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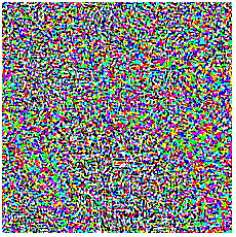
Adversarial Label Flips

Matthias Dellago & Maximilian Samsinger

Fast gradient sign method

$+ \quad \epsilon$



$=$

Panda
(57.7% confidence)

$\text{sign}(\nabla_x J(\theta, x, y))$

Gibbon
(99.3% confidence)

[2] Explaining and harnessing adversarial examples, 2014

What we want to do

Confusion Matrix

Adversarial Example of a

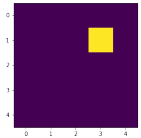
	Categorised as: Dog	Cat	Plane
Dog	0.0	?	?
Cat	?	0.0	?
Plane	?	?	0.0

How many modified dogs get classified as cats vs as planes? etc.

Quantifying Changes

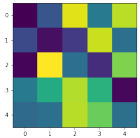
L^0-Norm

Number of pixels changed



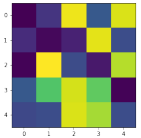
L^1-Norm

Sum of all changes



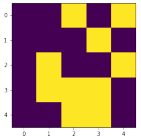
L^2-Norm

Sum of the *square* of all changes

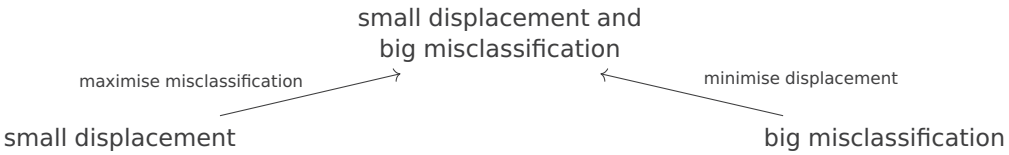


L^∞-Norm

Maximum of all changes



Two Different Approaches



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