

Mooney Faces from Photos

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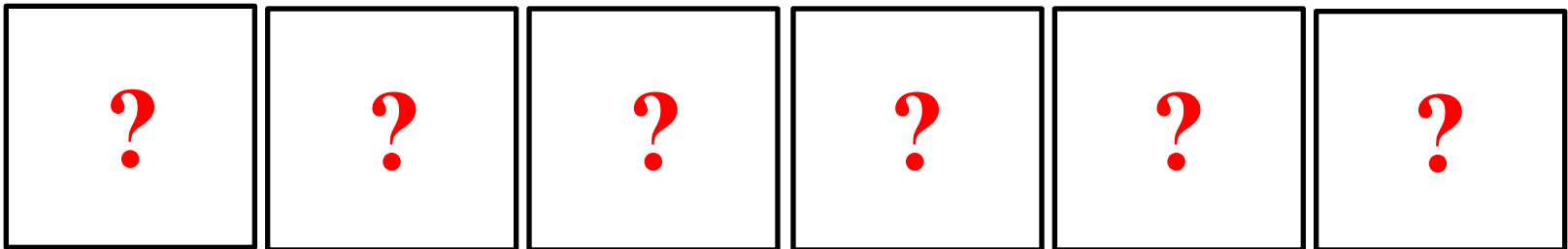
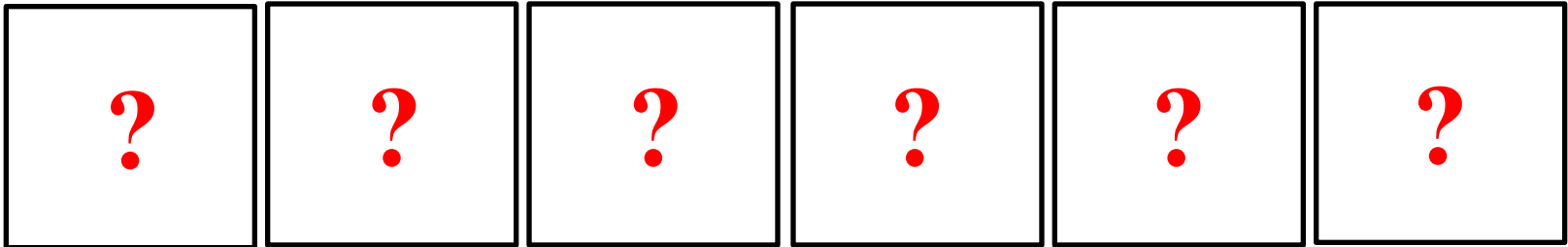
Faces are everywhere



[Miller, etc., 2007]

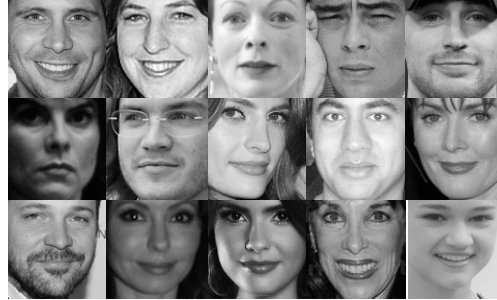


Source Photos are usually not available





[Ng, and Winkler, ICIP2014]



[Ng, and Winkler, ICIP2014]



Machine
Learning

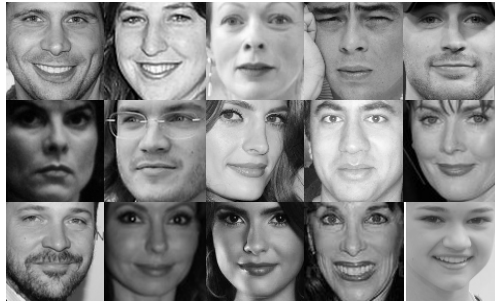
[Ng, and Winkler, ICIP2014]



Machine Learning

Generate Large Scale
Mooney Face Dataset

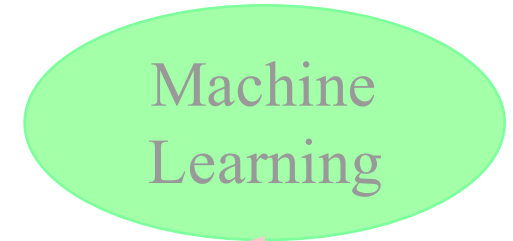
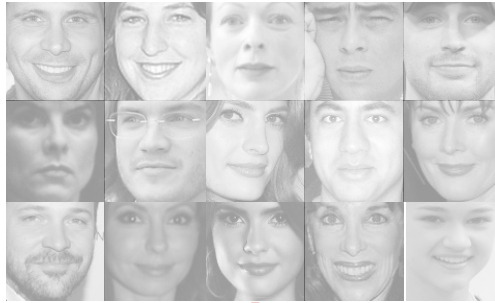
[Ng, and Winkler, ICIP2014]



Generate Large Scale
Mooney Face Dataset

Predict Source Photos
from Mooney Faces

[Ng, and Winkler, ICIP2014]



Generate Large Scale
Mooney Face Dataset

Predict Source Photos
from Mooney Faces

Train a Mooney Face Classifier

Mooney face
classifier

Train a Mooney Face Classifier

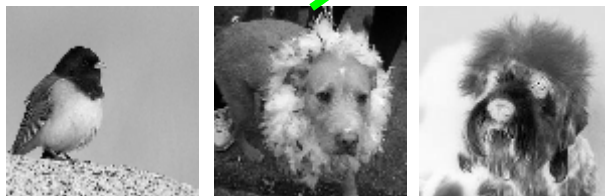


Mooney face
classifier

Train a Mooney Face Classifier



Mooney face
classifier



Generate Mooney Candidates

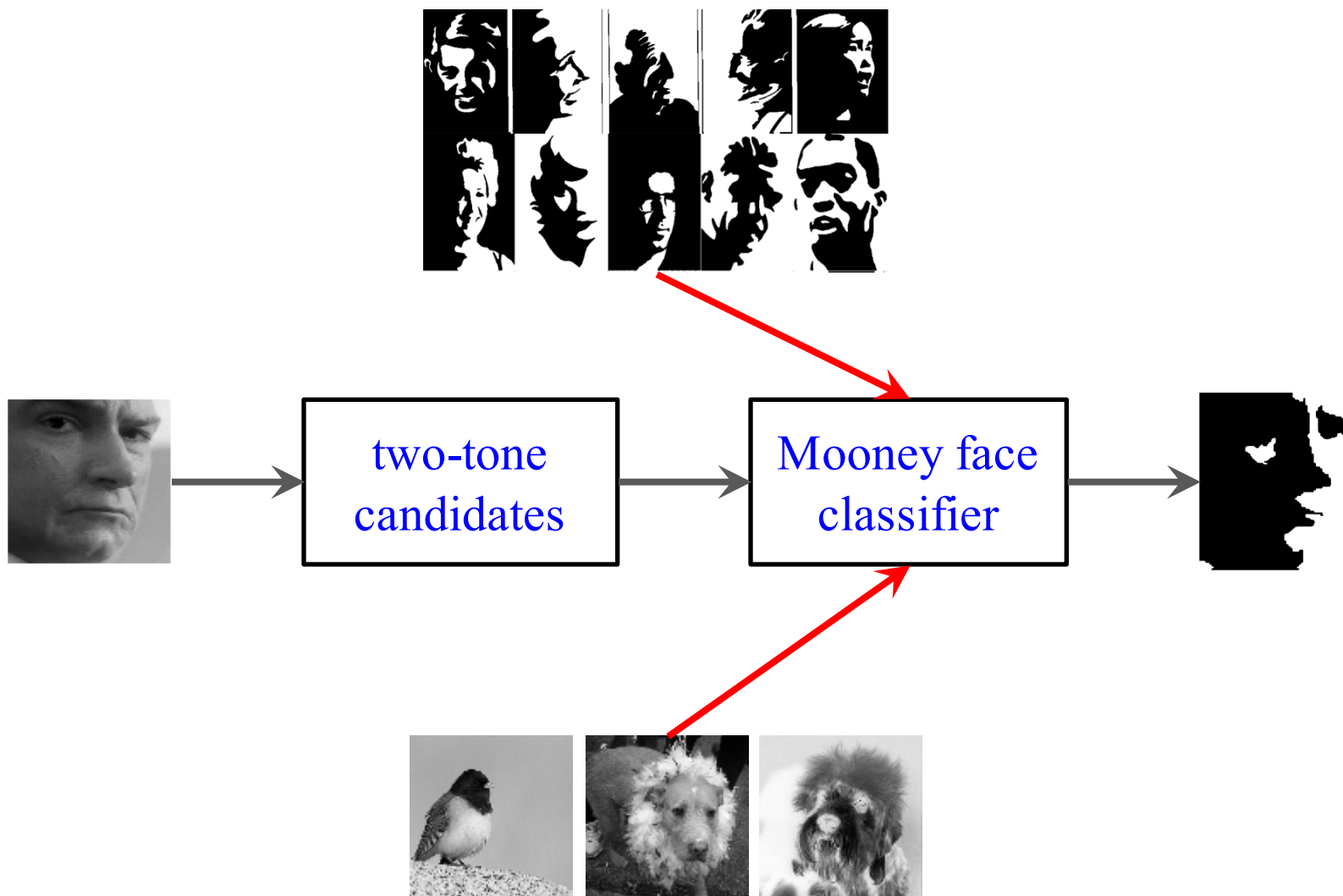


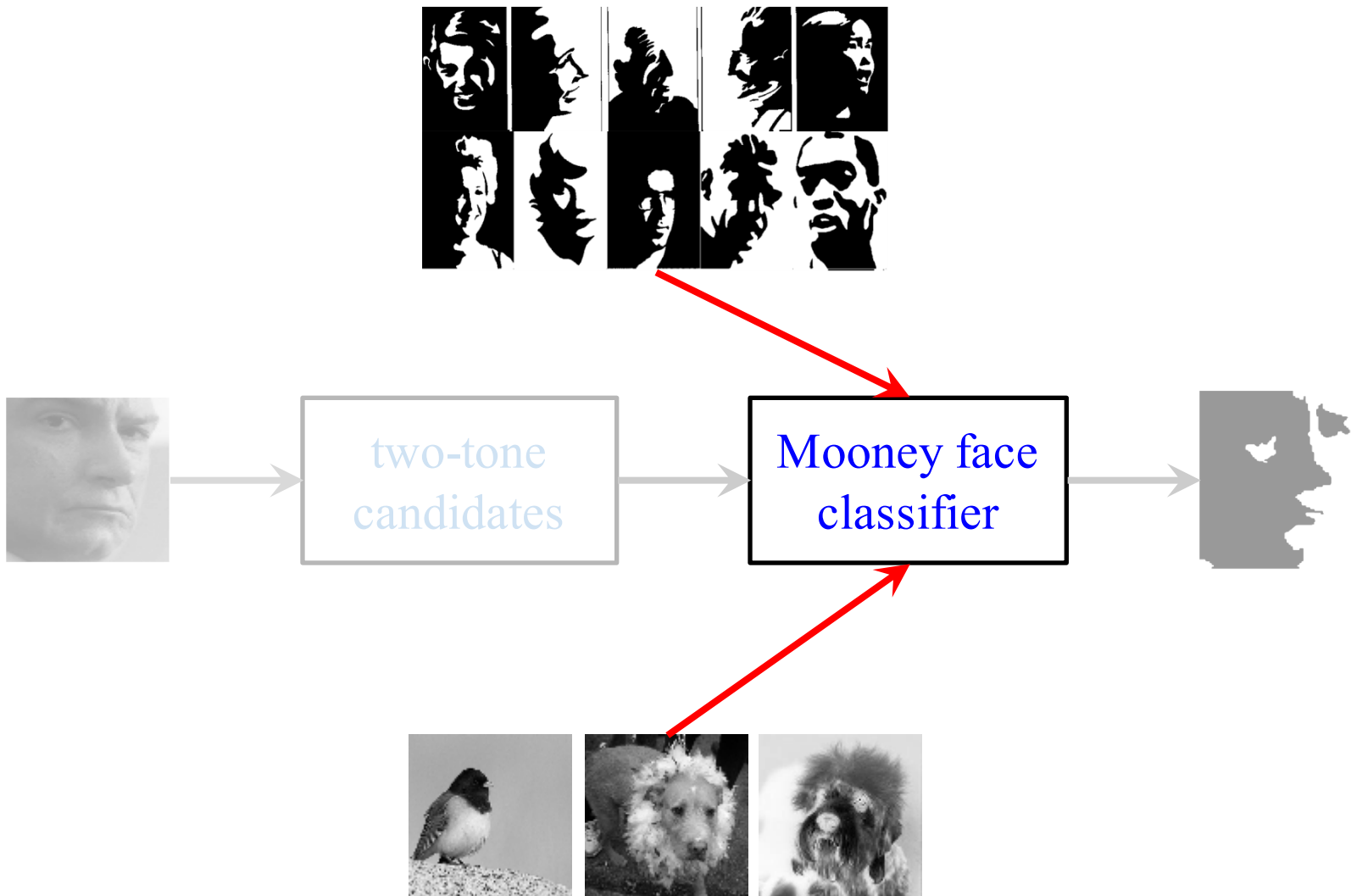
Generate Mooney Candidates



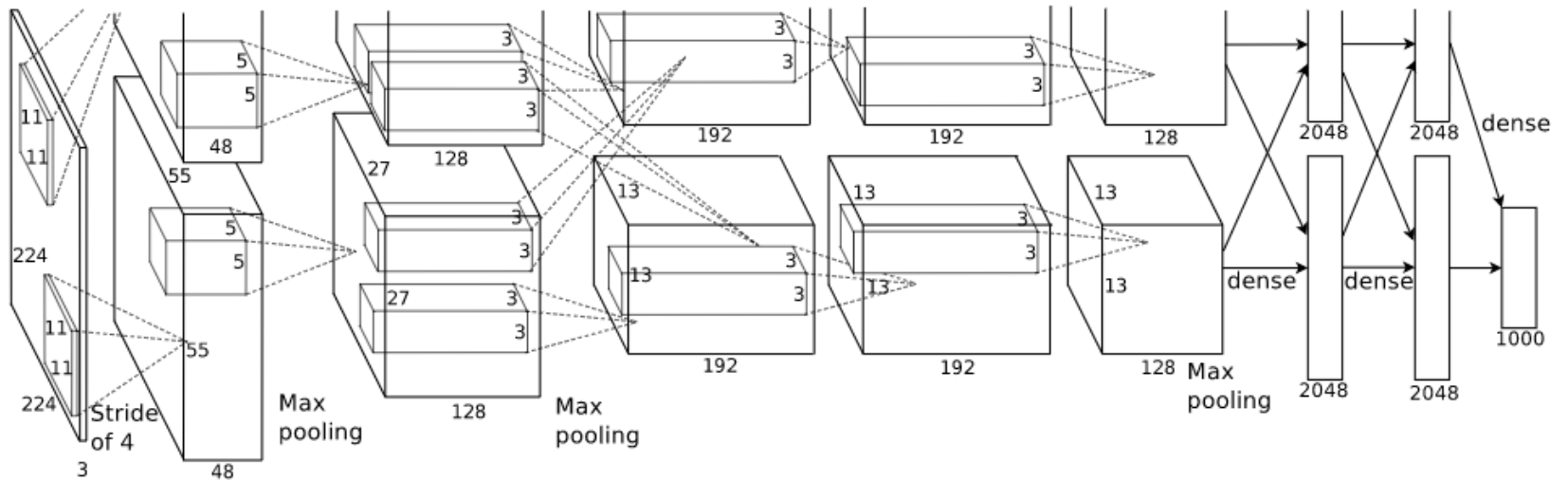
two-tone
candidates

Generate Large Scale Mooney Dataset

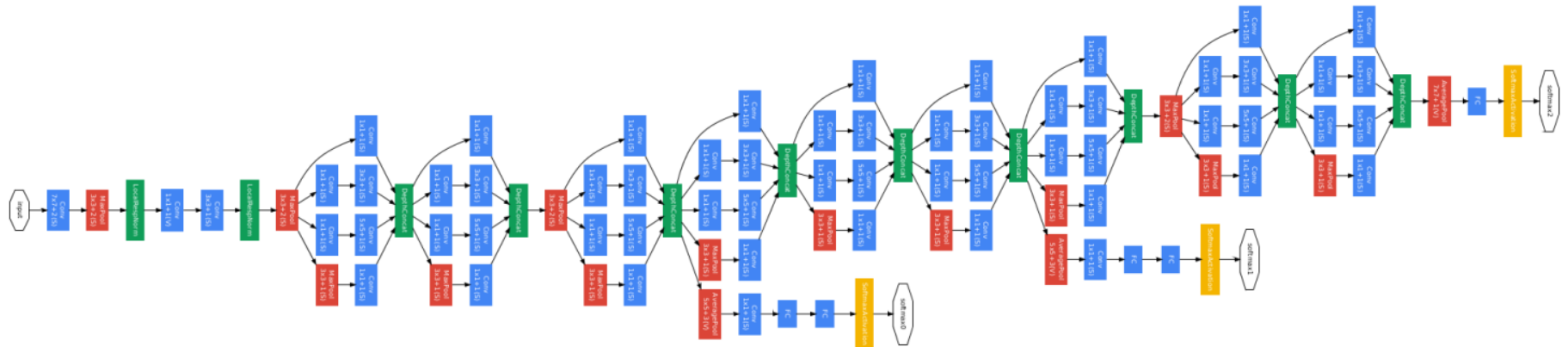




Mooney Face Classifier: Architecture



[Krizhevsky, Sutskever, and Hinton, NIPS 2012]



[Szegedy, etc., CVPR 2015]

Mooney Face Classifier: Negative Samples



original (✓)

Mooney Face Classifier: Negative Samples



original (✓) dilated (✓)

Mooney Face Classifier: Negative Samples



original (✓) dilated (✓) eroded (✓)

Mooney Face Classifier: Negative Samples



original (✓) dilated (✓) eroded (✓)



inverted (✗)

Mooney Face Classifier: Negative Samples



original (✓) dilated (✓) eroded (✓)



inverted (✗) negative (✗)

Mooney Face Classifier: Negative Samples

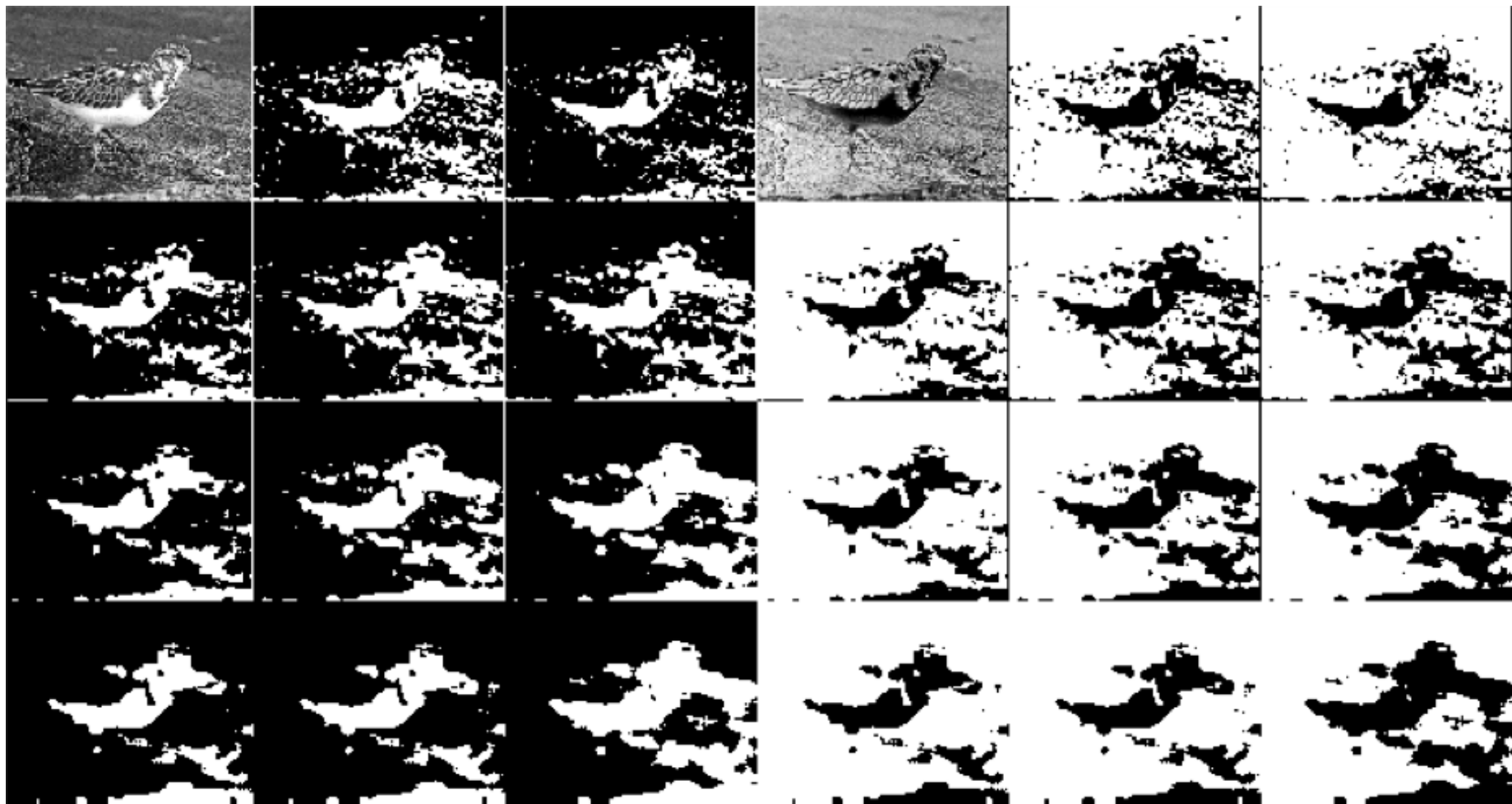


original (✓) dilated (✓) eroded (✓)



inverted (✗) negative (✗) neg.+inv. (✗)

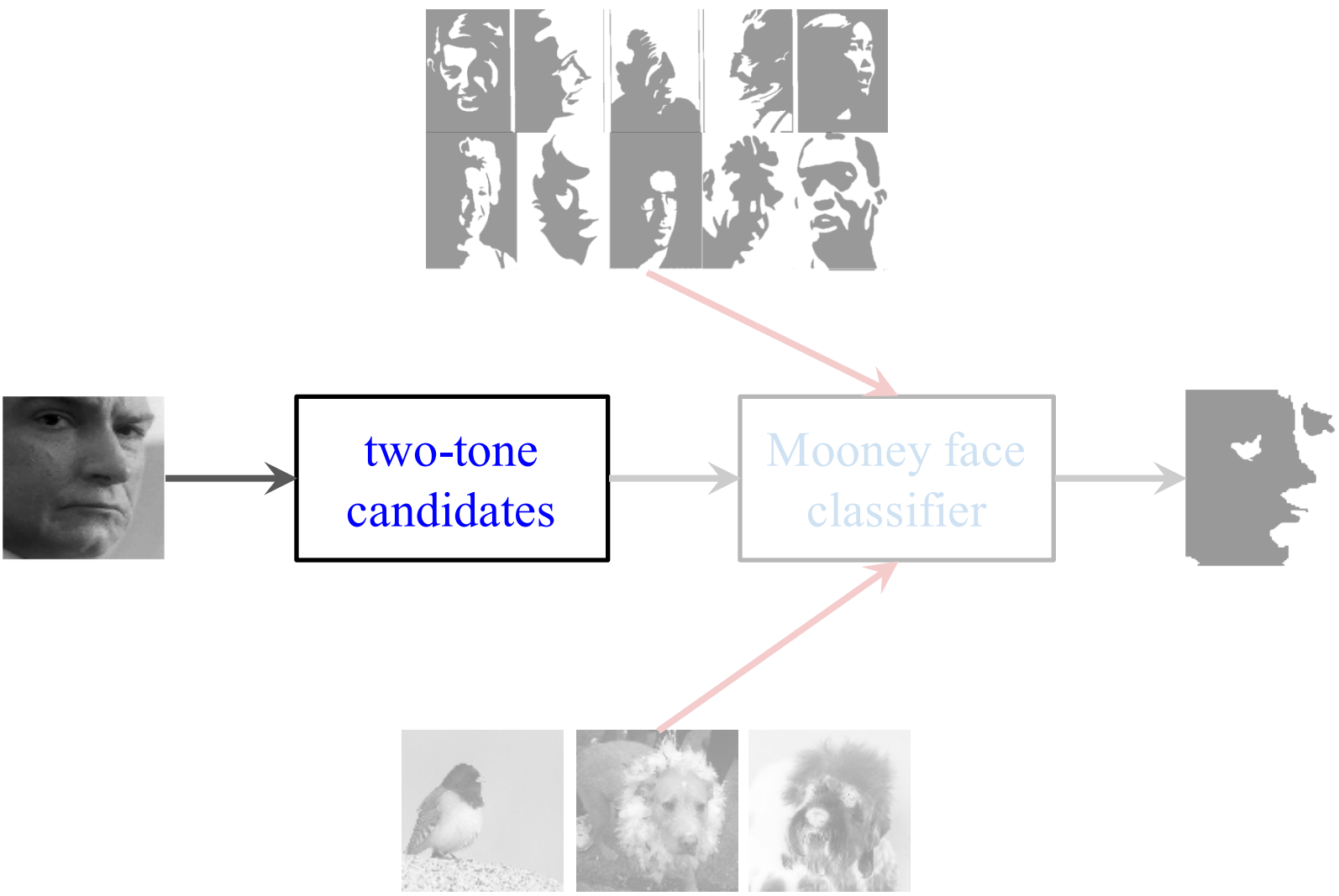
Mooney Face Classifier: Negative ImageNet Samples





two-tone candidates

Mooney face classifier



Mooney Candidates



Mooney Candidates



Mooney Candidates



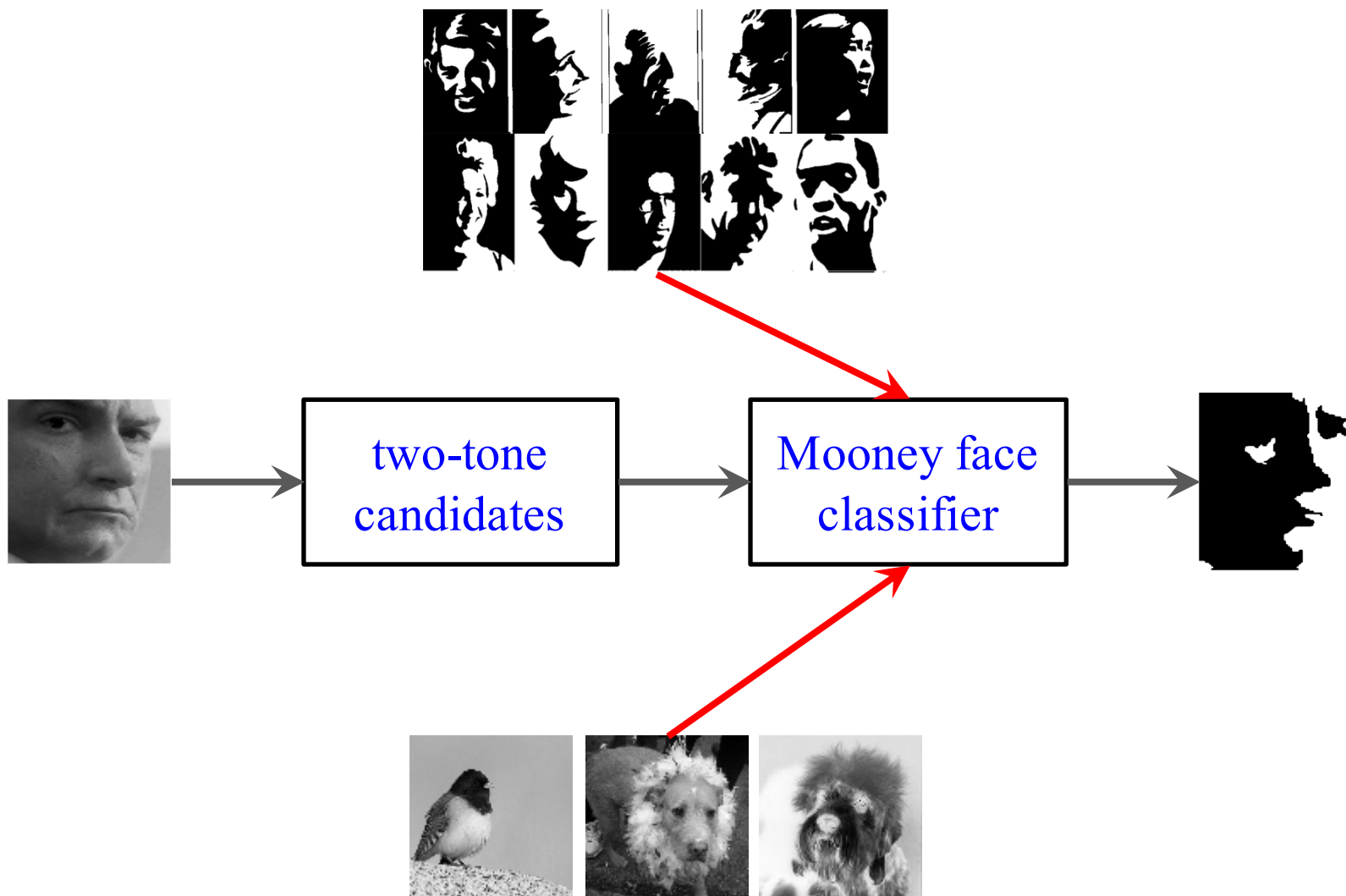
Mooney Candidates



Mooney Candidates



Generate Large Scale Mooney Dataset



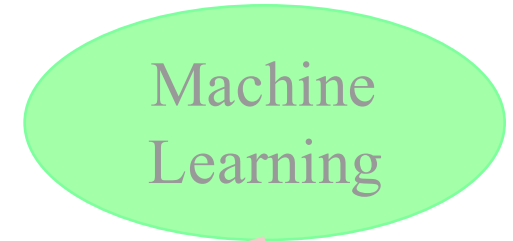
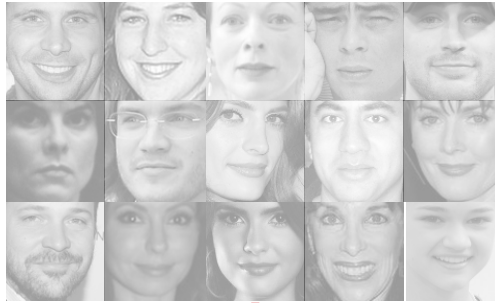
Images of Most Mooneyeness



Images of Least Mooneyness



[Ng, and Winkler, ICIP2014]

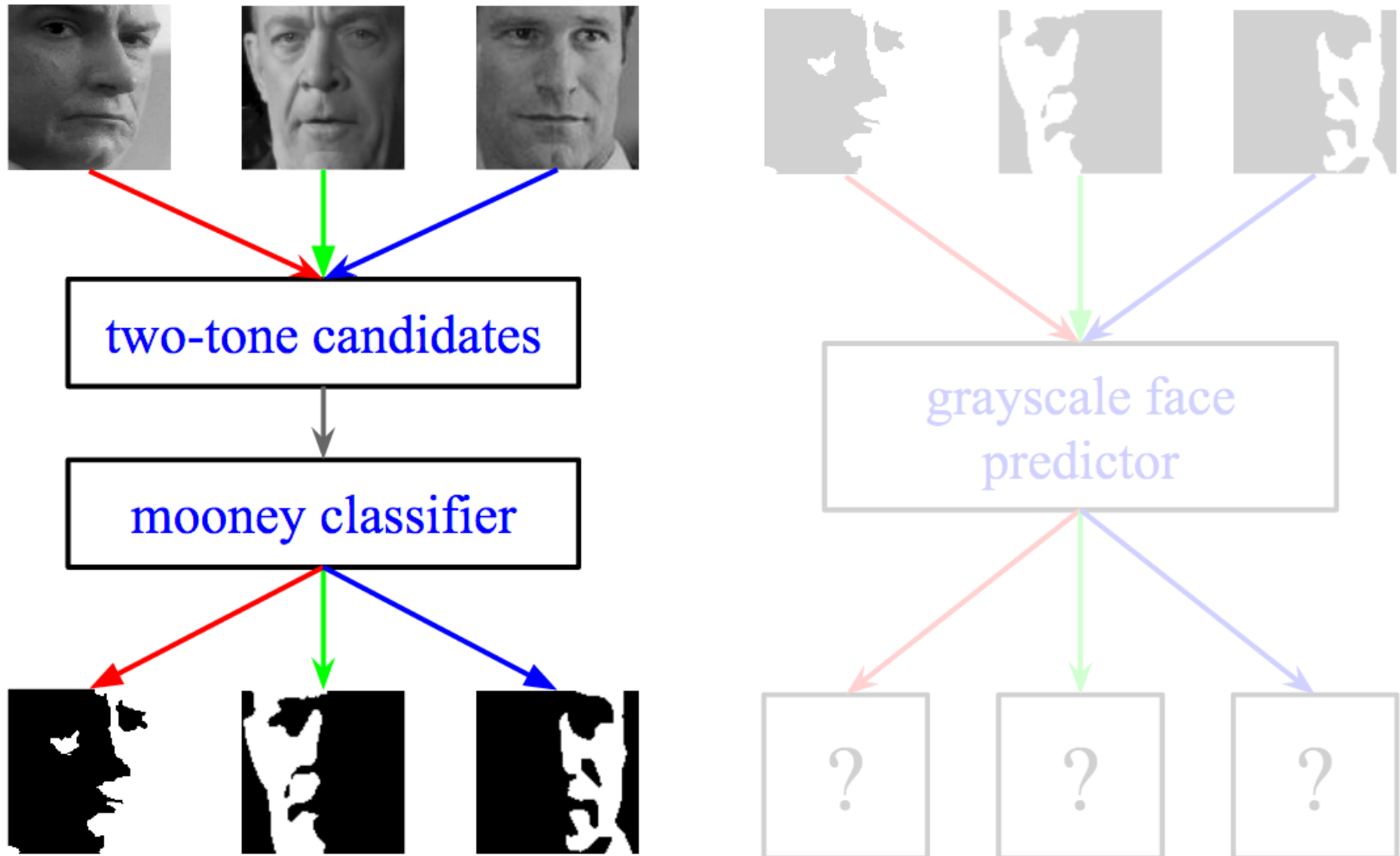


Generate Large Scale
Mooney Face Dataset

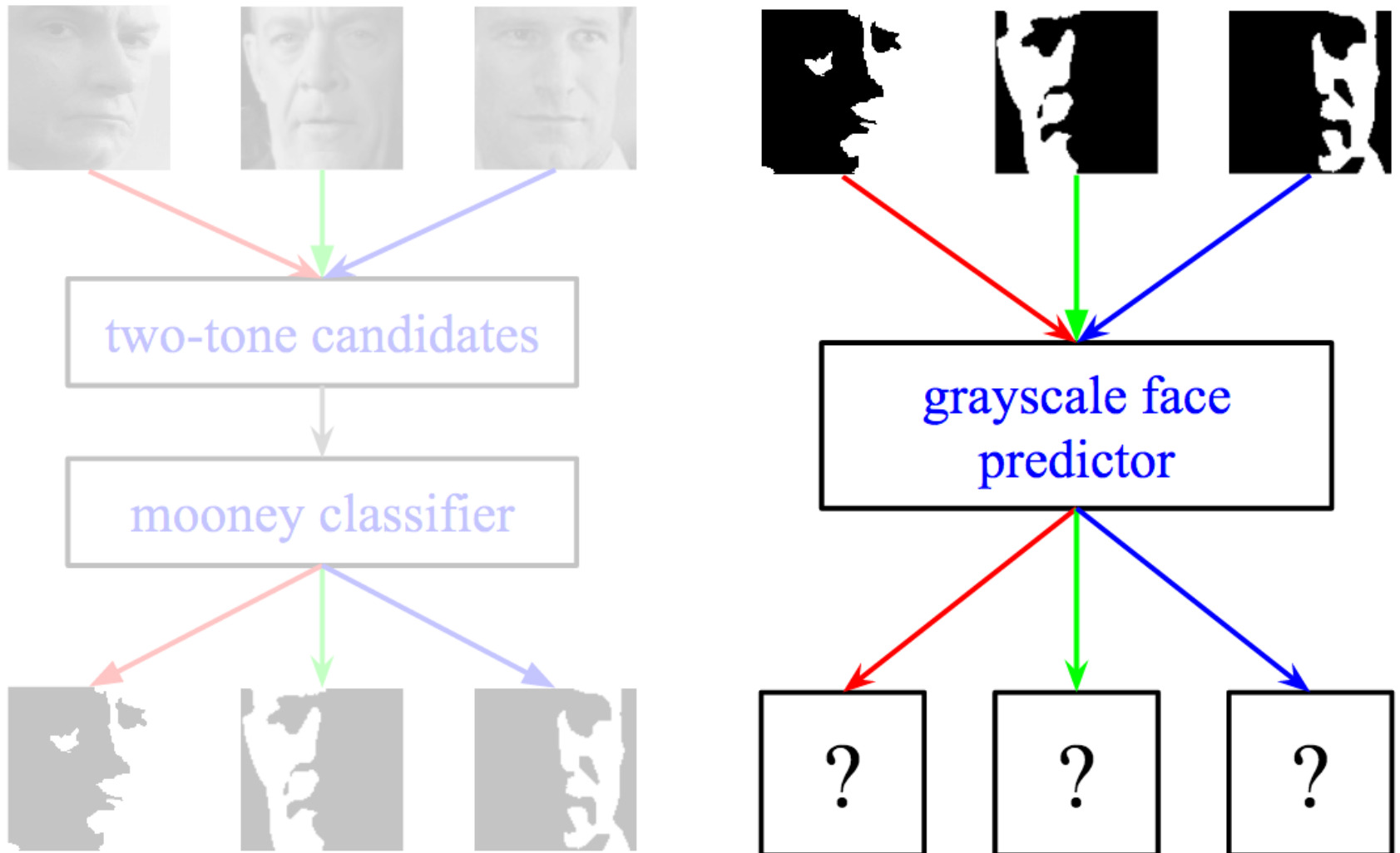
(✓)

Predict Source Photos
from Mooney Faces

We have a Large-Scale Mooney Face Dataset



Can We Predict GrayScale Face from Mooney Images?



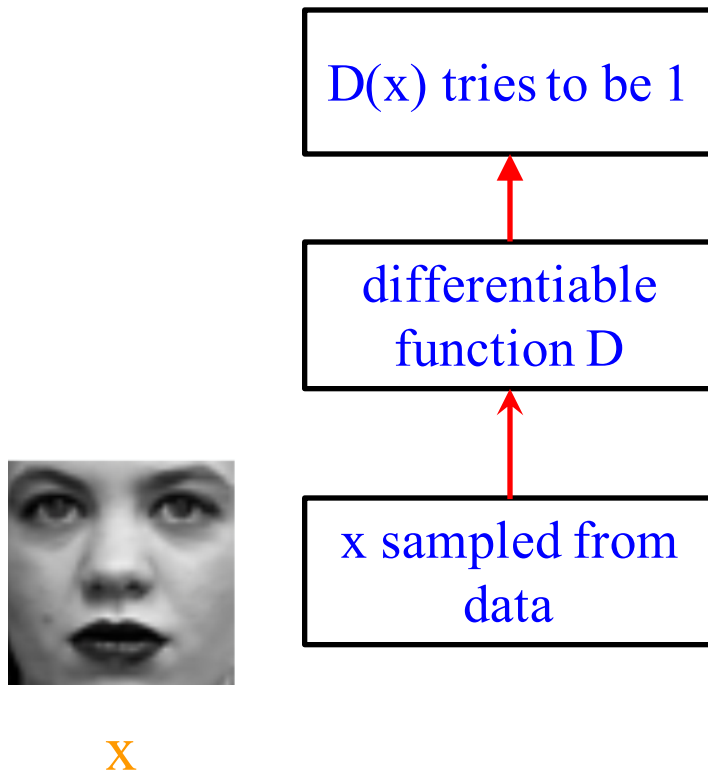
Generative Adversarial Network (GAN)



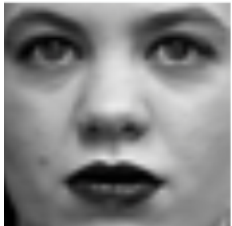
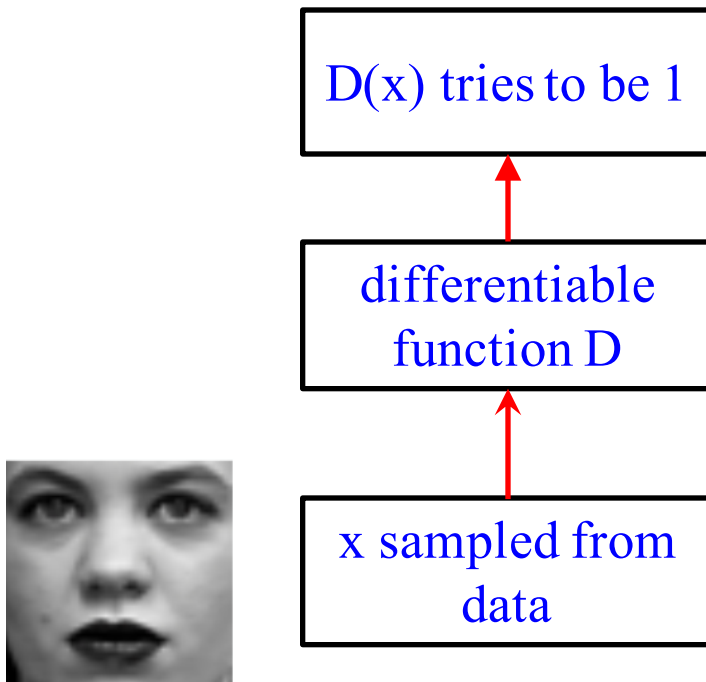
x sampled from
data

X

Generative Adversarial Network (GAN)



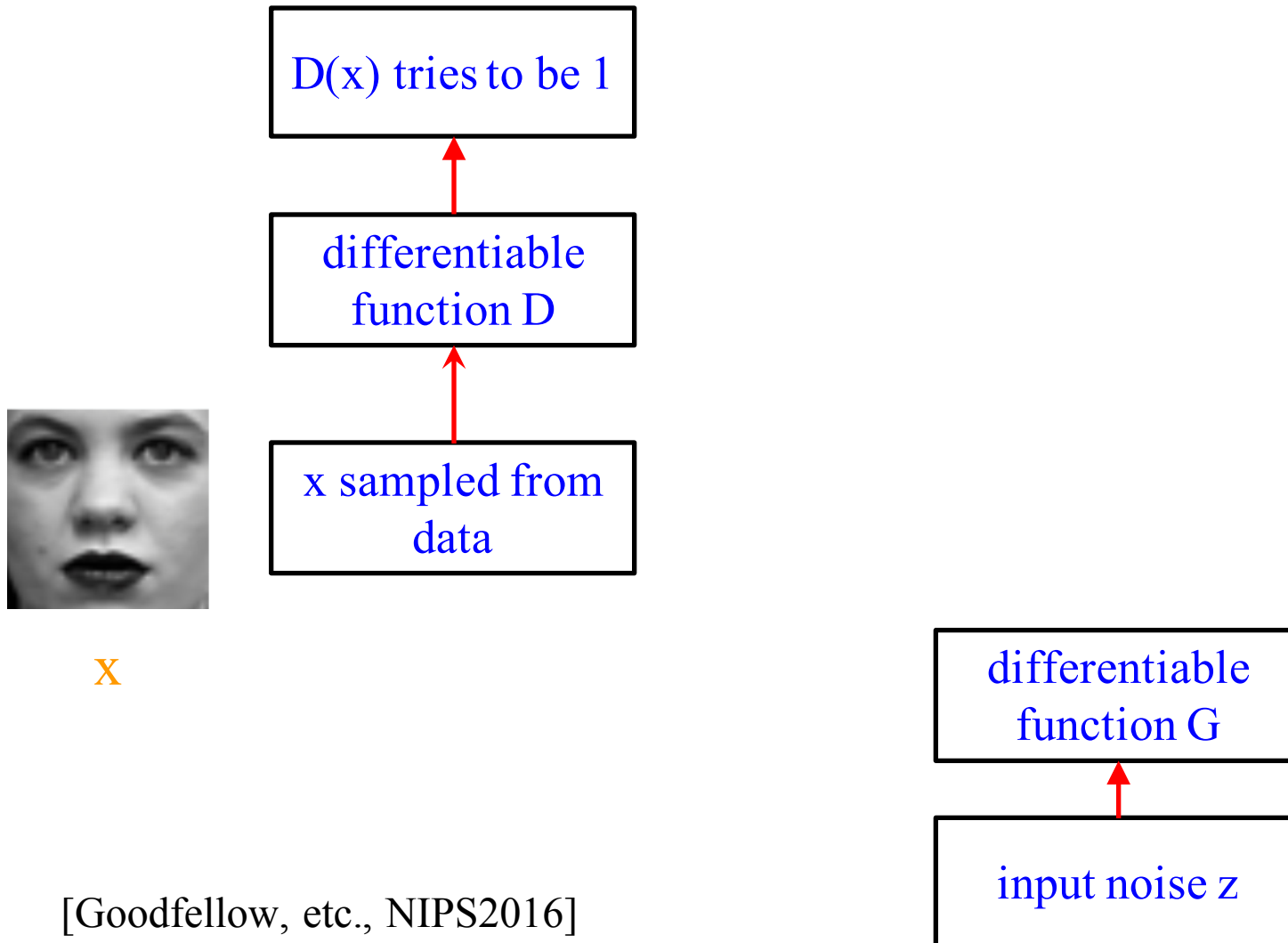
Generative Adversarial Network (GAN)



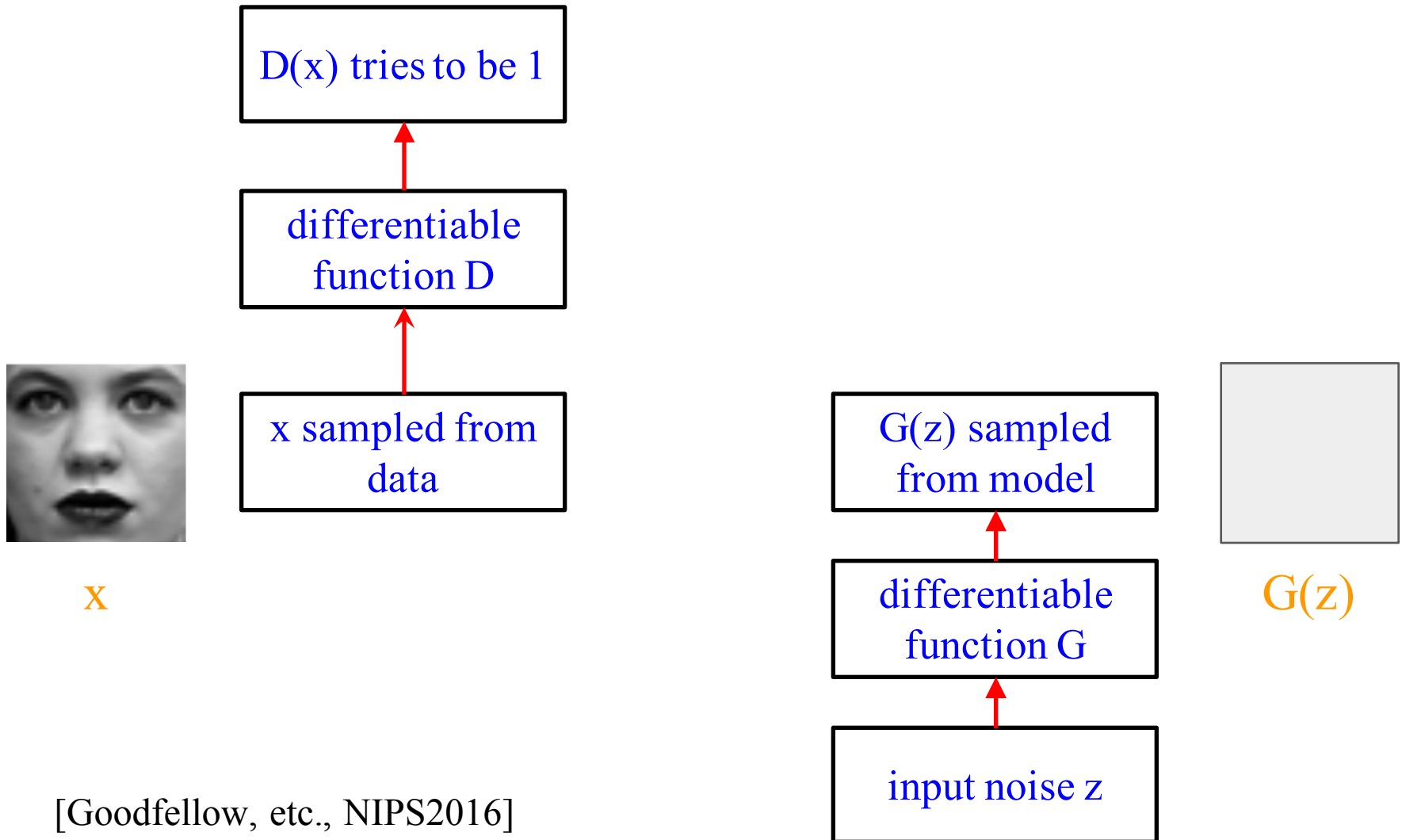
x

input noise z

Generative Adversarial Network (GAN)

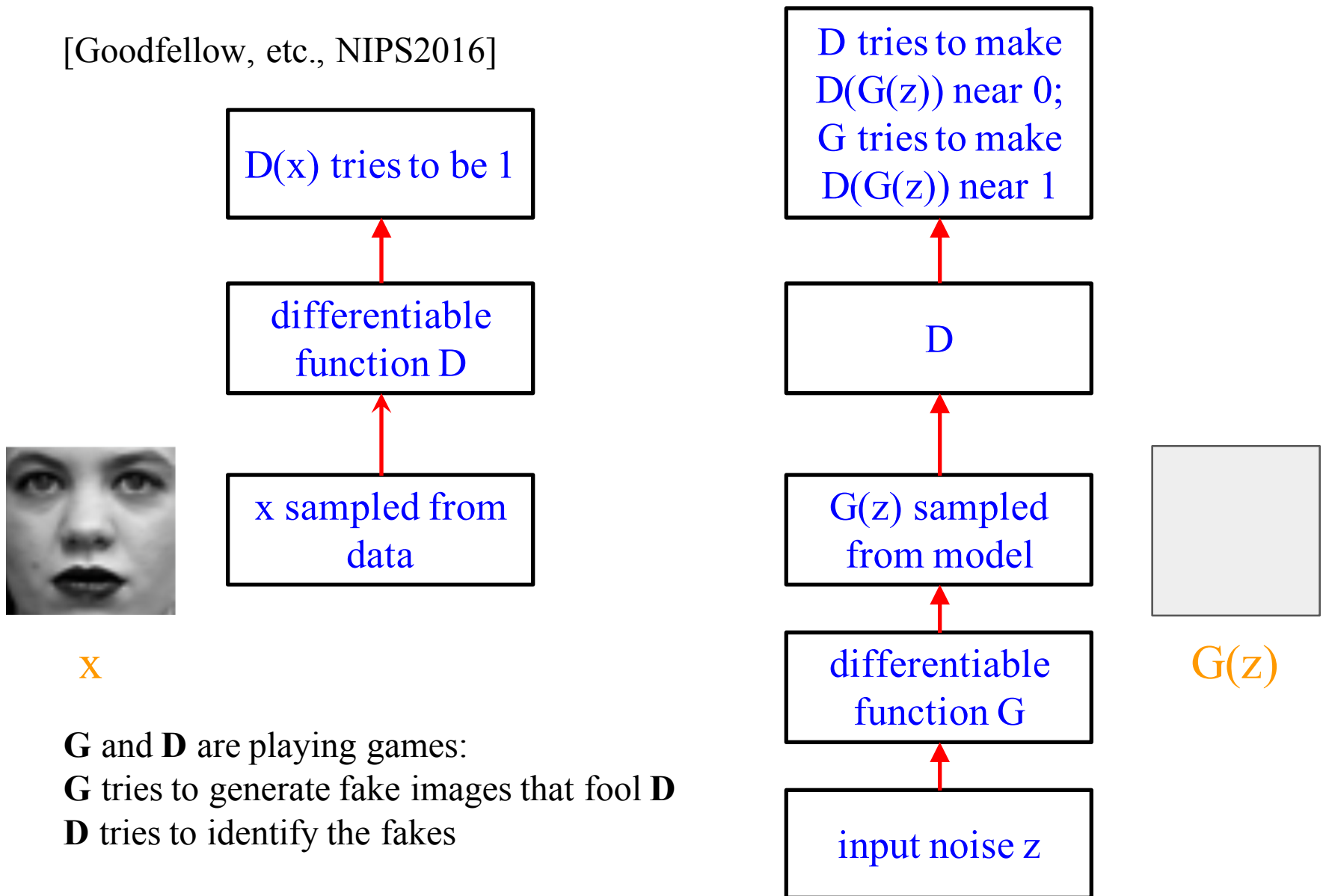


Generative Adversarial Network (GAN)



Generative Adversarial Network (GAN)

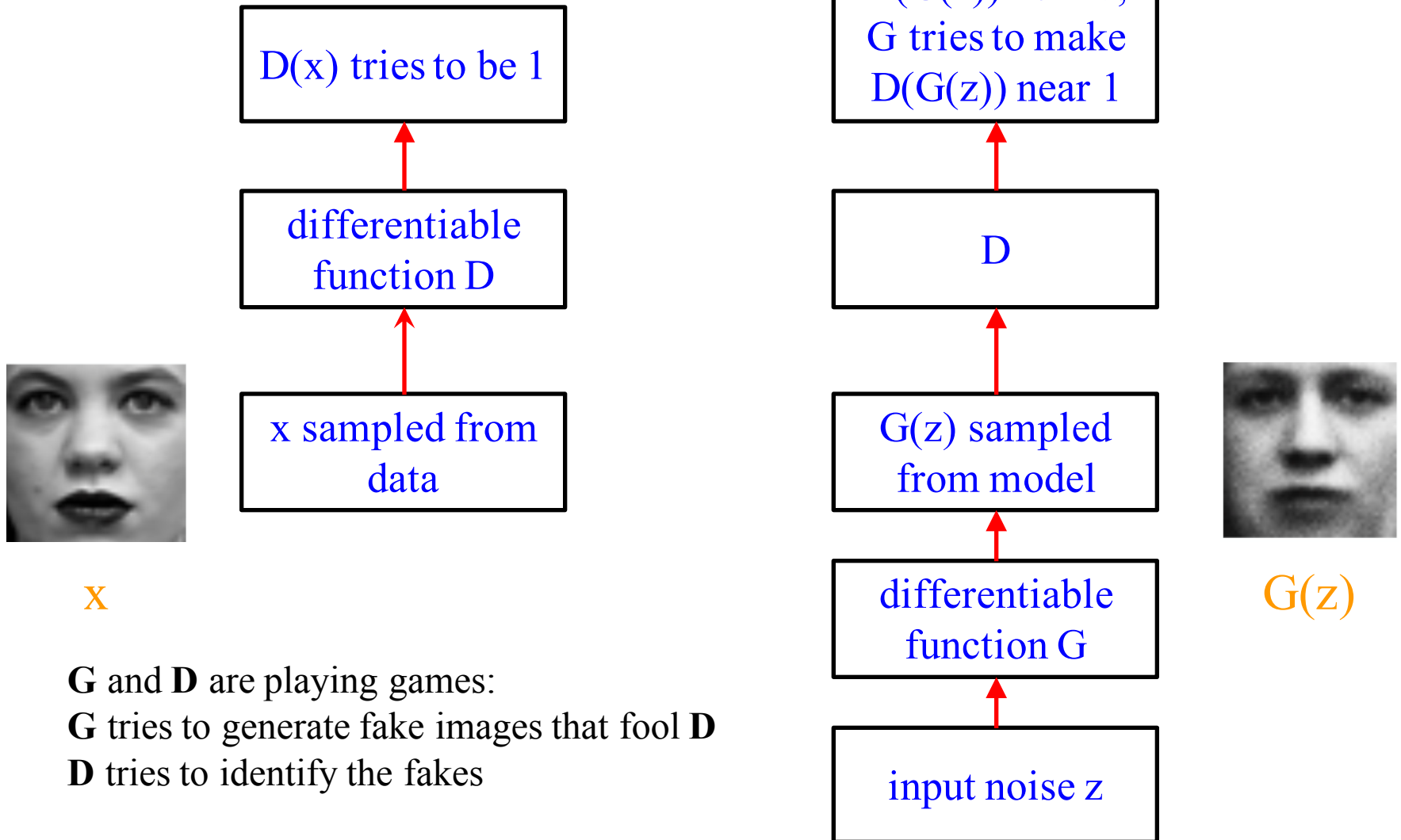
[Goodfellow, etc., NIPS2016]



G and **D** are playing games:
G tries to generate fake images that fool **D**
D tries to identify the fakes

Generative Adversarial Network (GAN)

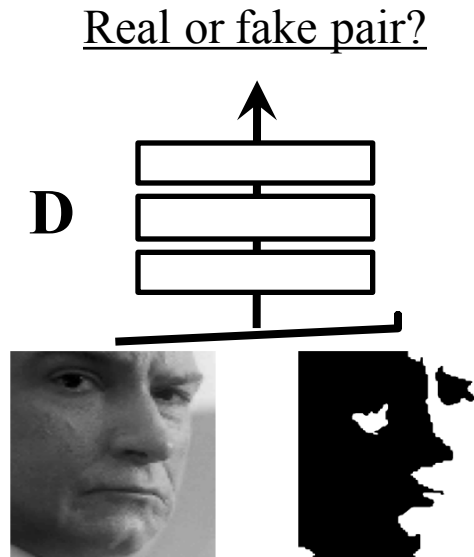
[Goodfellow, etc., NIPS2016]



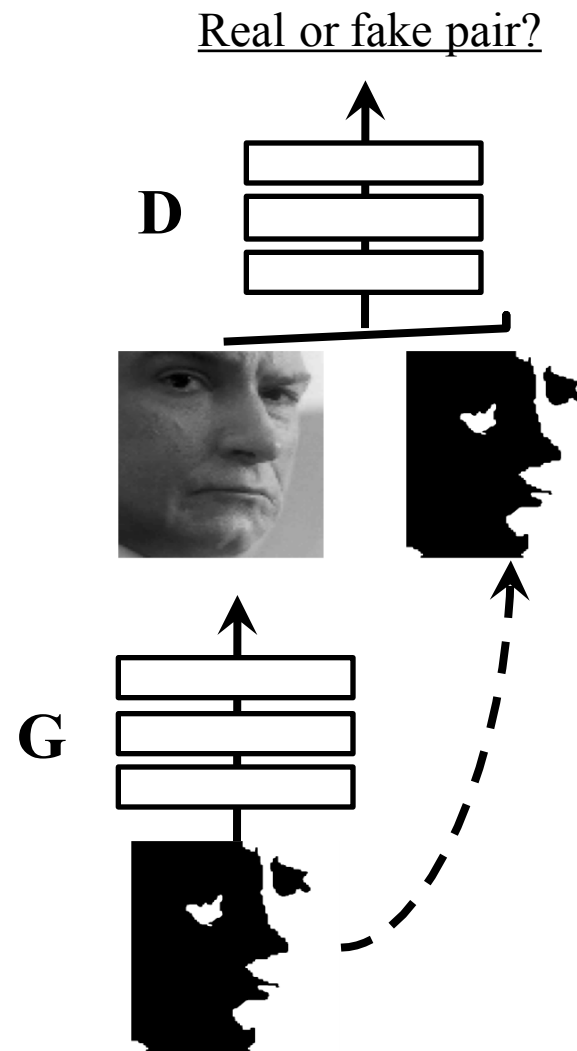
G and **D** are playing games:
G tries to generate fake images that fool **D**
D tries to identify the fakes

Predict GrayScale Face by GAN

Positive Examples



Negative Examples



Split dataset into training and testing set by identity

Faces in testing are never seen to **G** and **D**

[Isola, etc., CVPR2017]

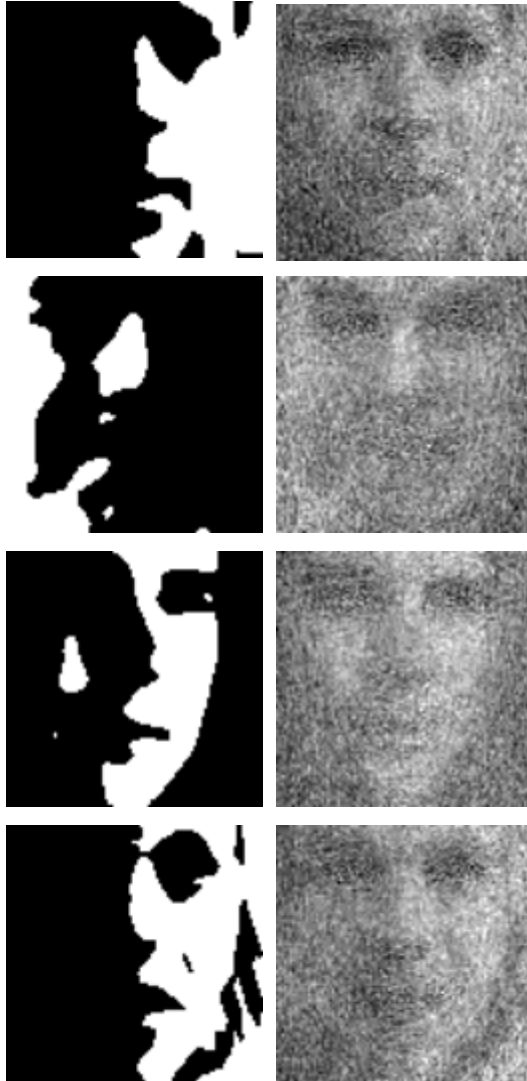
Prediction Results

input



Prediction Results

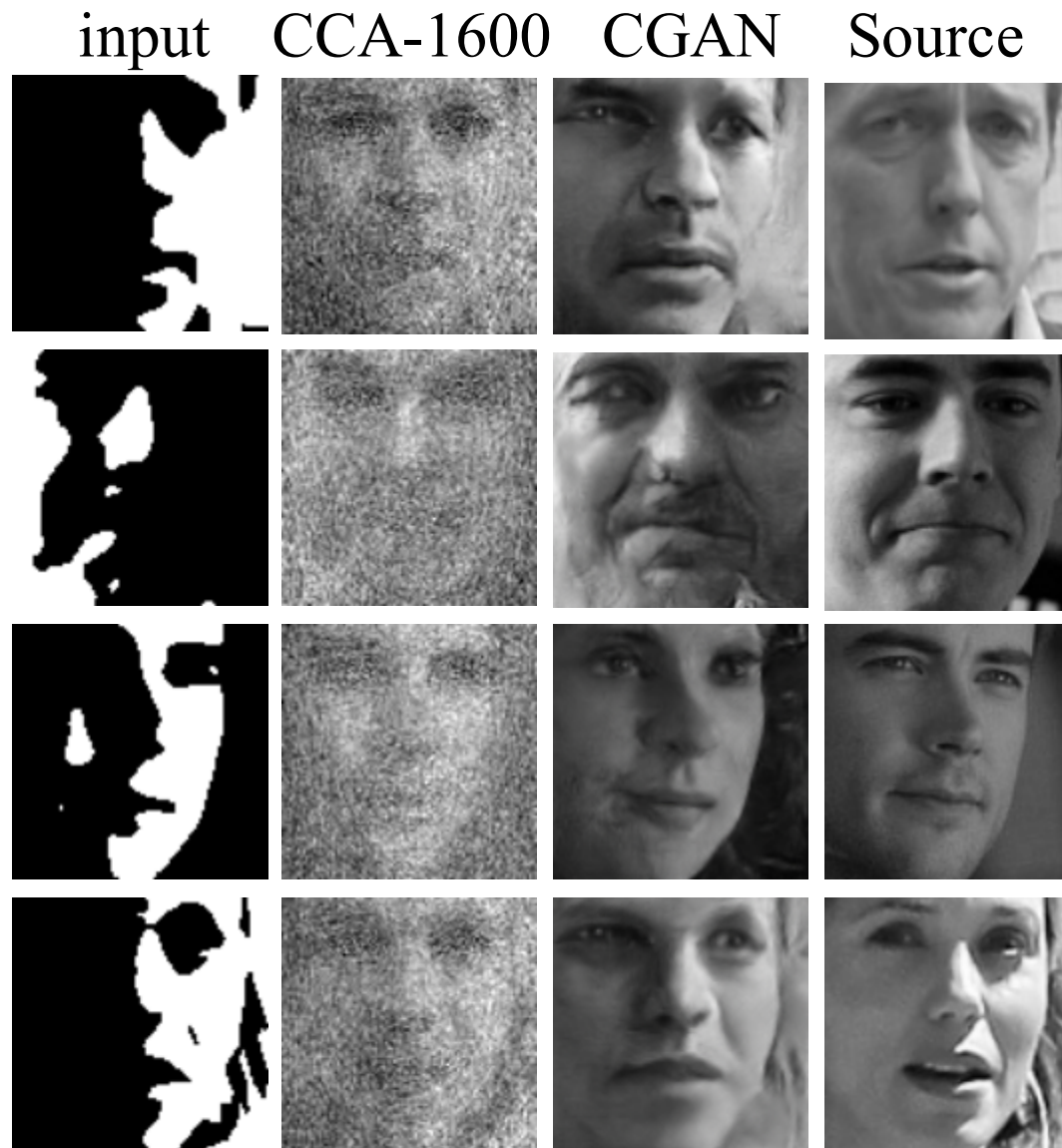
input CCA-1600



Prediction Results



Prediction Results



Prediction Results

input

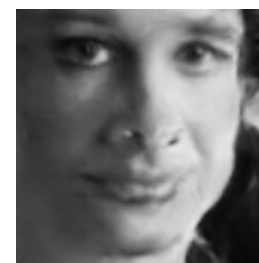
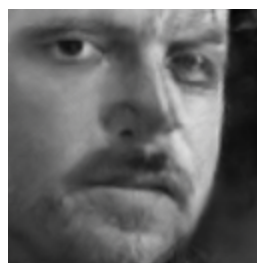
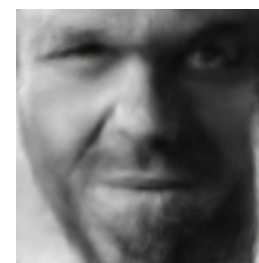
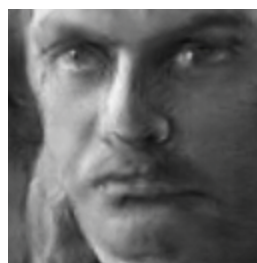
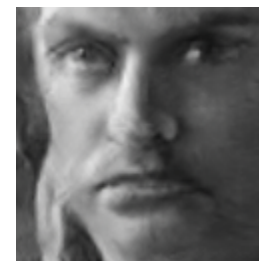
CGAN

input

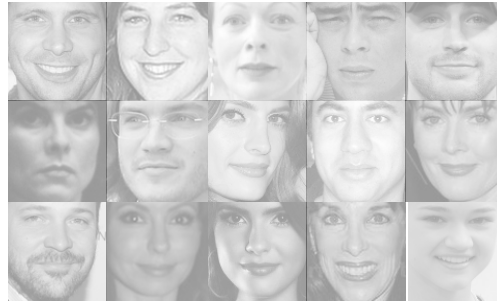
CGAN

input

CGAN



[Ng, and Winkler, ICIP2014]



Generate Large Scale
Mooney Face Dataset

(✓)

Predict Source Photos
from Mooney Faces

(✓)

Now We can predict source photos



Use our code and download dataset from
<https://mooney.icsi.berkeley.edu>