Deep Learning

September 1, 2024

0.1 Introduction

dimension of input

known input-output data pairs

Let(d , M $\in \mathbb{N} = \{1, 2, 3, \dots\}$, $\mathcal{E} \in C(\mathbb{R}^d, \mathbb{R})$, $x_1, x_2, \dots, x_{M+1} \in \mathbb{R}^d$, $y_1, y_2, \dots, y_M \in \mathbb{R}$)satisfy for all($m \in \{1, 2, \dots, M\}$)

$\mathcal{E} : \mathbb{R}^d \to \mathbb{R}^a$, unknown function which relates input and output $y_m = \mathcal{E}(x_m)$

References

[1] Arnulf Jentzen, Benno Kuckuck, Philippe von Wurstemberger. (2023). Mathematical Introduction to Deep Learning: Methods, Implementations, and Theory `https://arxiv.org/abs/2310.20360`