Barnabás Szabó

Aspects of Generalization in Case of Overparameterization

Abstract

Our goal in this thesis was to write about the generalization of overparameterized machine learning models and introduce the tools that are needed to understand it. For this purpose, first, we started to build up the concepts of machine learning from a basic level. Then we described two important notions measuring the complexity and learning capacity of classes of machine learning models, Vapnik–Chervonenkis dimension and Rademacher complexity. Thereafter we described what overparameterization means in the context of machine learning, and presented the characteristics of this concept. Finally, we have examined a possible explanation for the practically proven good performance of overparameterized models.