

# Assignment X

Computational Intelligence (CS), SS20XY

Team Members		
Last name	First name	Matriculation Number

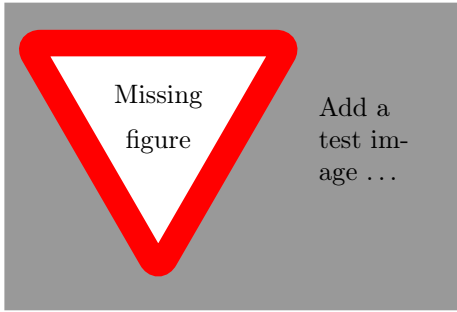
# 1 Derivation of Gradient

$$J(\theta) = -\frac{1}{m} \cdot \sum_{i=1}^m (y^{(i)} \cdot \log(h_{\theta}(x^{(i)})) + (1 - y^{(i)}) \cdot \log(1 - h_{\theta}(x^{(i)}))) \quad (1)$$

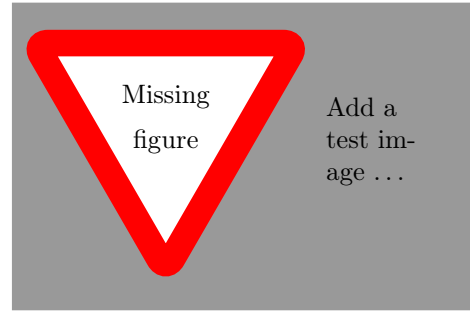
$$= -\frac{1}{m} \cdot \sum_{i=1}^m (y^{(i)} \cdot \log(\sigma(x^{(i)T} \theta)) + (1 - y^{(i)}) \cdot \log(1 - \sigma(x^{(i)T} \theta))) \quad (2)$$

Annotation

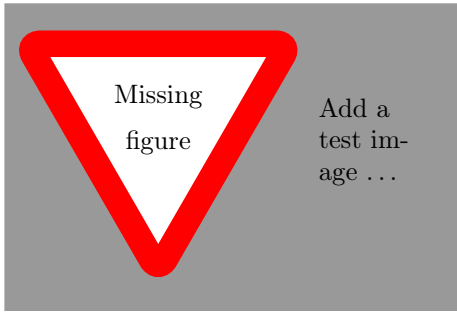
(2)  $h_{\theta}(x) = \sigma(x^T \theta)$ , will be replaced



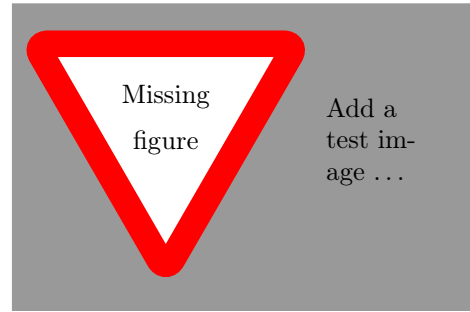
(a) Poly degree 1



(b) Poly degree 2



(c) Poly degree 5



(d) Poly degree 20

Figure 1: Gradient descent