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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

AGENDA – PART 4

- Data Augmentation
- Model Deployment

RECAP OF THE EXERCISE

Analysis

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

Solution

- Clean data provides better examples
- Dataset variety helps the model generalize

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DATA AUGMENTATION

DATA AUGMENTATION

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IMAGE FLIPPING

Horizontal Flip

Vertical Flip

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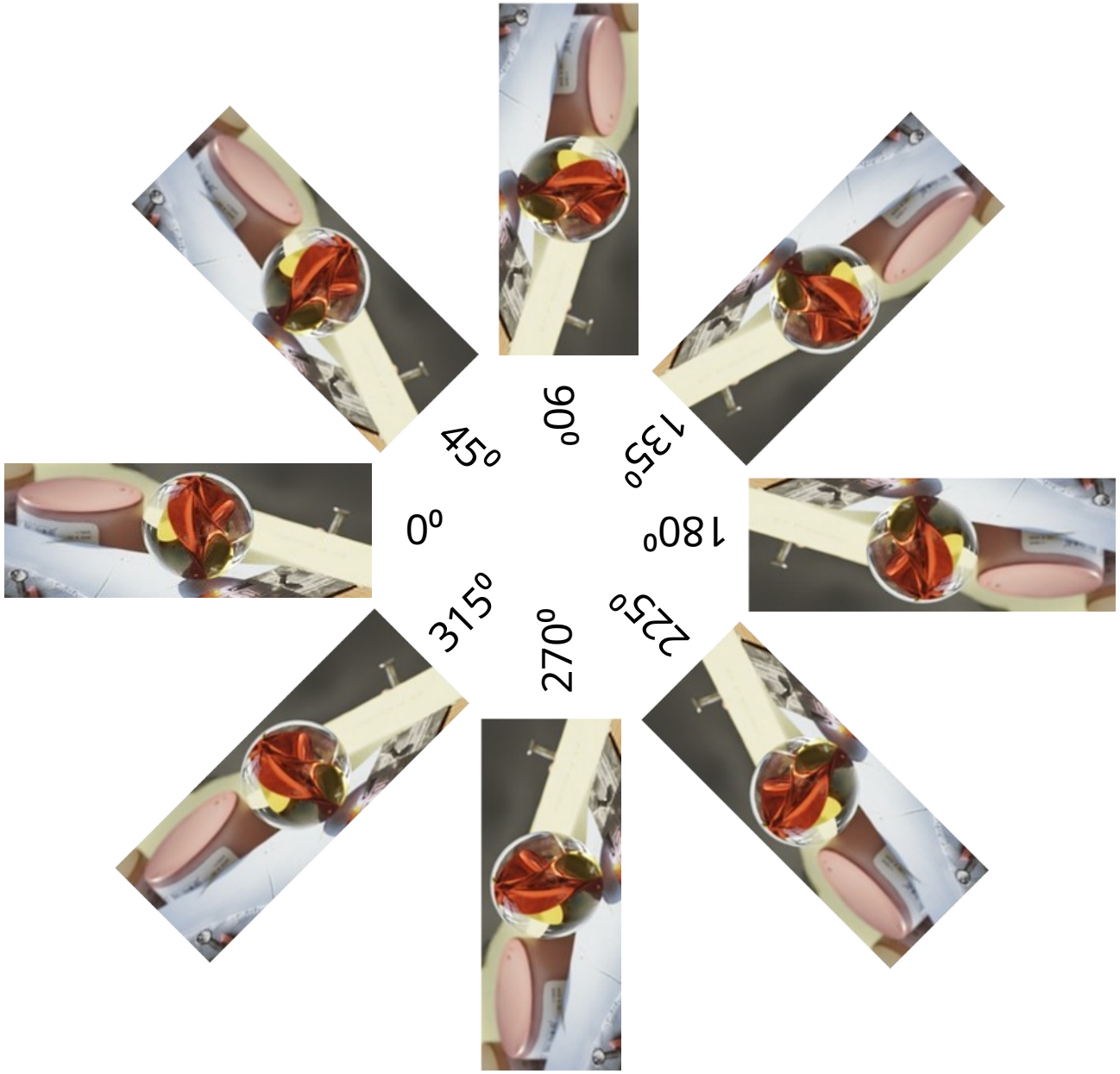
ROTATION



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ZOOMING

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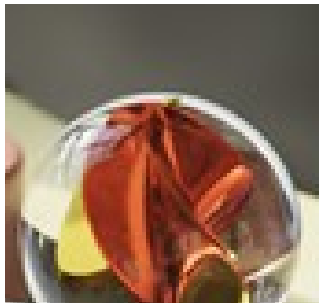
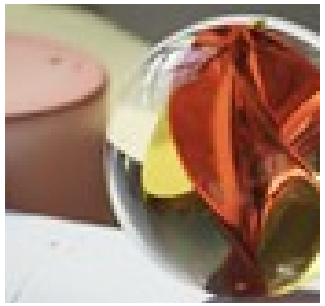
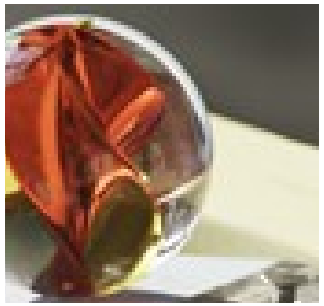
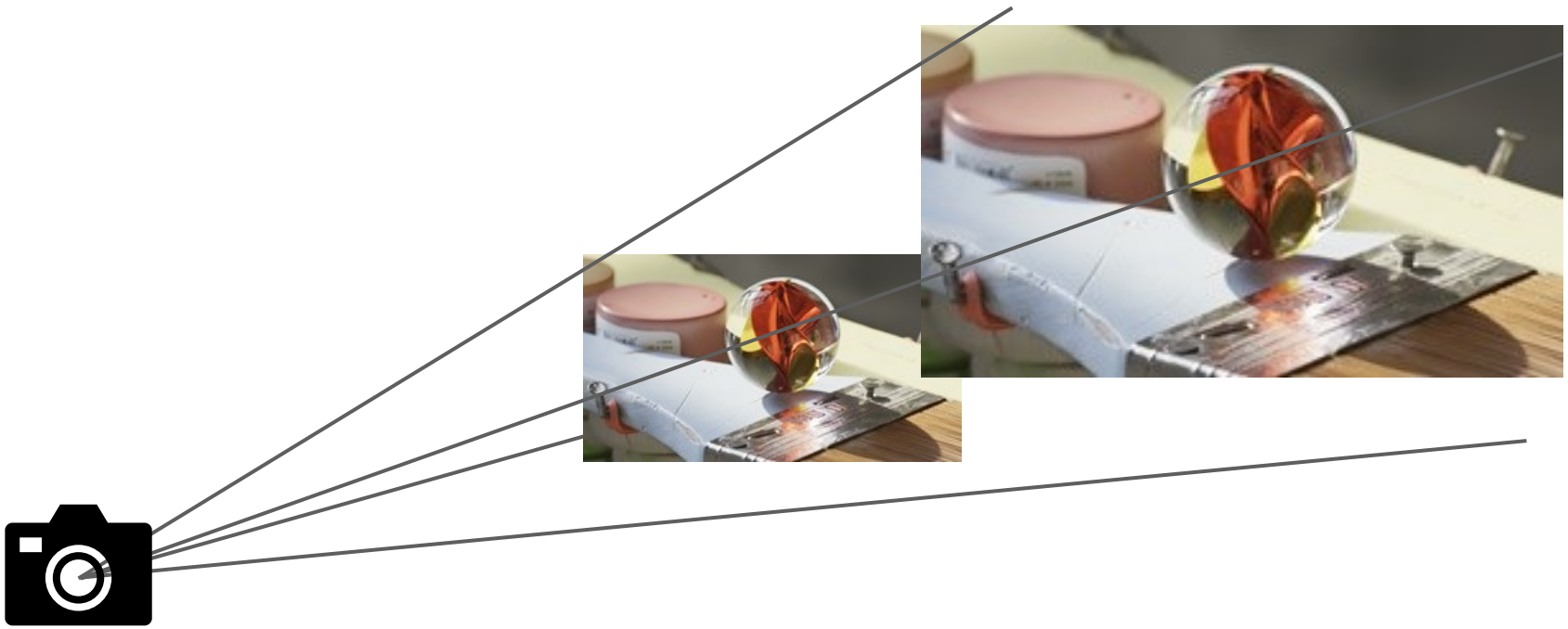
WIDTH AND HEIGHT SHIFTING







HOMOGRAPHY



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BRIGHTNESS

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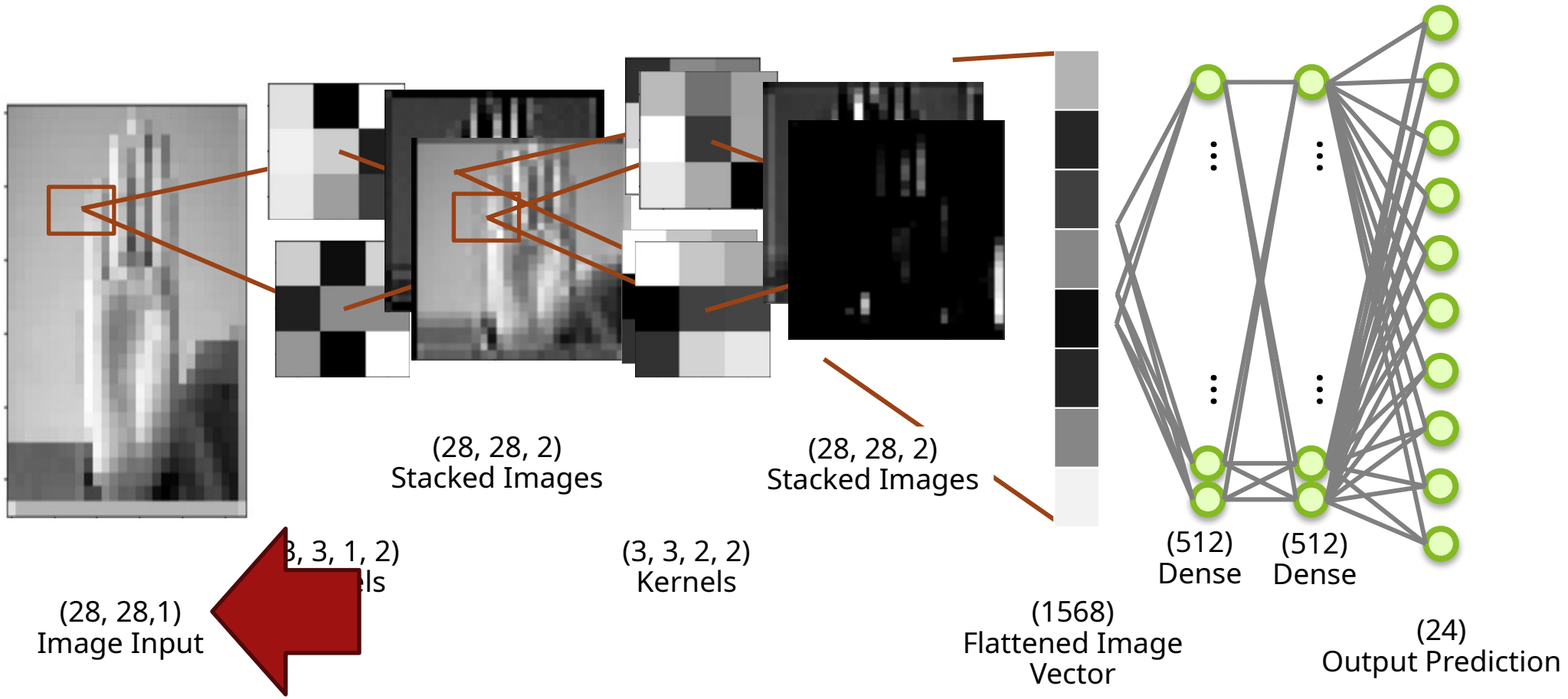
CHANNEL SHIFTING

MODEL DEPLOYMENT

MODEL DEPLOYMENT



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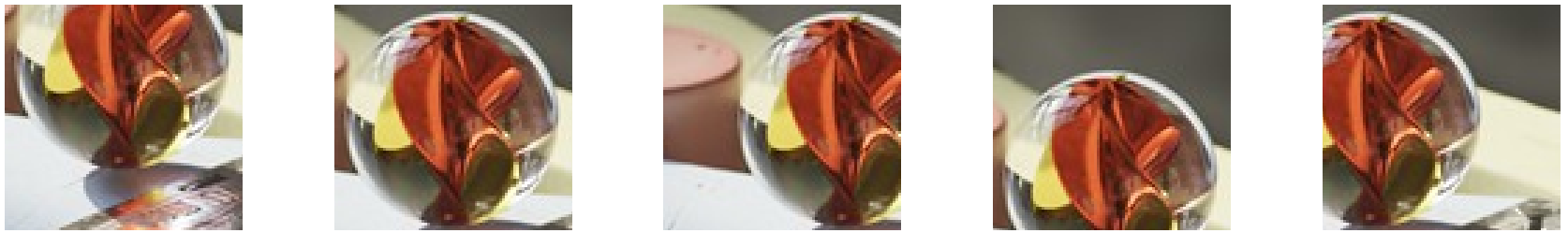
MODEL DEPLOYMENT

Training Batch Input



Convolution

Max Pooling

...

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MODEL DEPLOYMENT

(287, 433, 3)

(220, 155, 3)

(220, 155, 1)

(1, 220, 155, 1)

Resize

Greyscale

“Batch”

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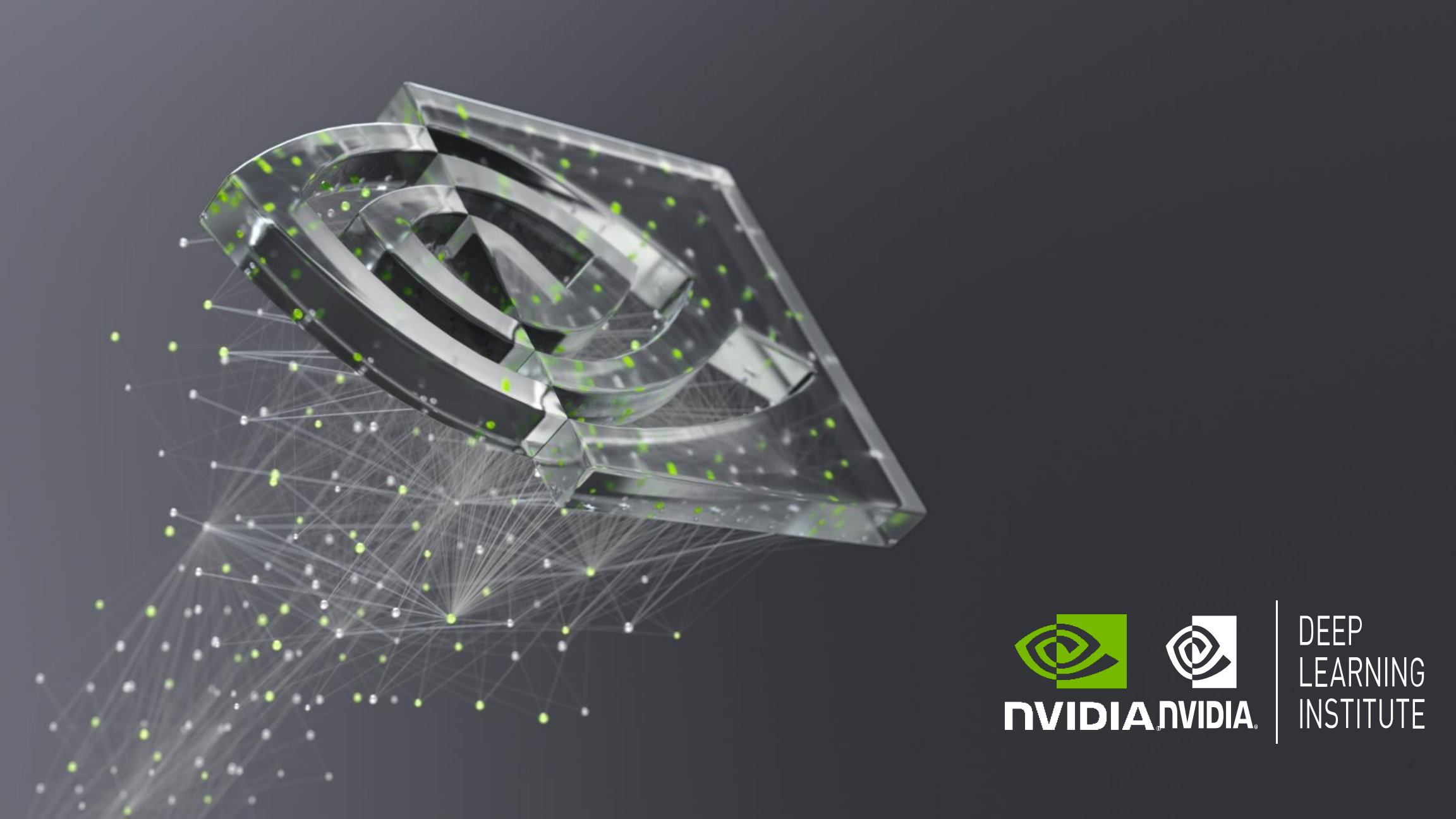
LET’S TRY IT OUT!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