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## Challenges for Problems in Mean-Field Setting

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### Abstract

In this presentation: I will show my previous work about how to deal with the challenges for problems in mean-field setting. One of the biggest challenges lies in the bad properties of the Wasserstein space. For example, it is infinite dimension and it is only a Polish metric space, without any computation properties as Hilbert space. I will present how the challenges can be overcome in some specific problems. One is about solving mean-field control problem in continuous time via reinforcement learning method. Another is about numerically solving mean-field McKean-Vlasov SDE via Euler-Maruyama Scheme. I will show the theoretical results we obtained. At the end, I show the future work.