Computer Vision with Embedded Machine Learning

What is Image Classification?

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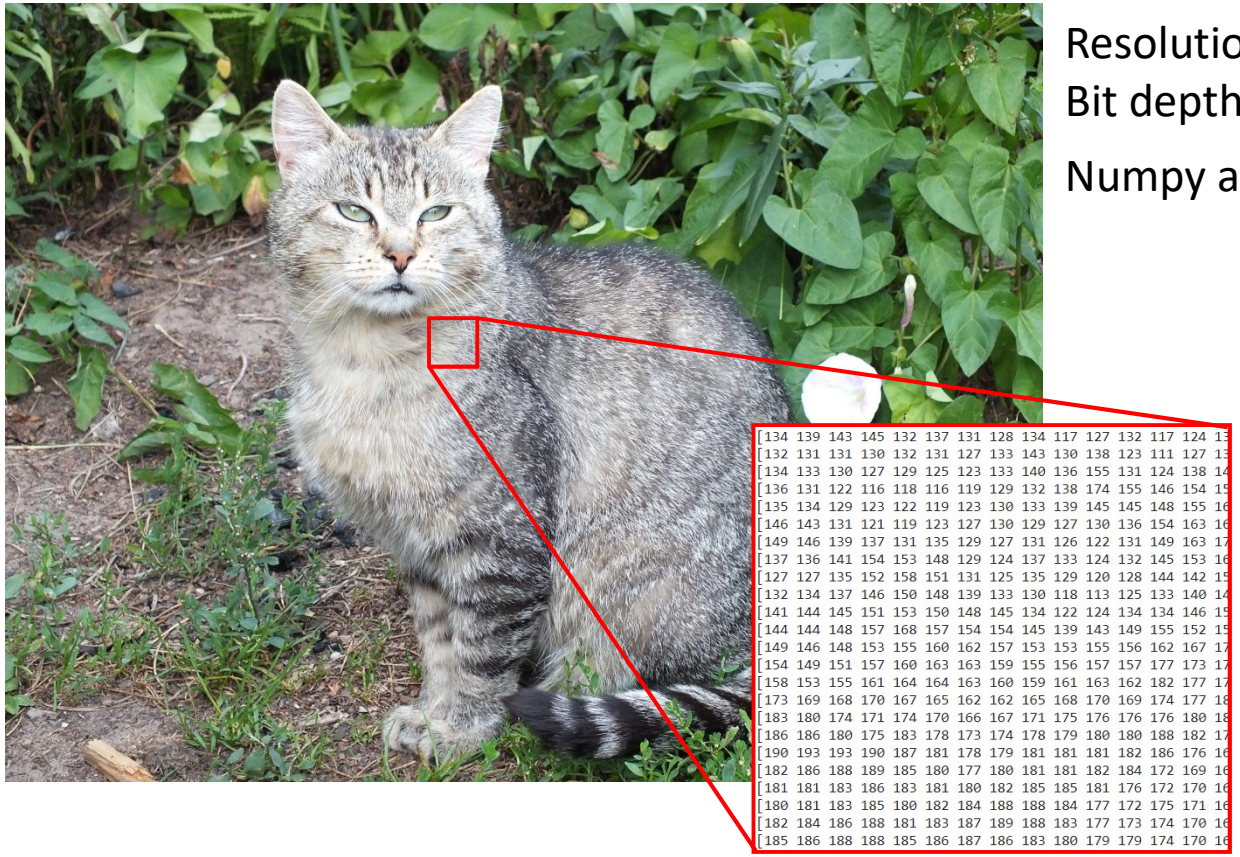

Resolution: 2048 x 1536 pixels
Bit depth: 24 bits

Numpy array shape: (1536, 2048, 3)

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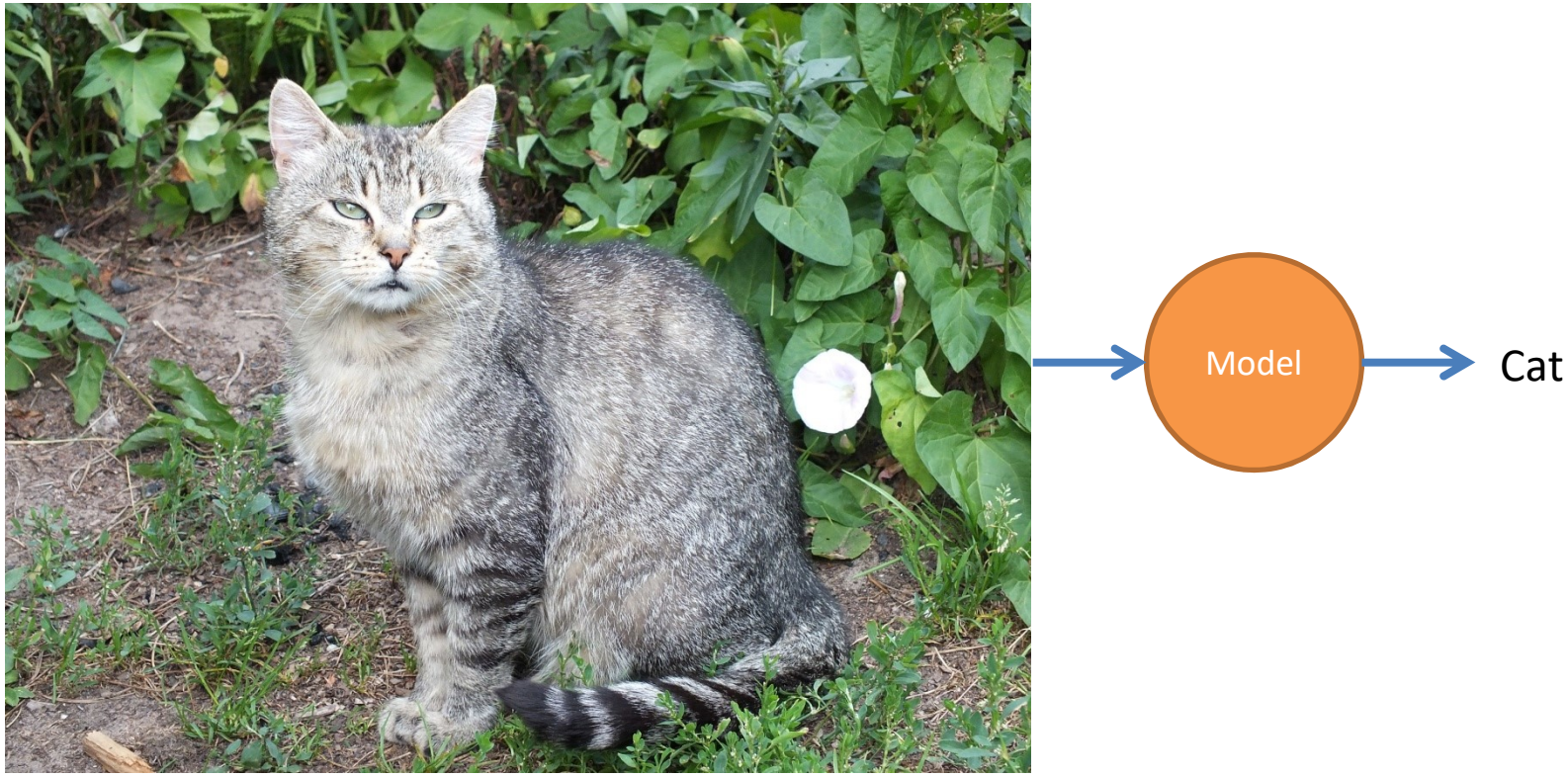

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Binary Classification

One-vs-One

vs.

One-vs-Rest

vs.

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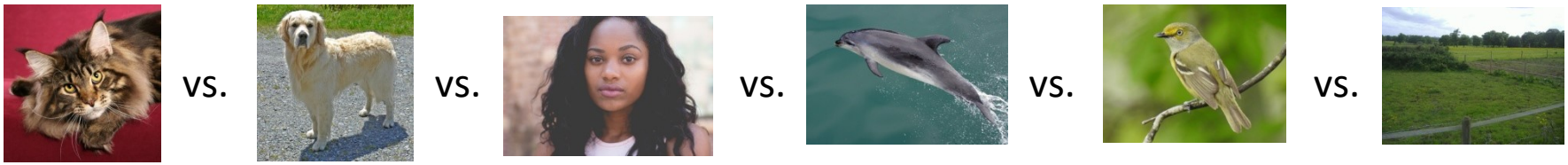
Multiclass Classification



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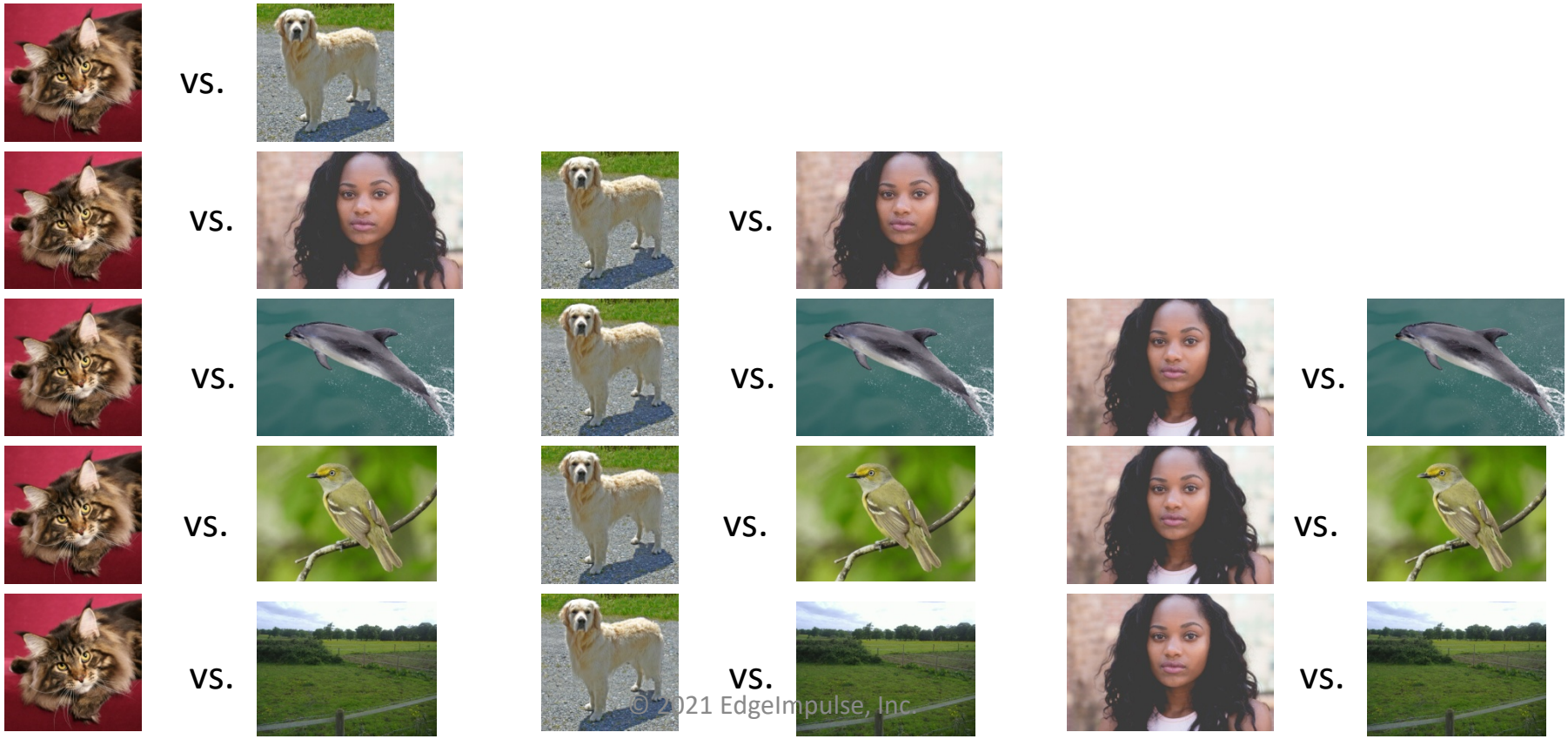
Multiclass: One-vs-One



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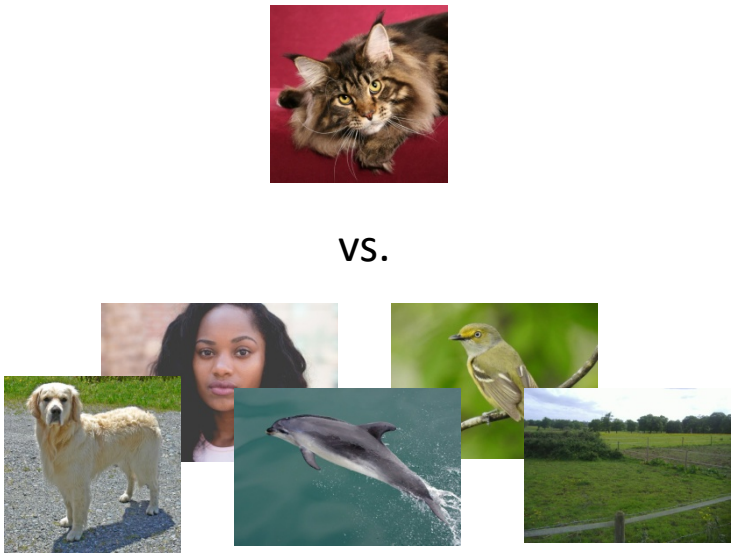
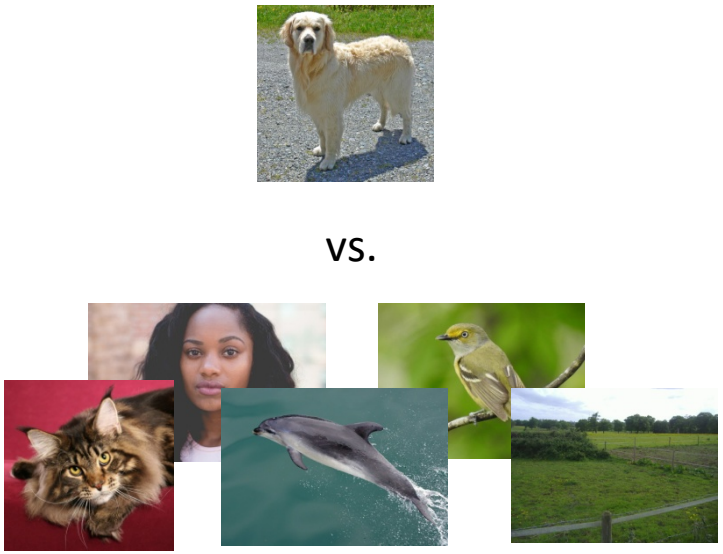
Multiclass: One-vs-Rest





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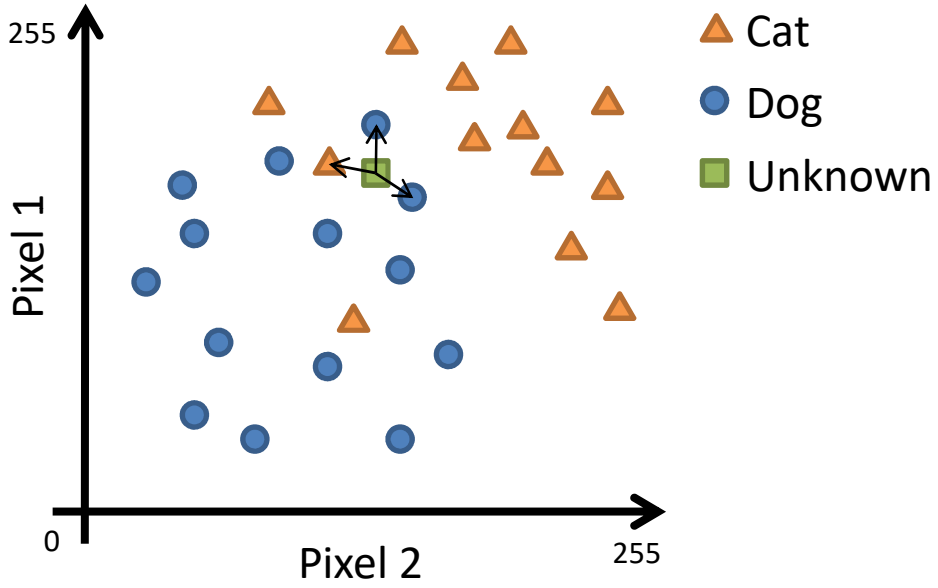
k-Nearest Neighbors (k-NN)



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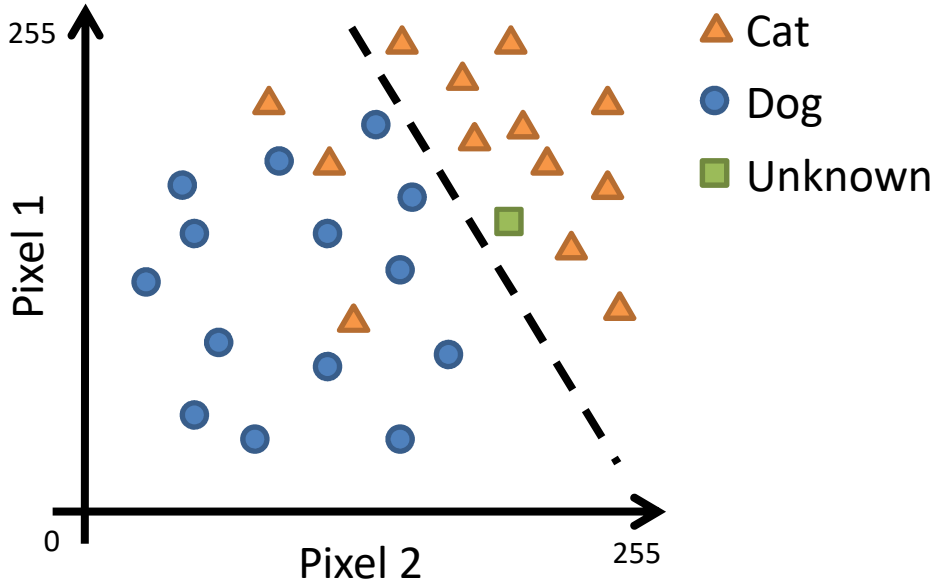
Support Vector Machine (SVM)



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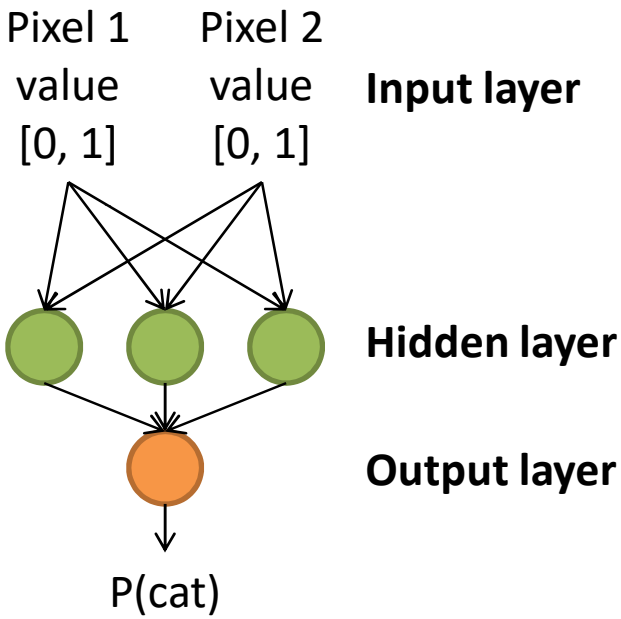
Neural Network (NN)



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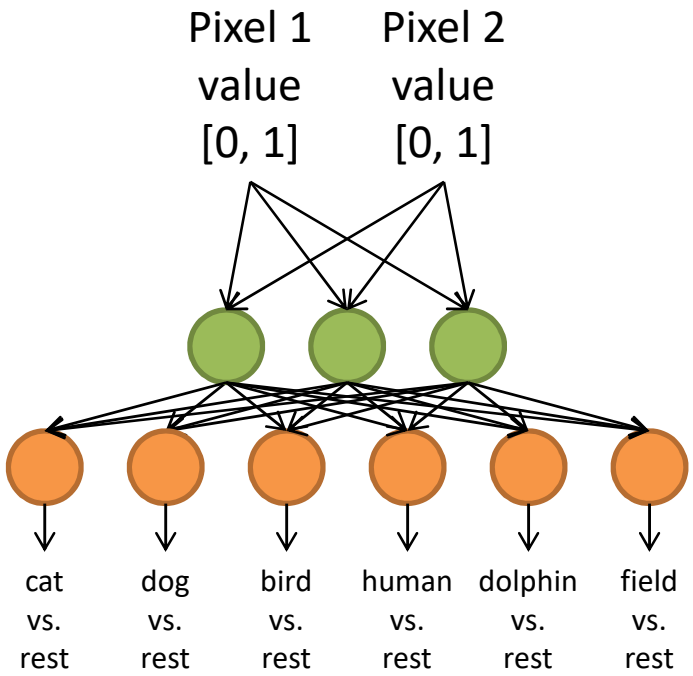
Neural Network (NN)



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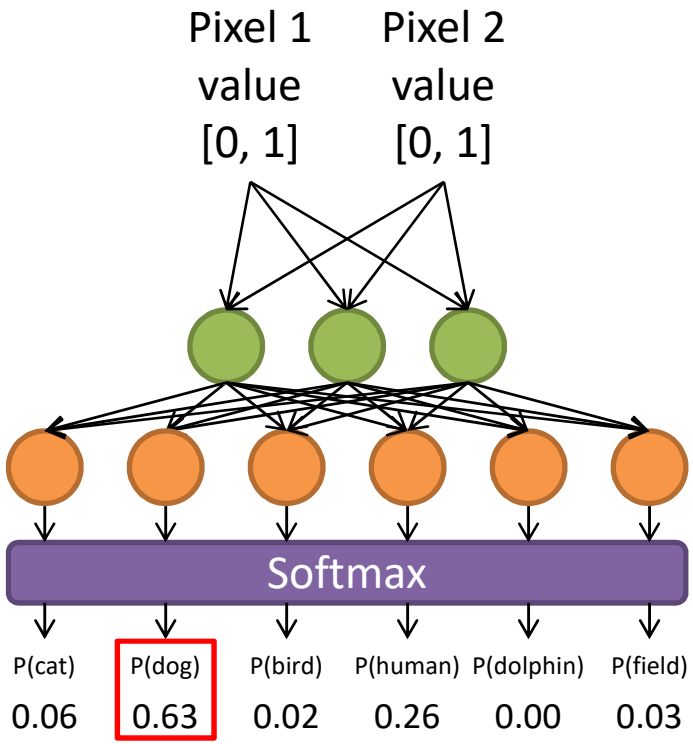
Neural Network (NN)



P(cat) + P(dog) + P(bird) + P(human) + P(dolphin) + P(field) = 1.0

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Challenge: Illumination

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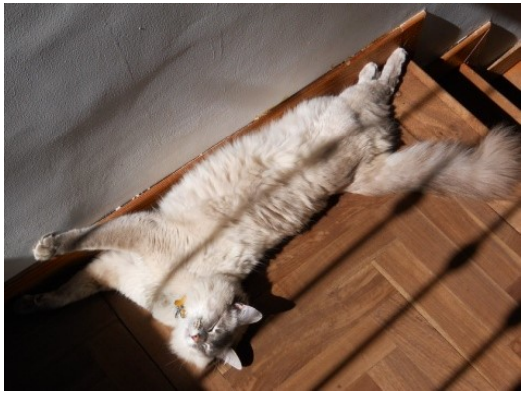
Challenge: Deformation



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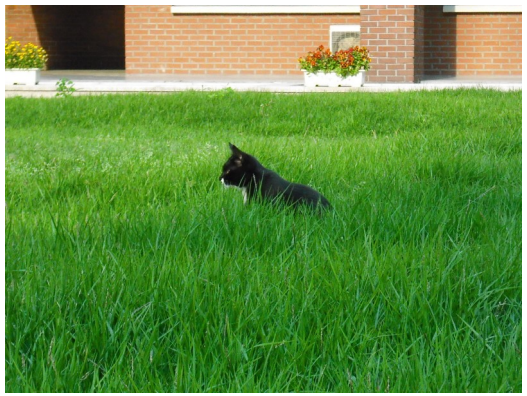
Challenge: Occlusion



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