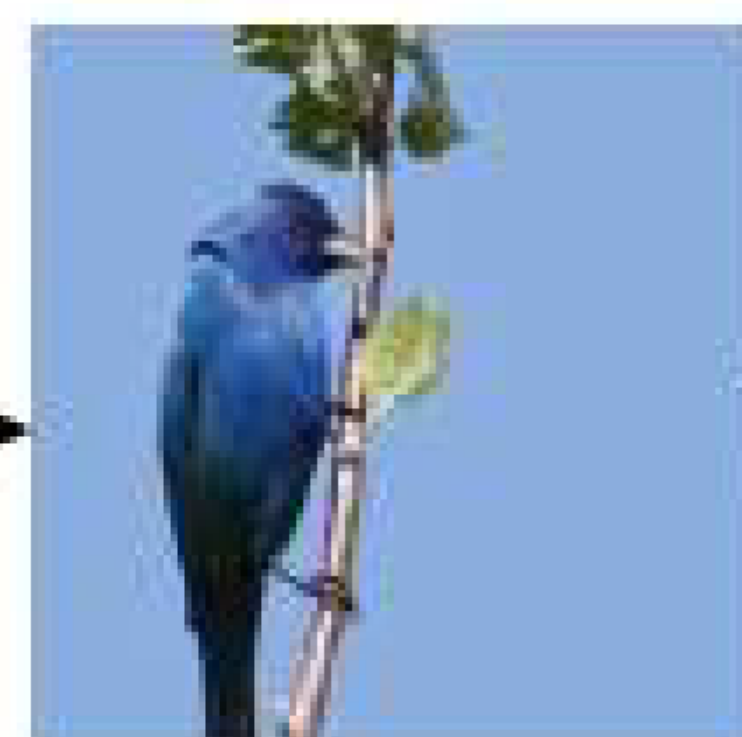


Image X

$g(X, y=0)$

Rotate 0 degrees



Rotated image: X^0

ConvNet
model $F(\cdot)$

Objectives:

Maximize prob.
 $F^0(X^0)$

Predict 0 degrees rotation ($y=0$)

$g(X, y=1)$

Rotate 90 degrees



Rotated image: X^1

ConvNet
model $F(\cdot)$

Maximize prob.
 $F^1(X^1)$

Predict 90 degrees rotation ($y=1$)

$g(X, y=2)$

Rotate 180 degrees



Rotated image: X^2

ConvNet
model $F(\cdot)$

Maximize prob.
 $F^2(X^2)$

Predict 180 degrees rotation ($y=2$)

$g(X, y=3)$

Rotate 270 degrees



Rotated image: X^3

ConvNet
model $F(\cdot)$

Maximize prob.
 $F^3(X^3)$

Predict 270 degrees rotation ($y=3$)