

## Exercises for “Vertiefung Neuronale Netze”

## SS 2018 Sheet 2

Due on: 29.6.2018

**Task 2.1,  $L_1$  regularization:** Following the example of  $L_2$  regularization in the script (ch. 1.5 “Weight Decay”), show that  $L_1$  regularization corresponds to MAP (maximum-a-posteriori) with a Laplacian prior for the weights, i.e.

$$\vec{w} \sim \mathcal{L}(w; \mu, \gamma) = \frac{1}{2\gamma} \exp\left(-\frac{|w - \mu|}{\gamma}\right)$$

What are the mean  $\mu$  and the scale parameter  $\gamma$ ?