A.I IN AGRICULTURE

4IR

OBJECTIVE

- Create an application that helps farmers identify crop diseases.
- Provide information on the disease and recommend treatment and/or avoidance measures to mitigate the spread of the disease.

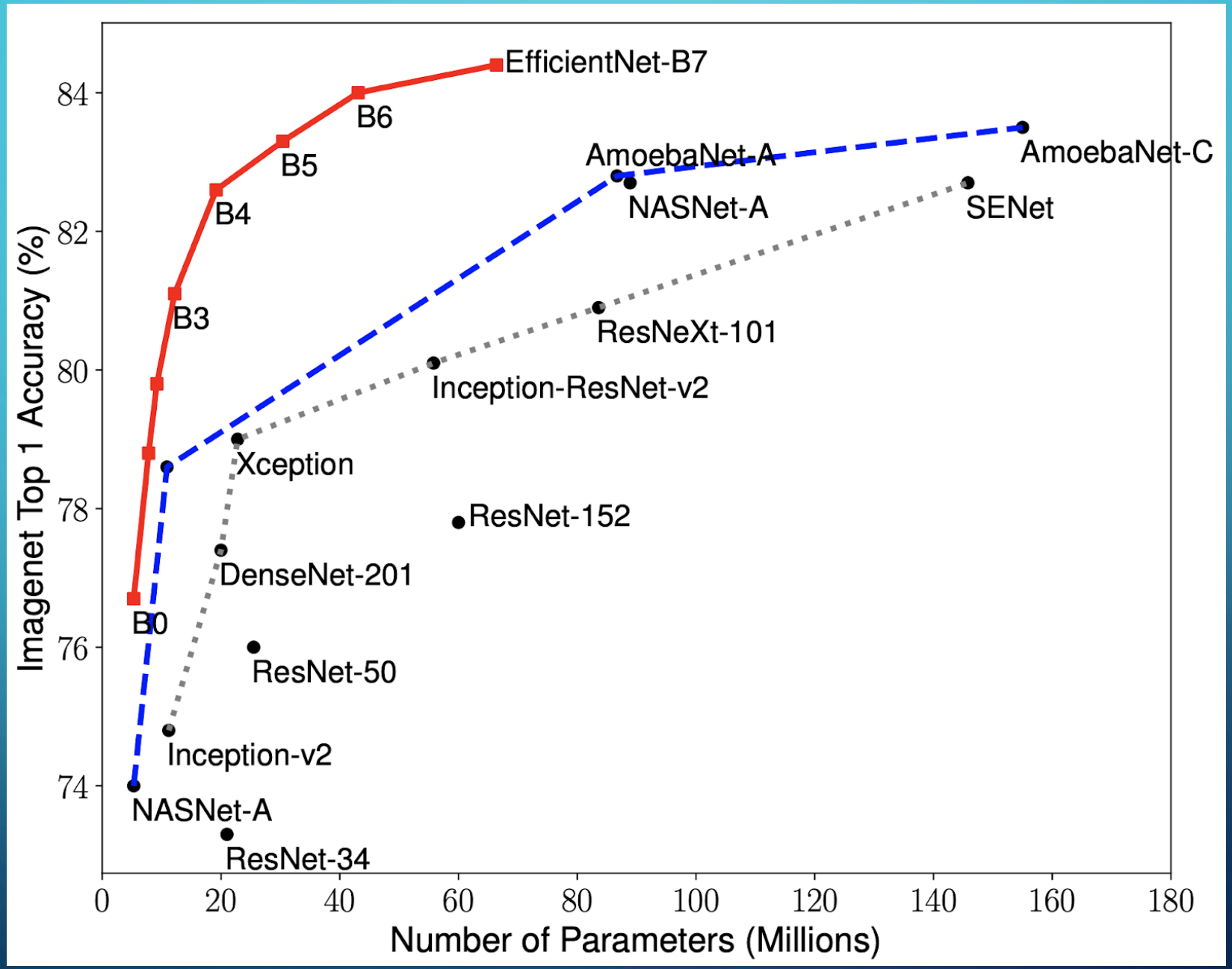
MAIZE STREAK VIRUS (MSV)

FALL ARMYWORM (FAW)

HEALTHY

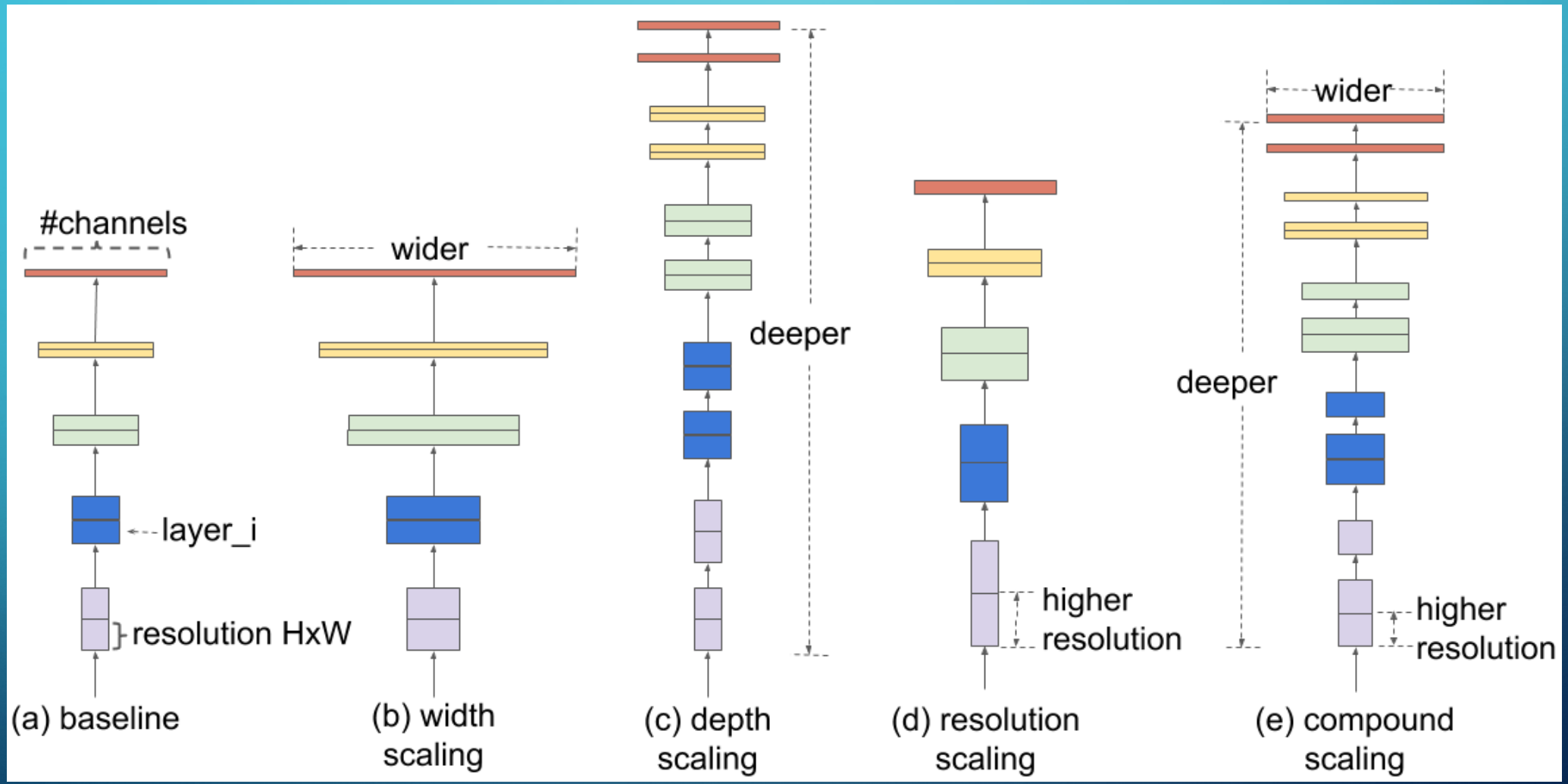
Methodology

- EfficientNet- it is a family of classification models that use significantly fewer resources and less parameters, Reaching a state of the art 84.4% accuracy on ImageNet.


EfficientNet-B7
B6
B5
B4
B3
B0
AmoebaNet-A
AmoebaNet-C
NASNet-A
SENet
ResNeXt-101
Inception-ResNet-v2
Xception
ResNet-152
DenseNet-201
ResNet-50
Inception-v2
NASNet-A
ResNet-34
Imagenet Top 1 Accuracy (%)
84
82
80
78
76
74
0
20
40
60
80
100
120
140
160
180
Number of Parameters (Millions)

Model used.

- EfficientNet - it is a family of classification models that use significantly fewer resources and less parameters, Reaching a state of the art 84.4% accuracy on ImageNet.
- Python programming language and Google's TensorFlow tool library.
- It is 8.4x smaller and 6.1x faster on CPU inference than previous Gpipe libraries.
- scales all dimensions (depth, width, resolution) using a simple yet highly effective compound coefficient instead of randomly scaling the dimensions.
- Because of its size, it requires less memory to be used in a mobile phone- which is good for the farmer.


#channels
layer_i
resolution HxW
(a) baseline
wider
(b) width scaling
deeper
(c) depth scaling
higher resolution
(d) resolution scaling
wider
deeper
higher resolution
(e) compound scaling

AI in Agriculture.

Future Implementations

- Drones with voice recognition commands.
- Inexpensive drones can be used as our model scales images.