



复旦大学数学科学学院 数学综合报告会

报告题目: Be aware of model capacity when talking about generalization in machine learning

报告人: 刘方辉 博士 (University of Warwick, UK)

时间: 2025-04-11 星期五 14:00-15:00

地点: 光华东主楼2001

报告摘要:

In this talk, I will discuss how the test error will behave if a more suitable metric than model size for model capacity is used. To be specific, I will present a unified perspective on generalization by analyzing how norm-based model capacity control reshapes our understanding of these foundational concepts: there is no bias-variance trade-offs; phase transition exists from under-parameterized regimes to over-parameterized regimes while double descent doesn't exist; scaling law is formulated as a multiplication style under norm-based capacity. Additionally, I will briefly discuss which norm is suitable for neural networks and what are the fundamental limits of learning efficiency imposed by such norm-based capacity from the perspective of function space. Talk based on <https://arxiv.org/abs/2502.01585>, <https://arxiv.org/abs/2404.18769>

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