

# Stochastic Optimal Control Matching

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# Overview

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1. Setup and Preliminaries
2. Stochastic Optimal Control Matching
3. Experiments and results
4. Conclusion

# Conclusion

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## Personal thoughts and conclusion

SOCM is a framework grounded in theory that has shown interesting empirical results in specific benchmarks, but to truly judge its potential further application of this framework needs to be explored.

This said the authors seems to have already identified a few difficulties with this approach being the high variance related to the factor  $\alpha(v, Xv, B)$  due to a mismatch between the probability measures induced by the learned control and the optimal control. This is a problem that is also encountered in out-of-distribution generalization for reinforcement learning.

Additionally, I would love to come back to this paper in the next year after having acquired a proper foundation in stochastic calculus, partial differential equations, and statistical mechanics.