



复旦大学数学科学学院 数学综合报告会

报告题目: Learning deep generative models and its applications

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报告摘要:

Deep generative models have achieved enormous success in learning the underlying high-dimensional data distribution from samples. In this talk, we will introduce two methods to learn deep generative models. First, we will introduce variational gradient flow (VGrow) which can be used to minimize the f-divergence between the evolving distribution and the target distribution. In particular, we showed that the commonly used logD-trick indeed belongs to f-divergence. Second, we will introduce a Schrodinger Bridge approach to learning deep generative models. Finally, we will present Portal, a unified framework of adversarial domain translation to learn harmonized representations of sing-cell datasets. With innovation in model and algorithm designs, Portal achieves superior performance in preserving biological variation during integration, while achieving integration of millions of cells in minutes with low memory consumption. This is a joint work with my PhD students Wang Gefei, Zhao Jia, Zhang Shunkang, visiting student Gao Yuan, Prof. Jiao Yuling, Prof. Lin Zhixiang, Prof. Wang Yang, and Prof. Wu Angela.

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