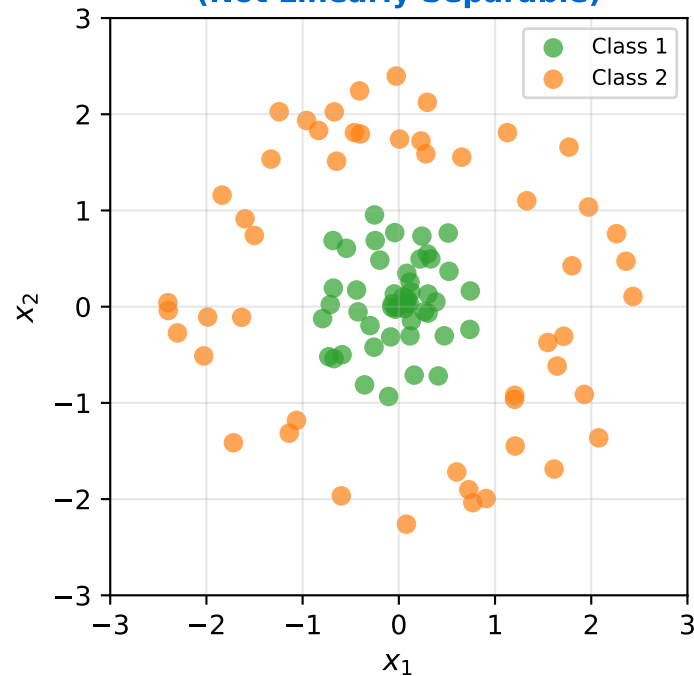
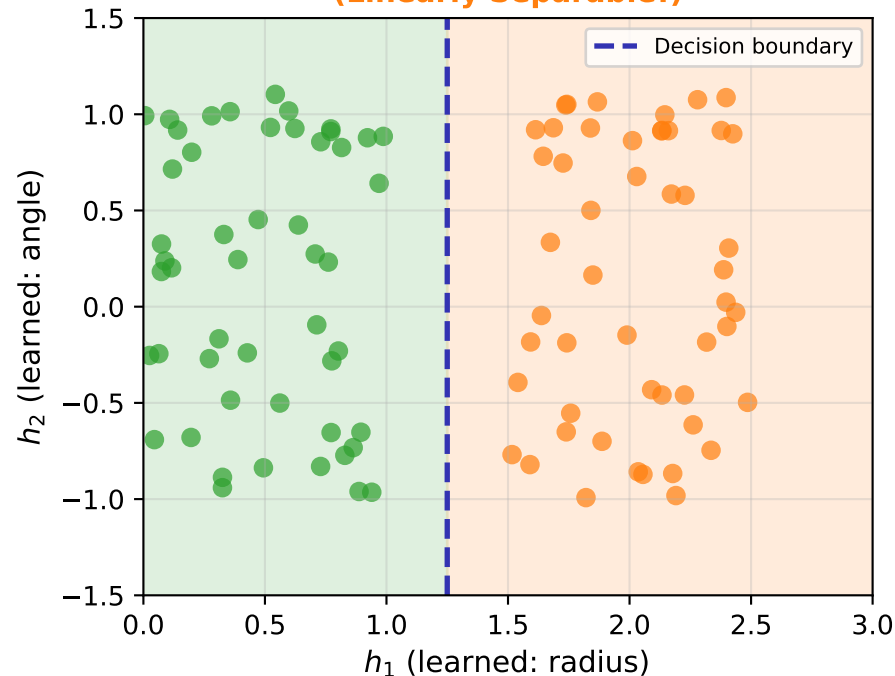


Hidden Layers: Learning Useful Representations

**Input Space
(Not Linearly Separable)**



**Hidden Layer Space
(Linearly Separable!)**



What Hidden Layers Learn

Raw Features: x_1, x_2
Original inputs

Hidden Features: $h_1 = f(W \cdot x)$
Learned combinations

Useful Patterns: Radius, angles,
edges, textures...

Linear Separability: Transform until
classes separable

Network
learns
this!