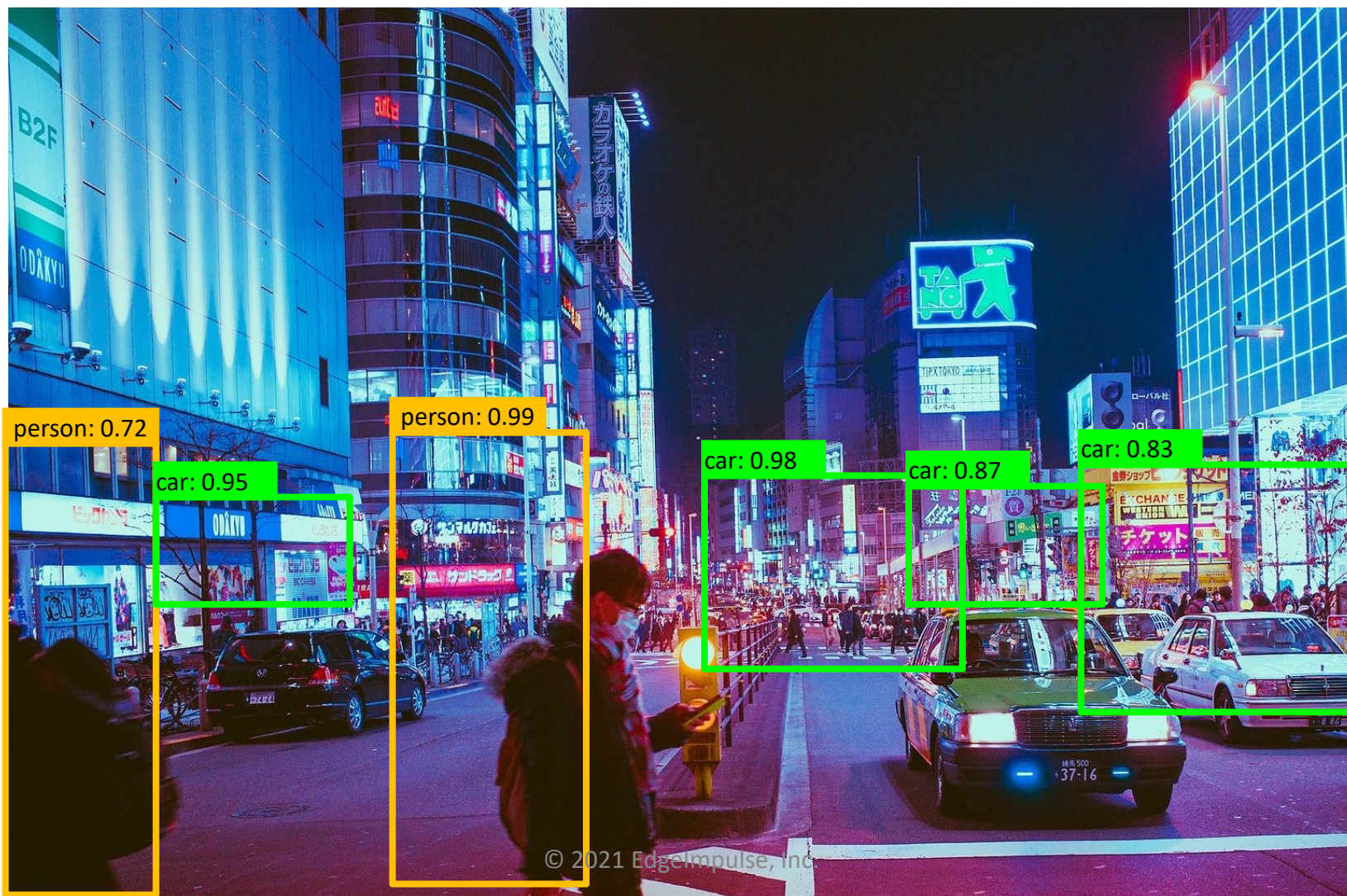


Computer Vision with Embedded Machine Learning

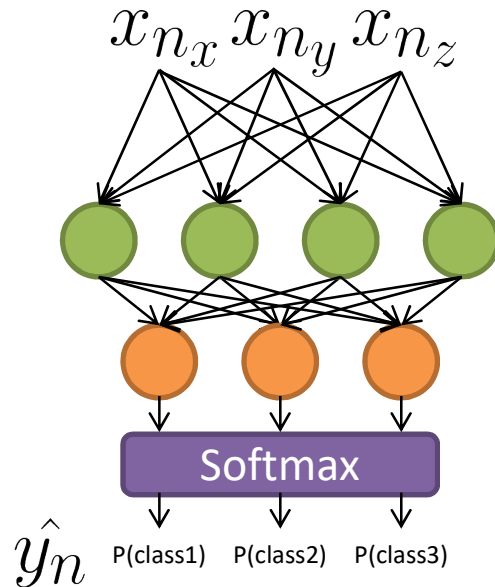
Welcome to the Course



A grayscale gradient image, transitioning from dark gray on the left to light gray on the right. A small red square box highlights a single pixel in the center of the image. The text "picture element ('pixel')" is written in red above the box.

picture element ("pixel")

Dense Neural Network (DNN)



Input layer

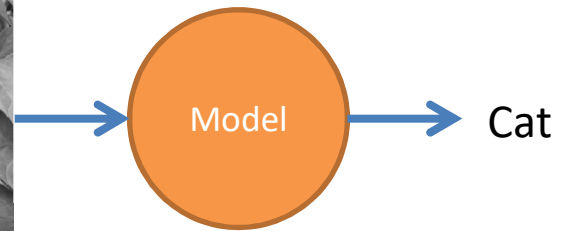
Hidden layer

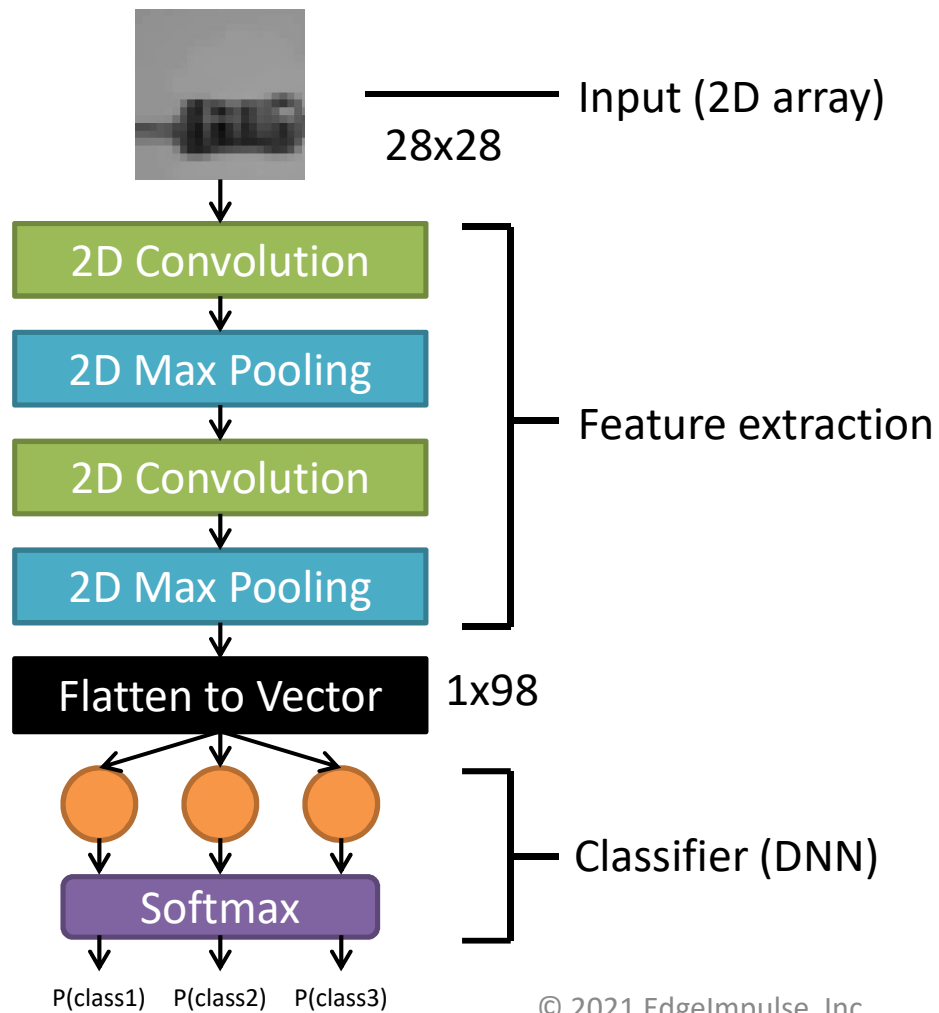
Output layer

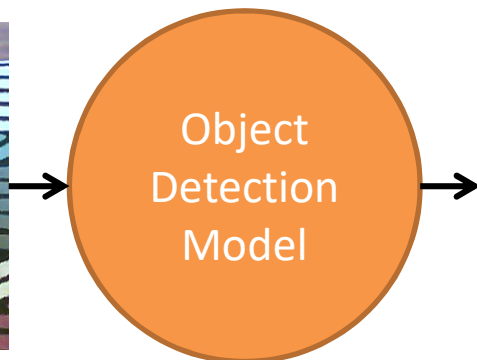
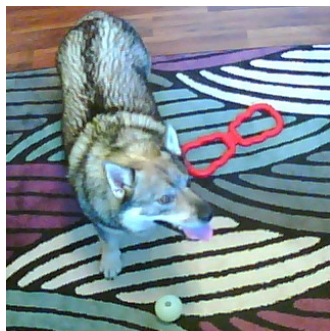
Example:

- Accelerometer: $-20 \dots 20 \text{ m/s}^2$
- Light sensor: $0 \dots 120,000 \text{ lux}$

Normalize input: $[0, 255] \rightarrow [0.0, 1.0]$







- **Object 1**
 - Class: dog (0.92)
 - Bounding box
 - (x_1, y_1)
 - (w_1, h_1)
- **Object 2**
 - Class: toy (0.85)
 - Bounding box
 - (x_2, y_2)
 - (w_2, h_2)
- **Object 3**
 - Class: ball (0.77)
 - Bounding box
 - (x_3, y_3)
 - (w_3, h_3)

