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Walt Disney ANIMATION STUDIOS

JUNE 2020 WEBINAR

Hands-on Workshop: Machine Learning and Neural Networks

SIGGRAPHNOW

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Machine Learning

Rajesh Sharma

Today

- Recap
- Convolutional Neural Network (CNN)
- Denoising
- Transfer Learning - Part 1

Questions

At what point do you decide that the model should be trained for longer vs. add another attribute to help in the classification.
Saeed Boorboor

Is the Latent Representation always smaller than Original Input? (have a bigger latent representation?)
Ricardo Rendich

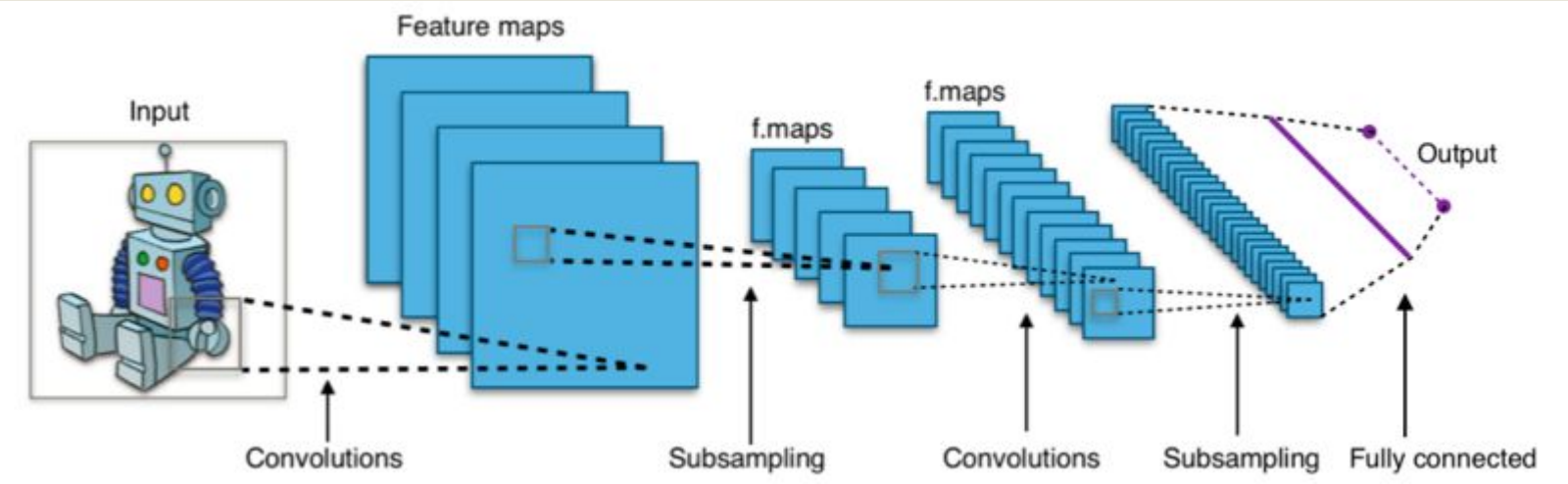
Would it make sense to have (lossless) image compression on the input images?
Anonymous Attendee

"....Does tensorflow have some tools for making new examples by translating pixels of existing ones?"
Joshua Catalano

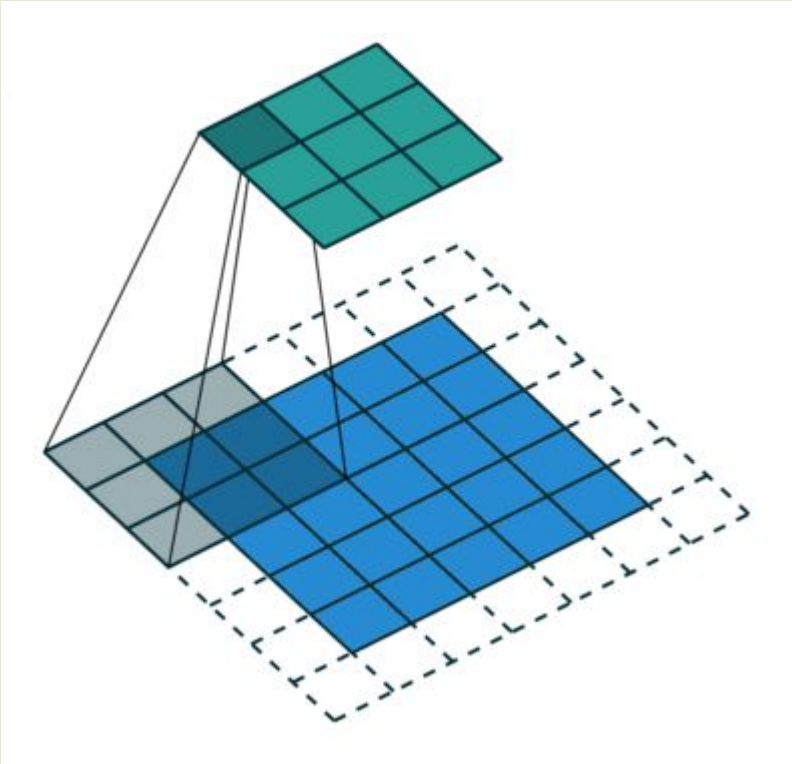
Is tensorflow better suited for computer graphics machine/deep learning tasks ?
Alberto Grimaudo

How do we retrieve the compressed data instead of the prediction from the network?)
Patrick Frigg

Convolutional Neural Network (CNN)



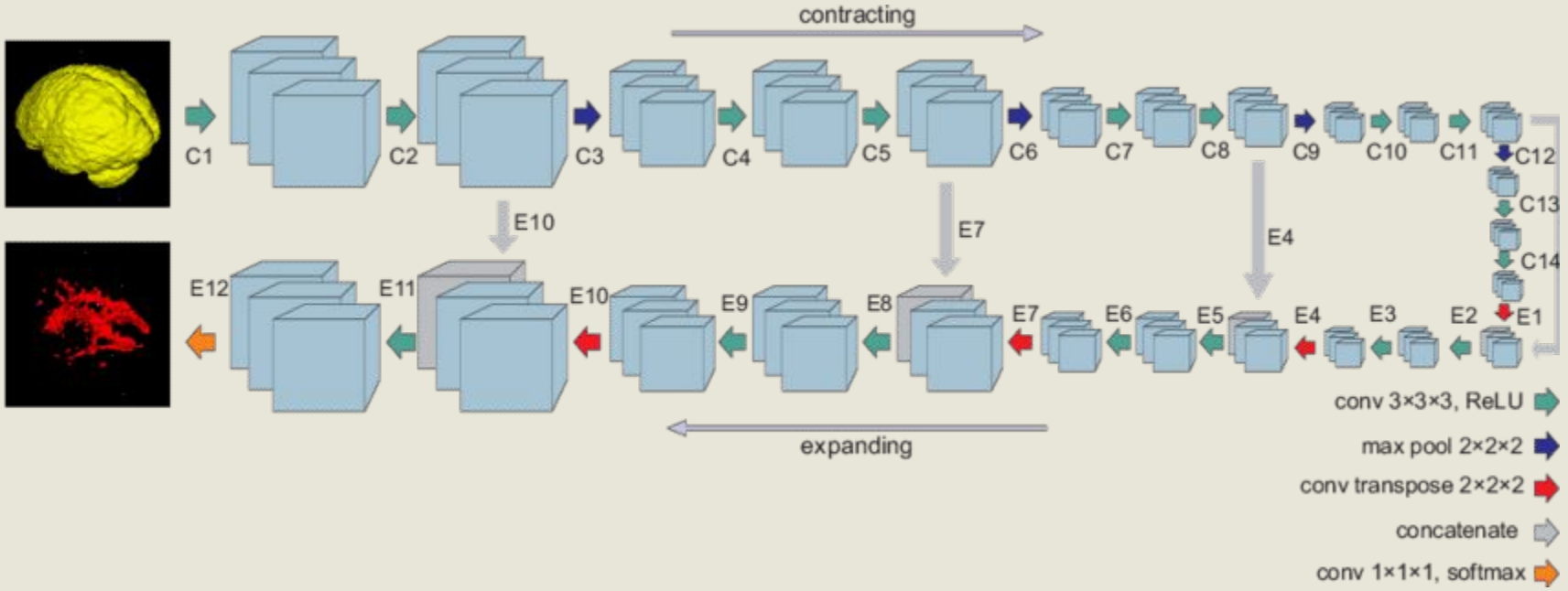
Convolution (Extract High-Level Features)



Hands-on

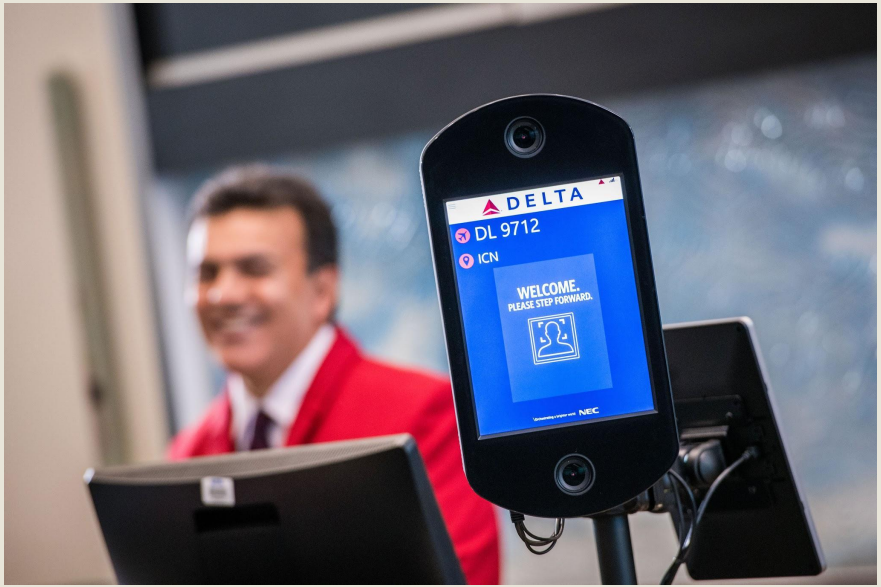
★ *denoiser.ipynb*

UNet/Residual Network (resnet)



Transfer Learning

Build a Facial Recognition System



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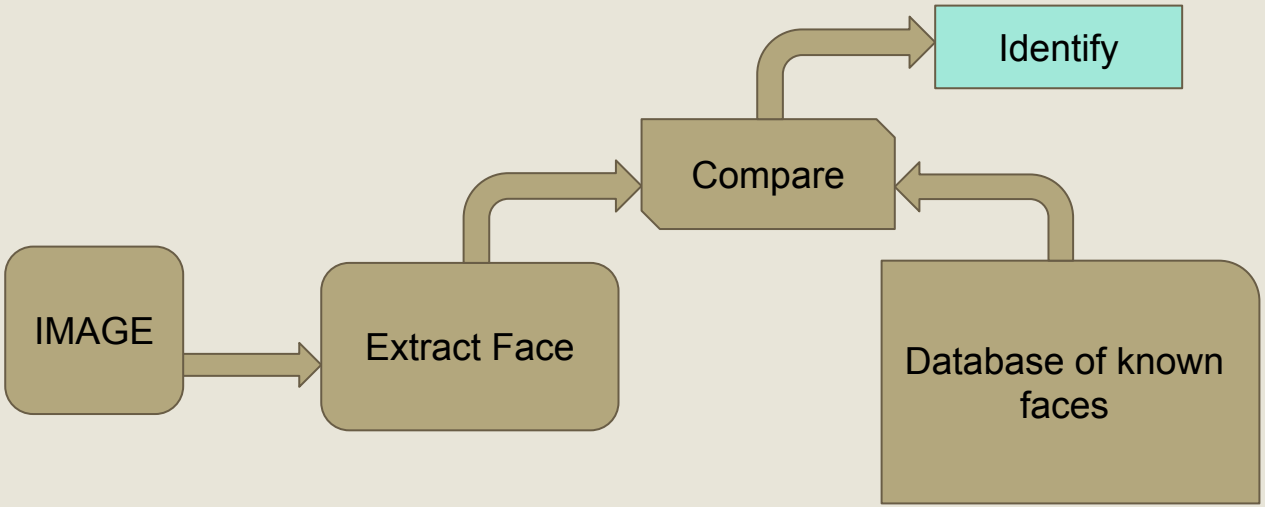
Transfer Learning

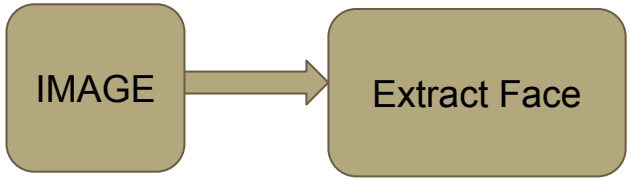
Build a Facial Recognition System



End to End System - Transfer Learning

-- Read Camera Input Stream
-- Isolate Faces
-- Compare with stored ground truth
-- Identify person

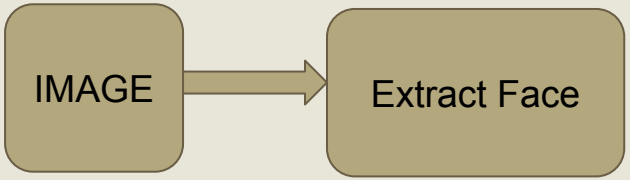
Extracting Faces -- Haar Cascades

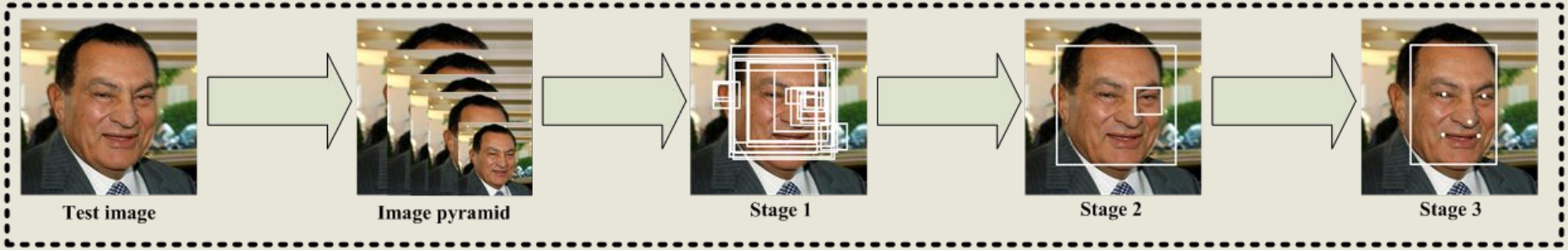


End to End System - Transfer Learning

-- Use other people's trained network
-- Add in your own data

Extracting Faces -- MT-CNN



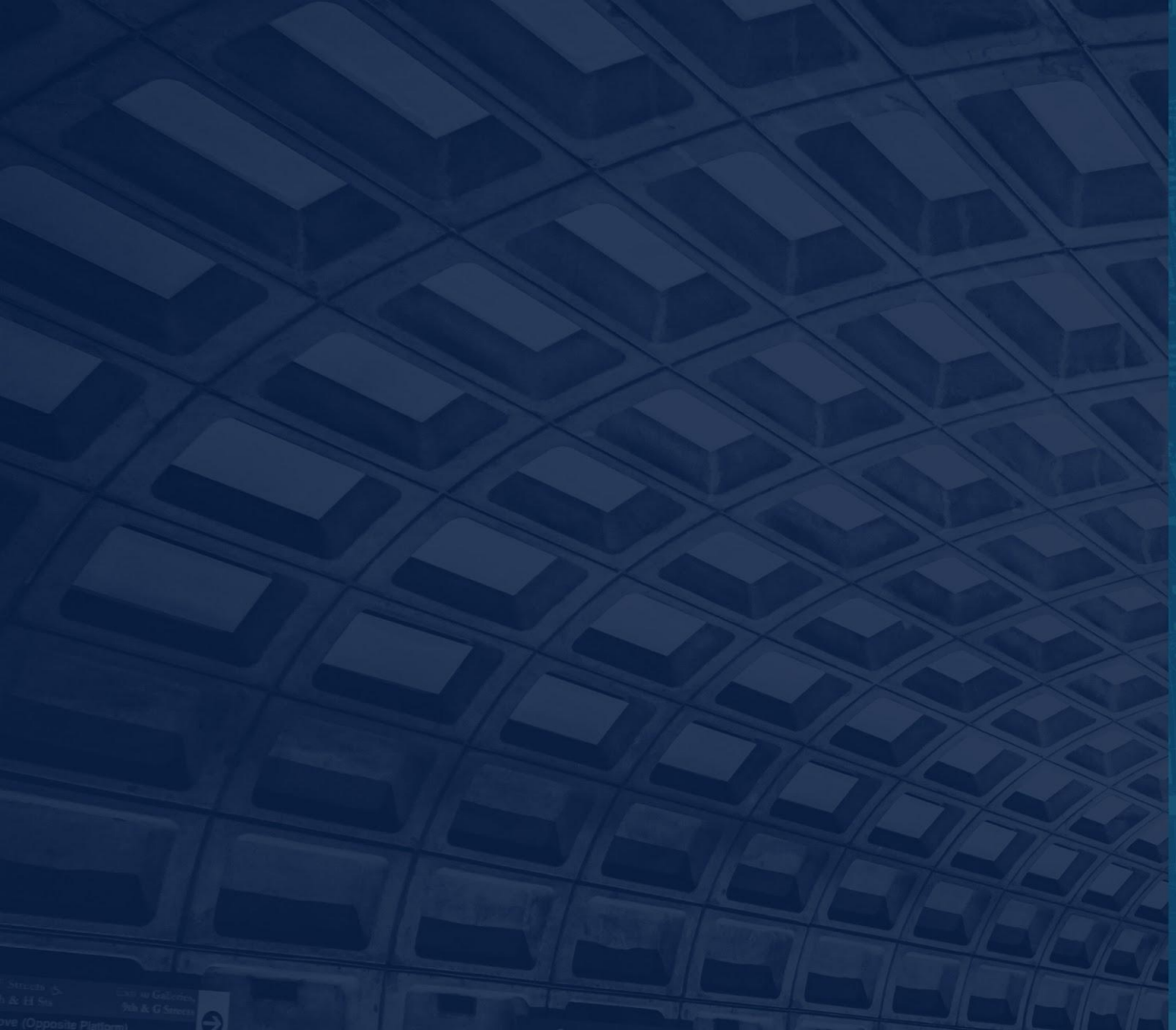


Hands-on

- ***facialRecognition01.ipynb***

Next Class

- Finish facial recognition
- Generative Networks: Variational AE
- Homework:
  - Try other kinds of ‘denoising’
  - Send two portraits for facial recog
- @xarmalarma, #siggraphNOW



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QUESTIONS?

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THANK YOU

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