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import matplotlib.pyplot as plt
import numpy as np

x = np.linspace(-10, 10, 1000)

def step(x):
    return np.where(x >= 0, 1, 0)

def sigmoid(x):
    return 1 / (1 + np.exp(-x))

def tanh(x):
    return np.tanh(x)

def relu(x):
    return np.maximum(0, x)

def leaky_relu(x, alpha=0.1):
    return np.where(x > 0, x, alpha * x)

def linear(x):
    return x

plt.figure(figsize=(12, 8))

functions = {
    'Step': step,
    'Sigmoid': sigmoid,
    'Tanh': tanh,
    'ReLU': relu,
    'Leaky ReLU': leaky_relu,
    'Linear': linear
}

for i, (name, func) in enumerate(functions.items()):
    plt.subplot(2, 3, i+1)
    plt.plot(x, func(x))
    plt.title(name)
    plt.grid(True)
    plt.axhline(0, color='gray', linestyle='--')
    plt.axvline(0, color='gray', linestyle='--')

plt.tight_layout()
plt.suptitle("Common Activation Functions", fontsize=16, y=1.02)
plt.show()

```

Common Activation Functions

