Machine Learning

CSCI 567 Spring 2021

Discussion: Kernel, Constrained Optimization

Date: Apr 9th, 2021

1. What is the corresponding $\phi(x)$ for the polynomial kernel of 2-dimensional vectors:

$$k(\boldsymbol{x}, \boldsymbol{z}) = (\boldsymbol{x}^\top \boldsymbol{z} + 1)^2.$$

2. Write down the dual formulation of the following problem (without variable x):

$$\min_x \frac{x^2}{2}, \quad \text{s.t. } x \geq 0, 2x \leq 3.$$