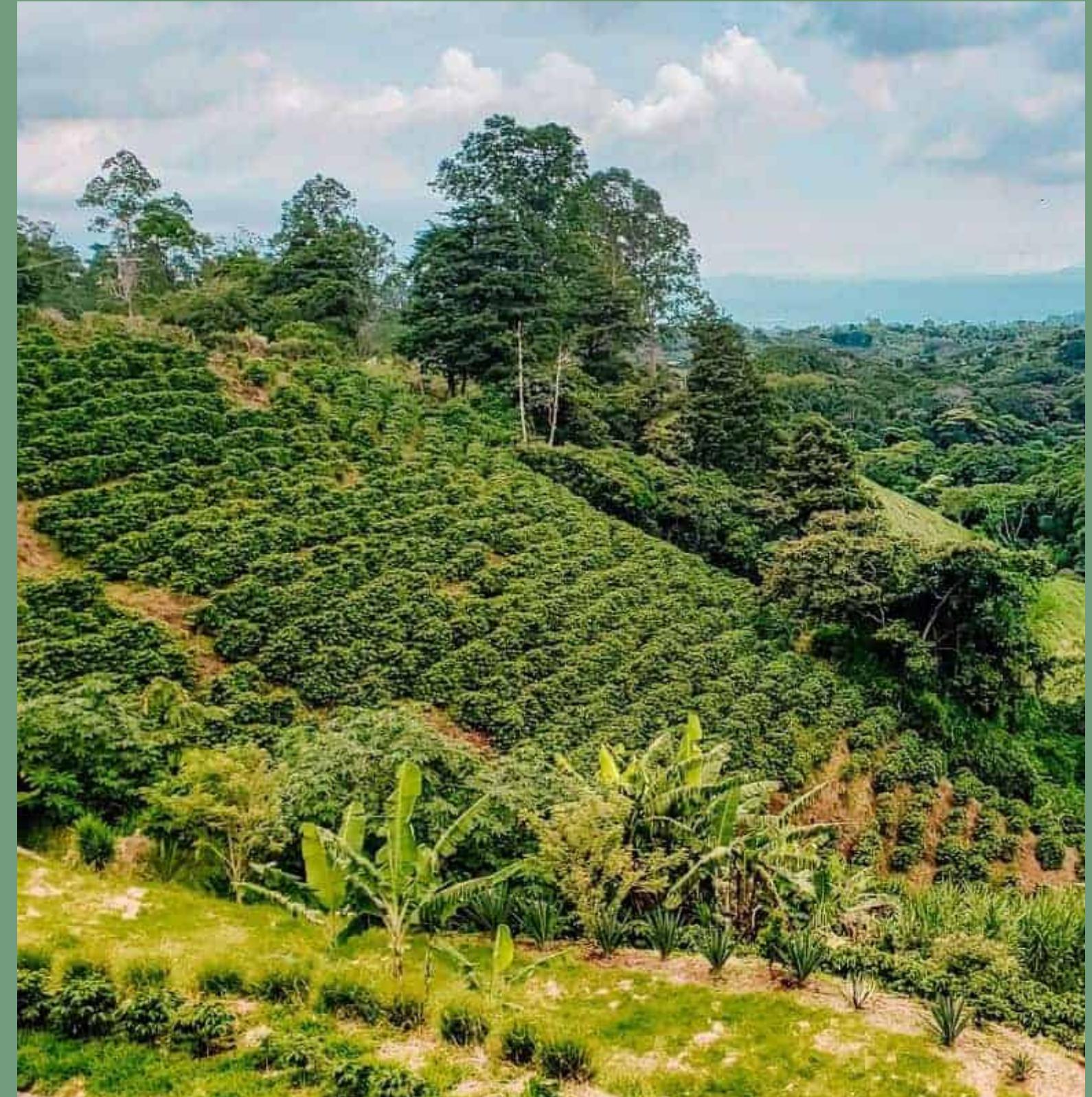
OVERVIEW

- 1 BUSINESS PROBLEM**
- 2 DATA & ANALYSIS**
- 3 MODELS**
- 4 PREDICTIONS**
- 5 NEXT STEPS**



BUSINESS PROBLEM

- Disease and pest risk for agriculture
- Reducing risk for small scale farms
- Automating large scale farms



DATA & ANALYSIS

- Kaggle Dataset
- 1216 training images
- 388 test images
- Healthy leaves and 3 different pests/diseases



COFFEE LEAF PESTS/DISEASES



Healthy



Coffee leaf rust



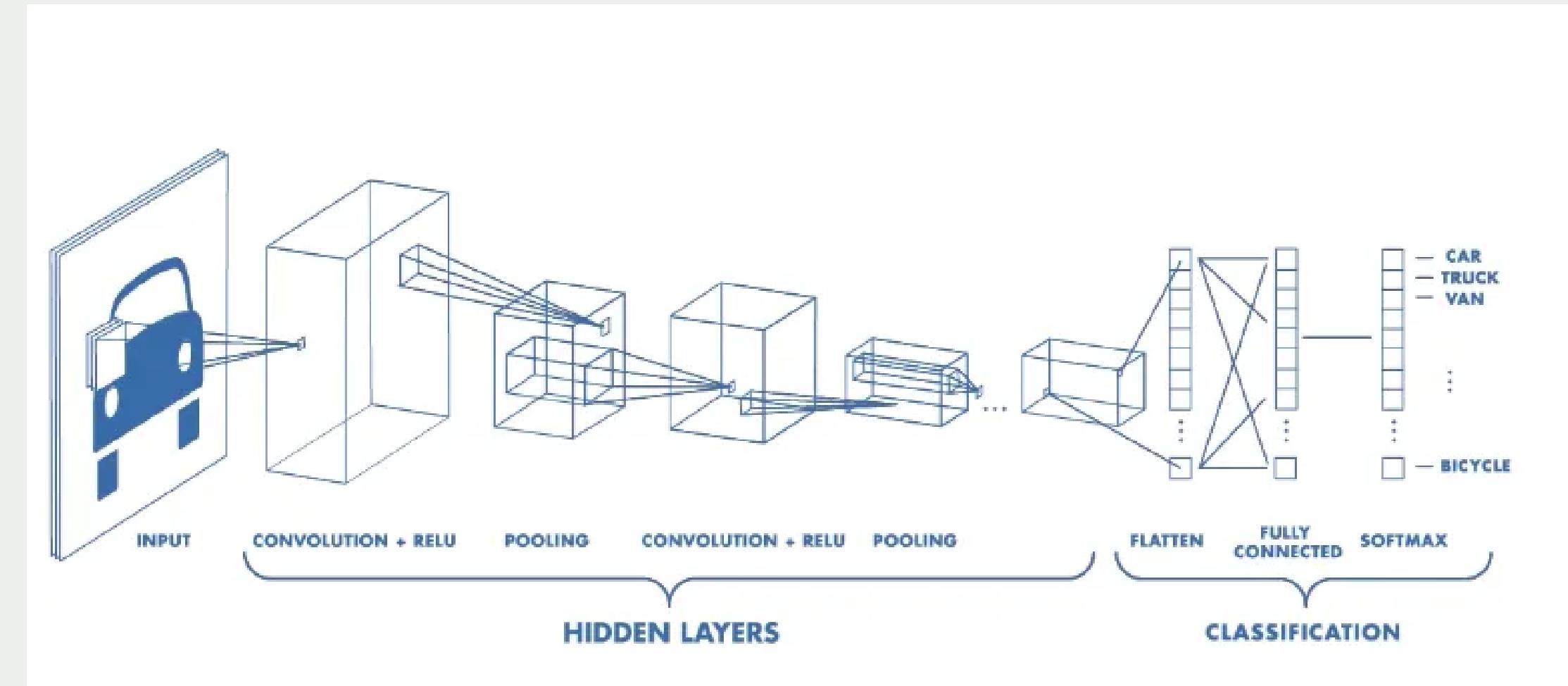
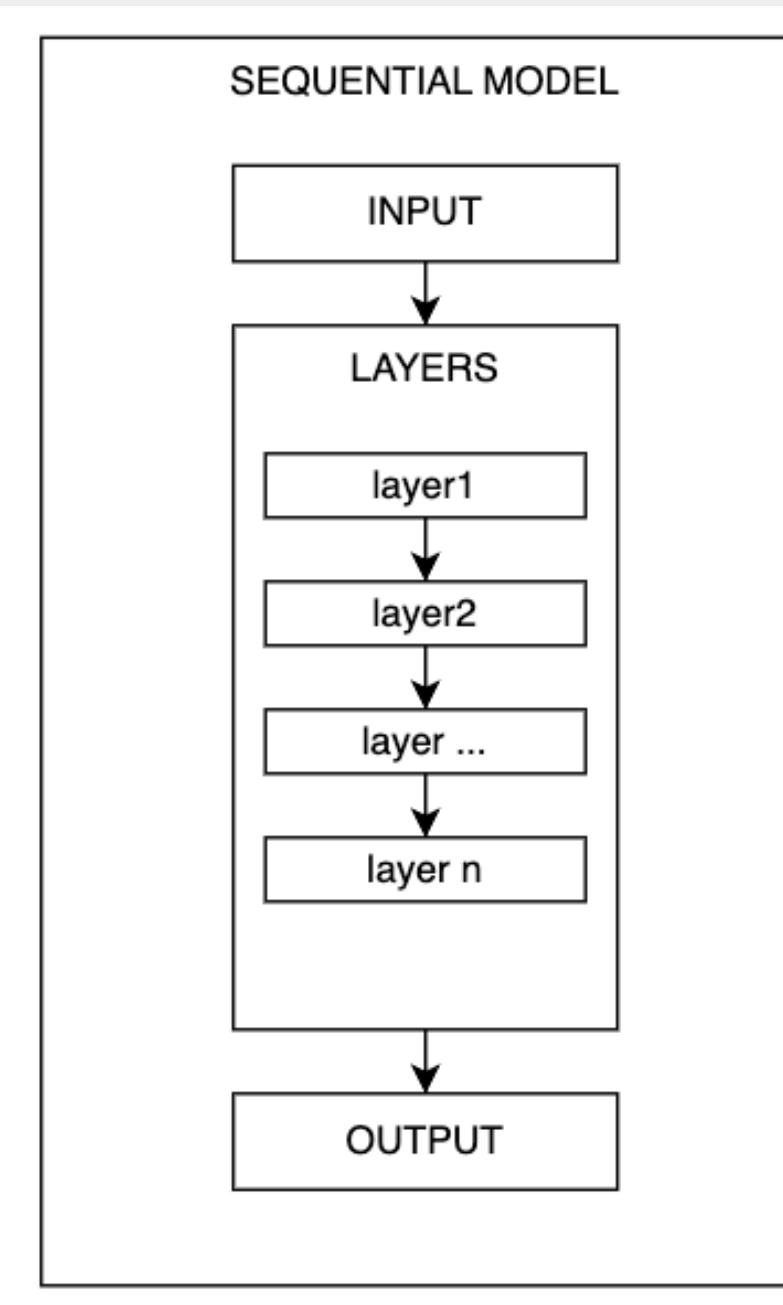
Coffee leaf miner



Phoma

MODELS

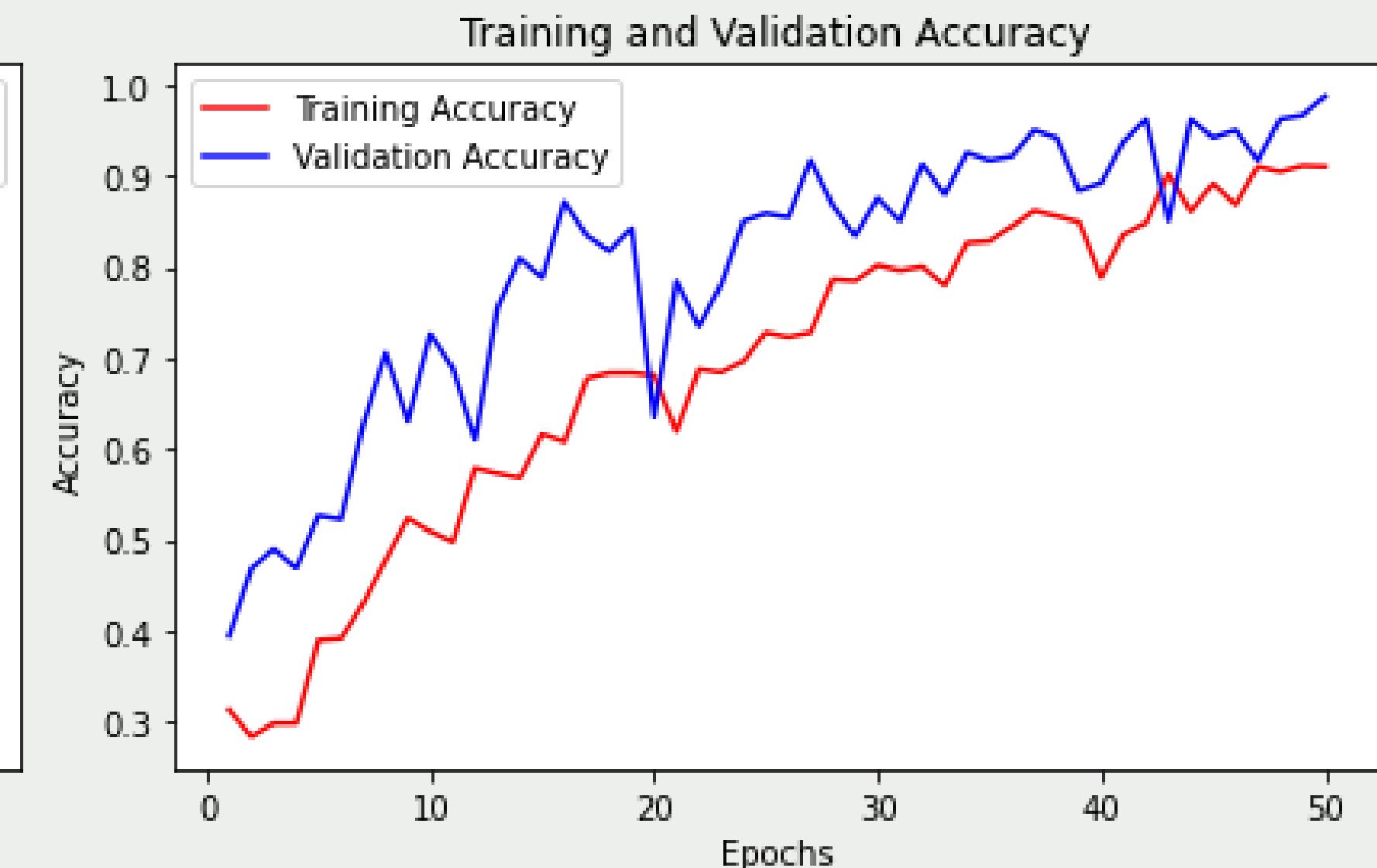
- Sequential Model
- Convolutional Neural Model
 - VGG16 Model



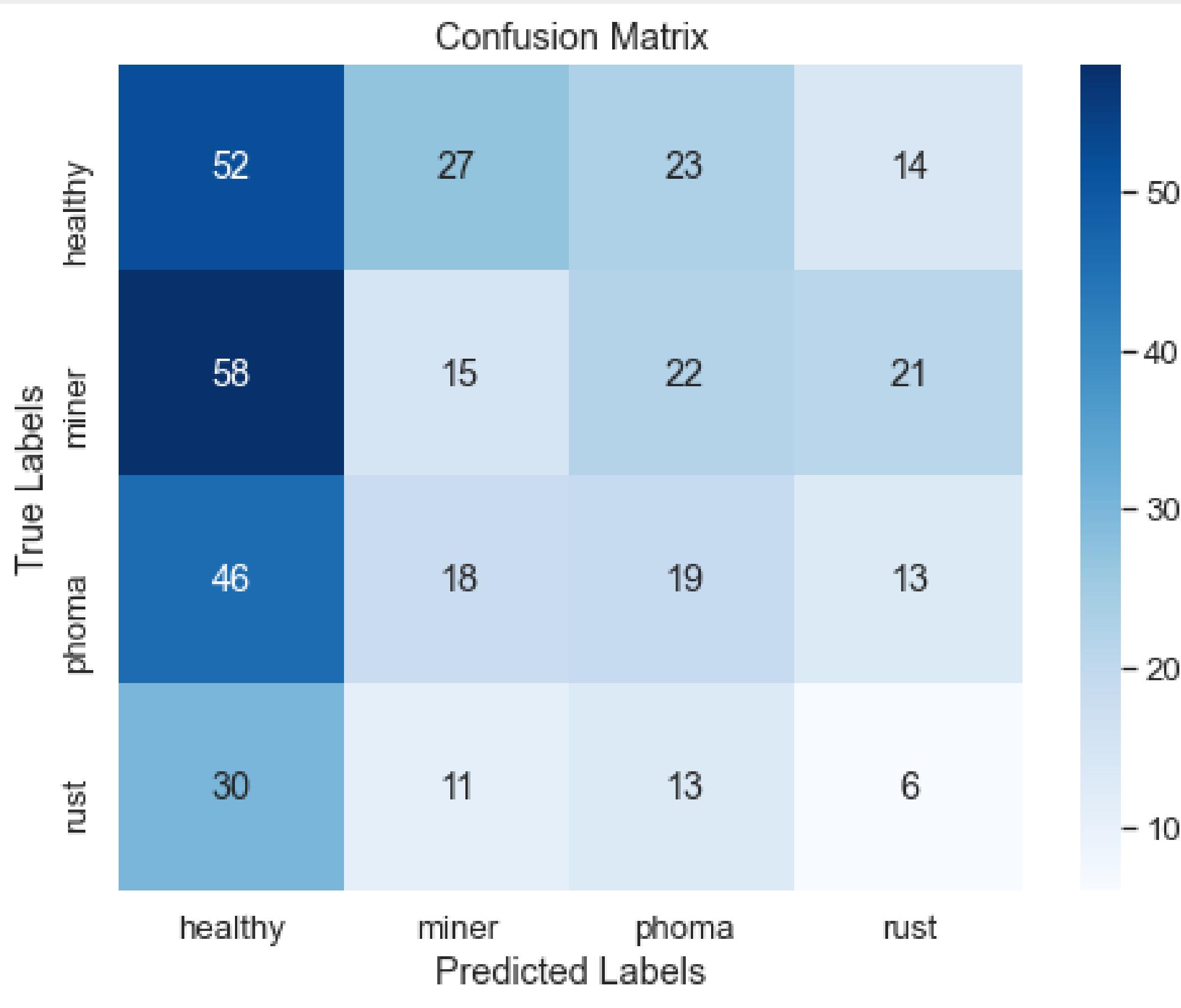
VGG16 MODEL

- Training Loss: 0.2531
- Validation Loss: 0.0784

- Training Accuracy: 91.04%
- Validation Accuracy: 98.76%

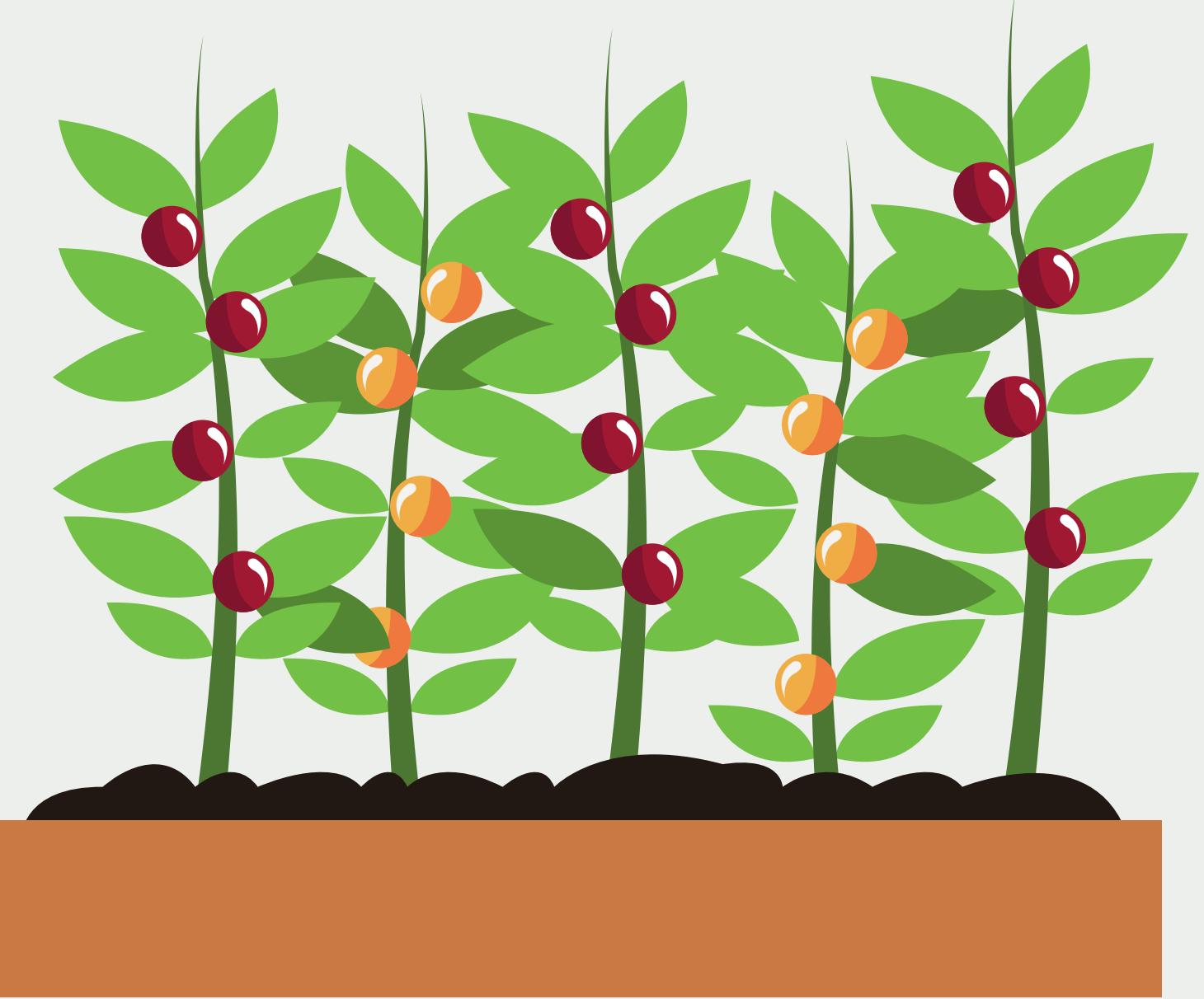


RESULTS



MODEL APPLICATION

- Identifying disease risk
- Economic stability for farmers
- Scale farms by monitoring
- Optimize resource allocation



NEXT STEPS

1. Create an app to implement the model on real farms
2. Scale model for large scale farms
3. Collect more data and expand to other crop health indicators



Thank you !



Em Jager



Github repository for this project:

