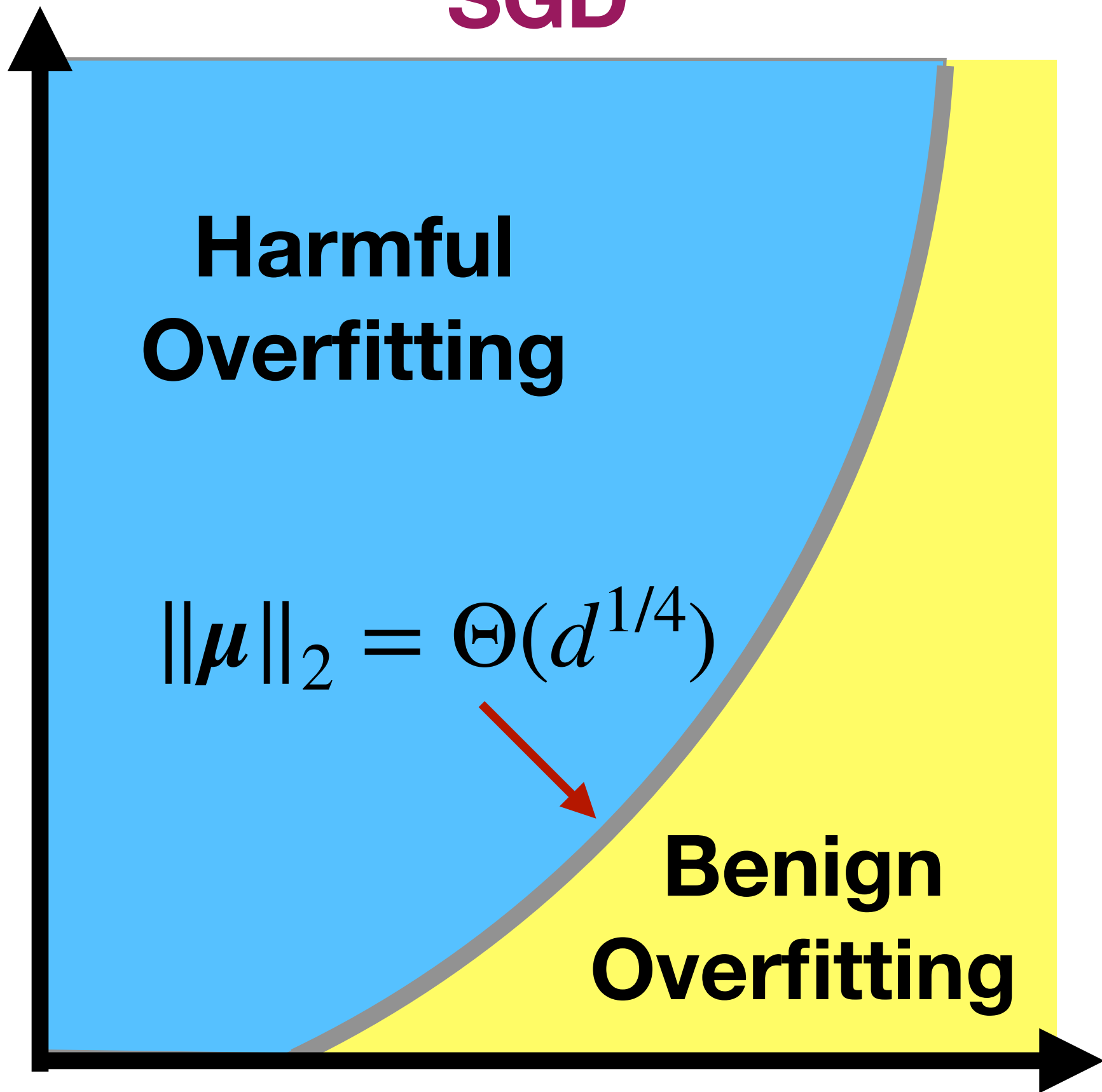


SGD

Dimension d



**Harmful
Overfitting**

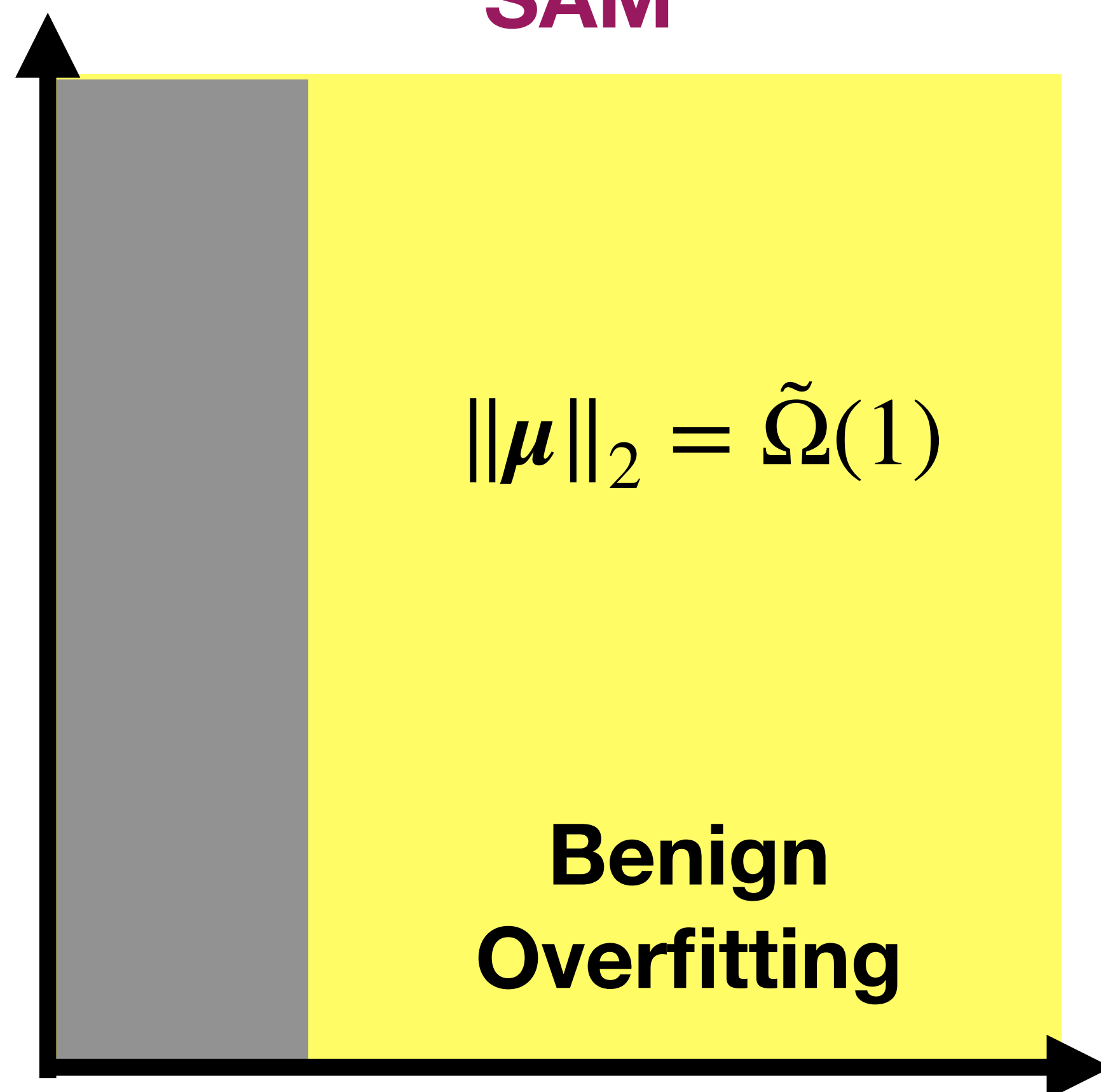
$$\|\mu\|_2 = \Theta(d^{1/4})$$

**Benign
Overfitting**

Signal Strength $\|\mu\|_2$

SAM

Dimension d



$$\|\mu\|_2 = \tilde{\Omega}(1)$$

**Benign
Overfitting**

Signal Strength $\|\mu\|_2$