## Convolutional Networks: Structured Outputs

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## **Topics in Convolutional Networks**

- Overview
- 1. The Convolution Operation
- 2. Motivation
- 3. Pooling
- 4. Convolution and Pooling as an Infinitely Strong Prior
- 5. Variants of the Basic Convolution Function
- 6. Structured Outputs
- 7. Data Types
- 8. Efficient Convolution Algorithms
- 9. Random or Unsupervised Features
- 10. The Neuroscientific Basis for Convolutional Networks
- 11. Convolutional Networks and the History of Deep Learning

## CNNs to output high-dimensional object

## Recurrent CNN for pixel labeling

