Mean Squared Error for Higher Dimensions

In this project we sometimes use the definition of MSE for cases where dimension is larger than 1. The Mean Squared Error MSE is calculated as the following

$$MSE(\hat{\theta}) = E\left[(\theta - \hat{\theta})^2\right]$$

For many dimensions

$$MSE(\hat{\theta}) = E\left[(\theta_1 - \hat{\theta}_1)^2 + \cdots + (\theta_n - \hat{\theta}_n)^2\right]$$

$$MSE(\hat{\theta}) = E\left\|(\theta - \hat{\theta})^2\right\|_2^2$$