CNN Architecture - Quick Draw Classifier

INPUT

(28 × 28 × 1)

Grayscale Image

28×28

Conv2D (32 filters, 3×3, ReLU)

(26 × 26 × 32)

- **Detects edges, simple shapes**
- Receptive field: 3×3 pixels
- Parameters: 320

26×26×32

MaxPool (2×2)

(13 × 13 × 32)

- **Spatial downsampling**
- Translation invariance

13×13×32

Conv2D (64 filters, 3×3, ReLU)

(11 × 11 × 64)

- **Detects complex patterns**
- Effective receptive field: 7×7 pixels
- Parameters: 18,496

11×11×64

MaxPool (2×2)

(5 × 5 × 64) = 1,600

- **Further downsampling**
- 1,600 extracted features

5×5×64

Flatten

1D Vector: 1,600 features

Dropout (0.5)

- **Regularization layer**
- Randomly drops 50% of neurons
- Prevents overfitting

Dense (20, softmax)

20 Classes

- **Classification layer**
- Parameters: 32,020

×20

Total Parameters: 50,836 (~50K)