Optimality conditions for systems of forward backward doubly SDEs of mean-field type

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Abstract: In this work, we consider a control problem for systems driven by a nonlinear forward-backward doubly stochastic differential equations of meanfield type (MF-FBDSDEs). In particular, we establish necessary as well as sufficient optimality conditions for the existence of both optimal relaxed control and optimal strict control for this kind of control problem of mean-field forward-backward doubly SDEs.

Keywords: Mean-field, forward backward doubly stochastic differential equations, strict control, relaxed control, existence, optimality conditions.

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