

Fundamentals of Deep Learning

Part 4: Data Augmentation and Deployment



Agenda

- Part 1: An Introduction to Deep Learning
- Part 2: How a Neural Network Trains
- Part 3: Convolutional Neural Networks
- Part 4: Data Augmentation and Deployment
- Part 5: Pre-Trained Models
- Part 6: Advanced Architectures



Recap of the Exercise

Analysis

- CNN increased validation accuracy
- Still seeing training accuracy higher than validation



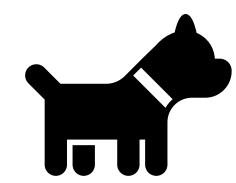
Recap of the Exercise

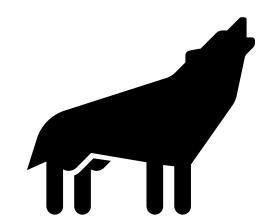
Analysis

Solution

- CNN increased validation accuracy
- Still seeing training accuracy higher than validation
- Clean data provides better examples
- Dataset variety helps the model generalize











Data Augmentation

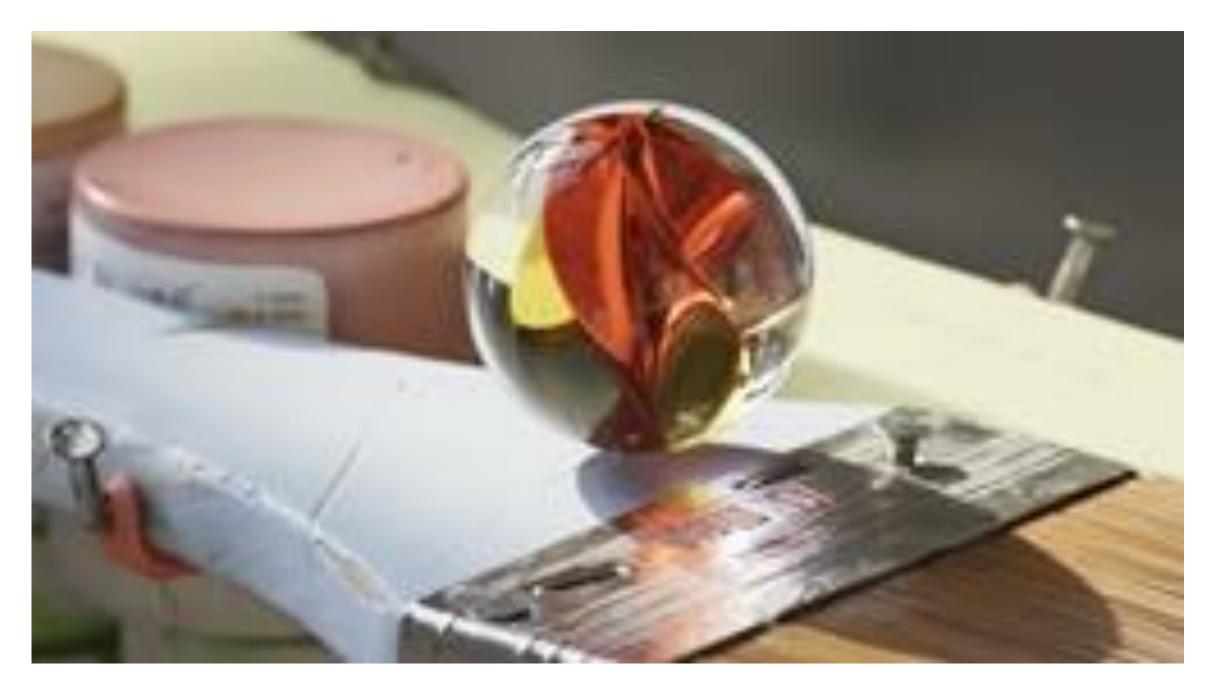






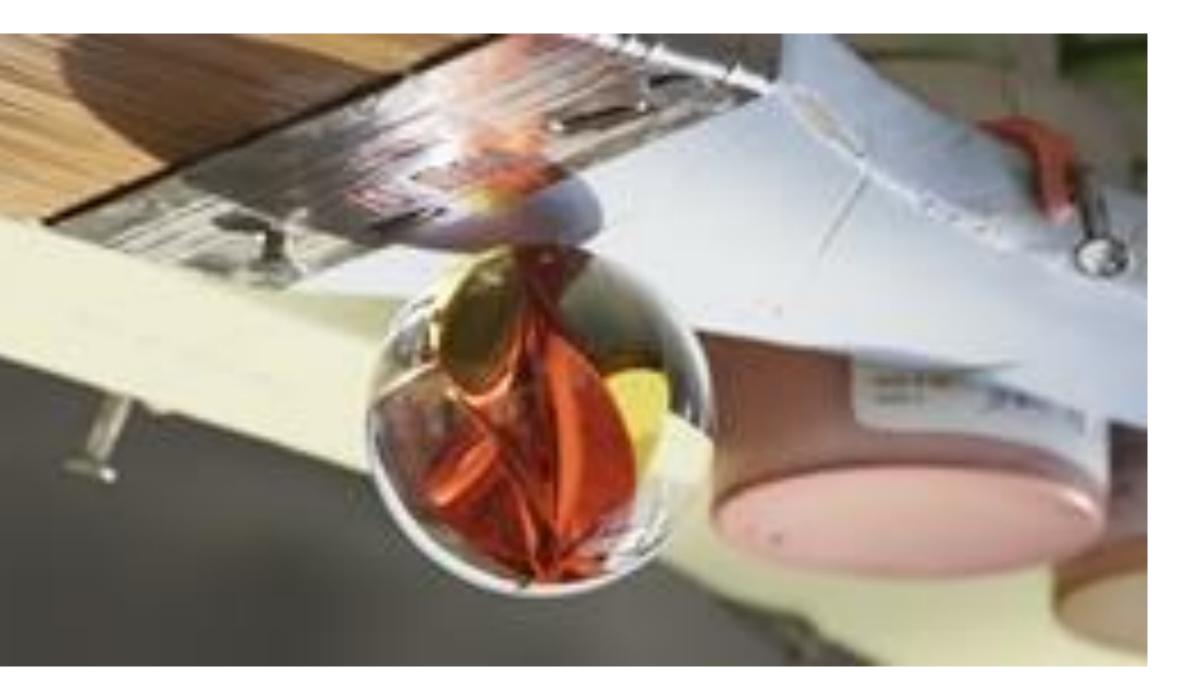
Image Flipping

Horizontal Flip



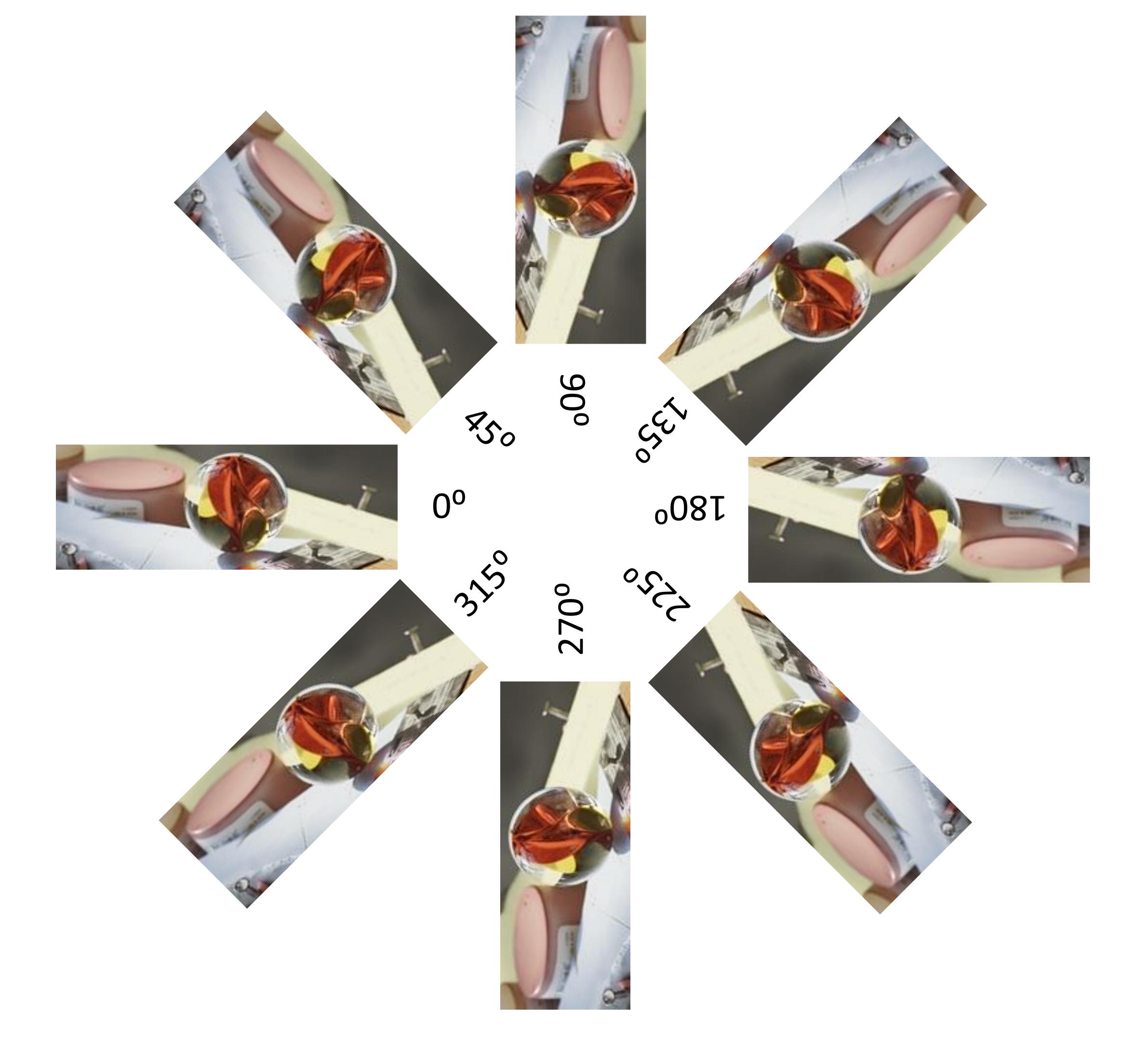






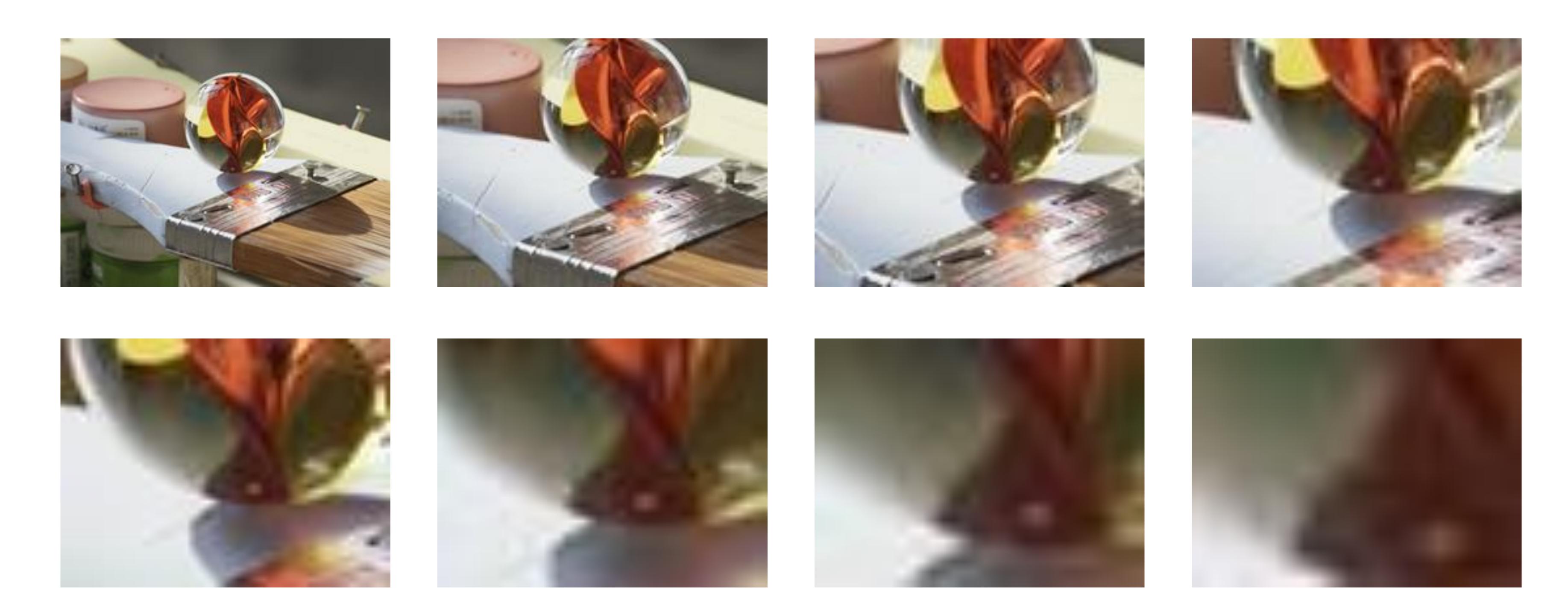
Vertical Flip

Rotation





Zooming

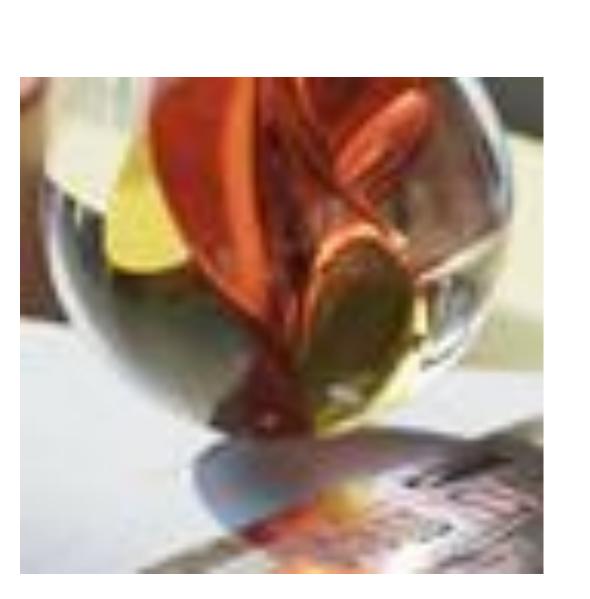


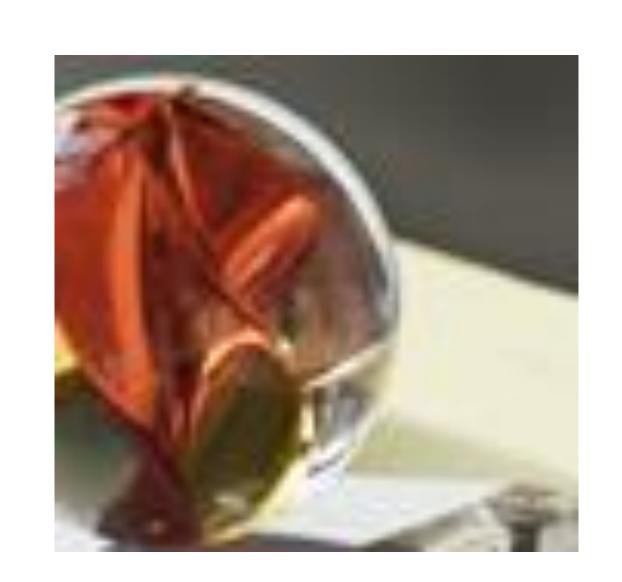
Width And Height Shifting





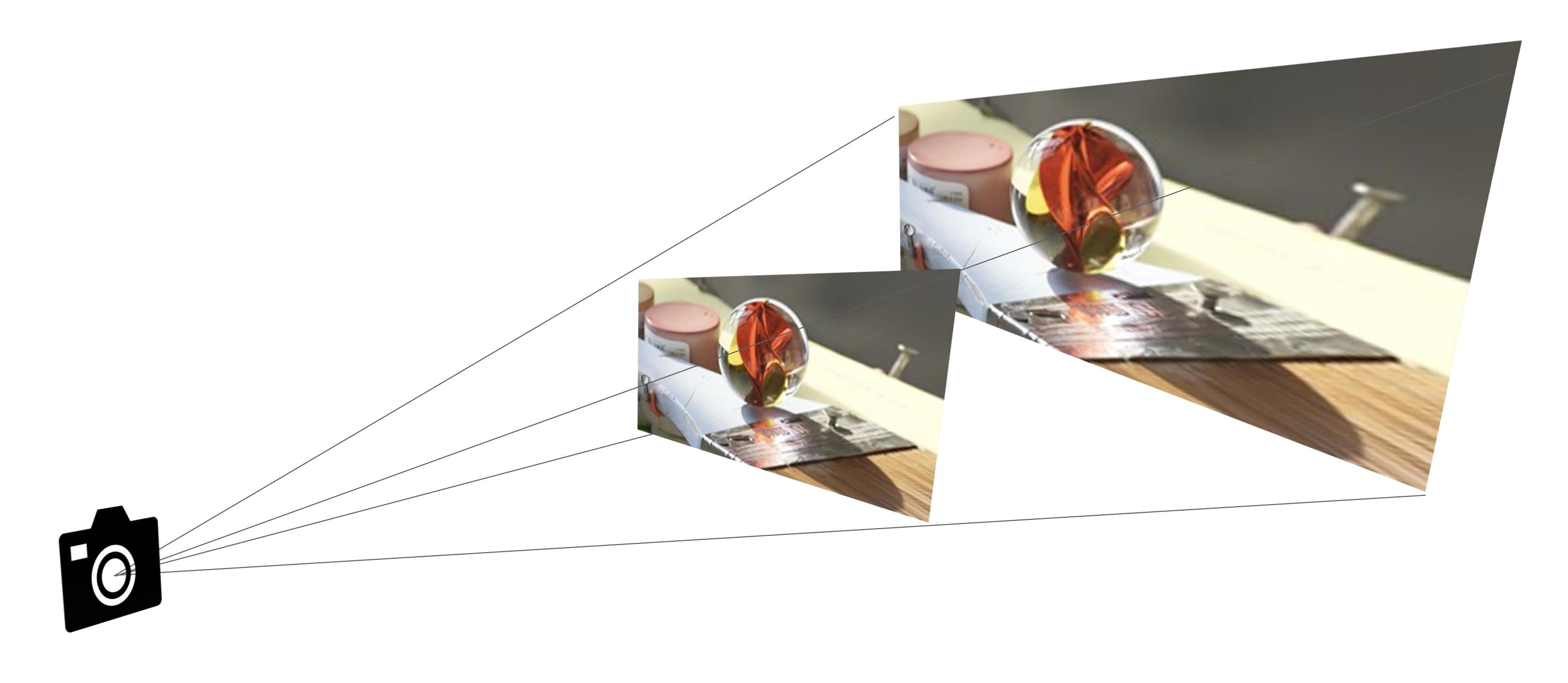






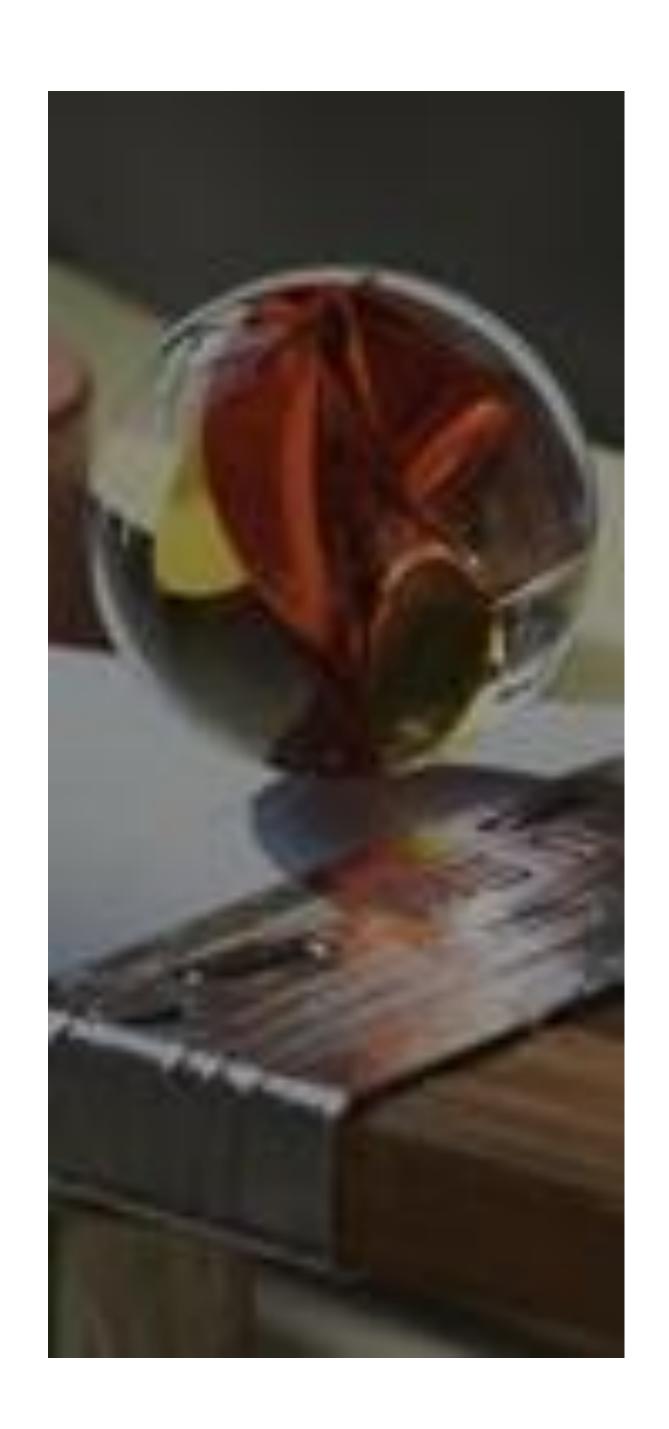


Homography





Brightness













Channel Shifting







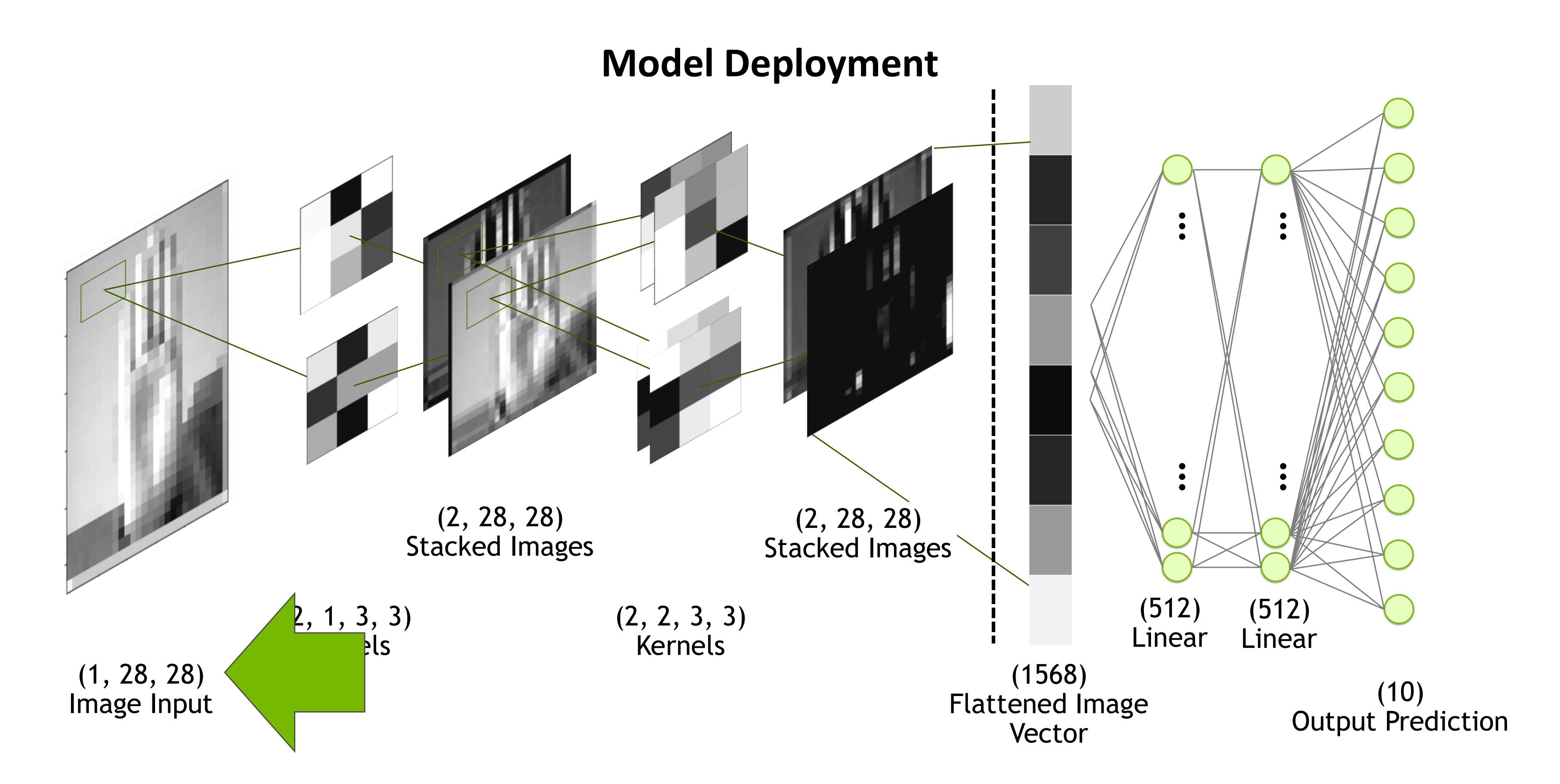










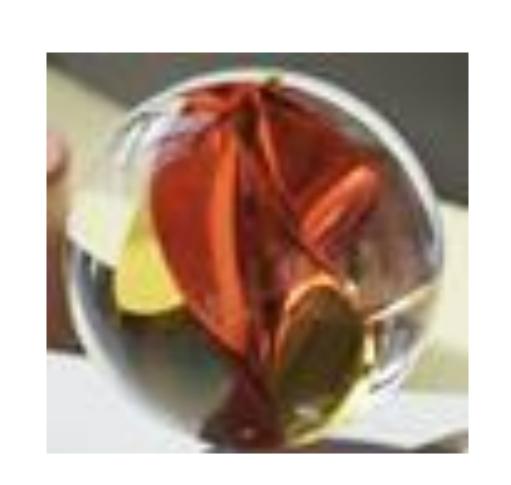




Model Deployment

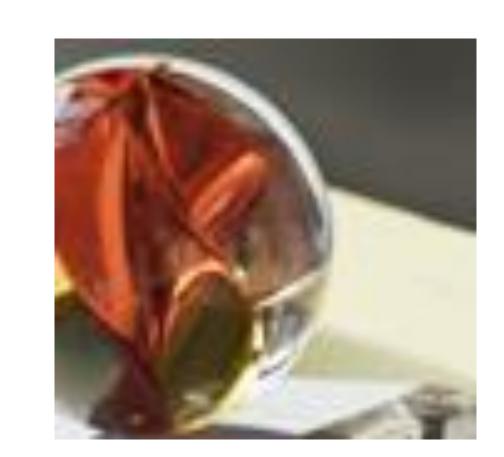
Training Batch Input











Convolution

Max Pooling

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Model Deployment



Greyscale

Resize

"Batch"



