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Study on Optimal Control Strategy of Automatic Transmission Based on Policy Search

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Abstract:

Automatic transmission can shift according to the engine power output and environmental conditions automatically. It is the challenge to reduce the shift jerk and improve the shift quality. A policy search algorithm of reinforcement learning for automatic transmission shift process is proposed. First, algorithm learns from fixed environment set for preliminary strategy. Second, agent interacts with environment and starts online learning for optimal control strategy. Finally, to verify the performance of the algorithm, the simulation study of the shift process under different conditions is carried out. The simulated result demonstrated that the shift jerk can be significantly reduced by applying the optimal control strategy.

Key words: policy search; automatic transmission; optimal control; reinforcement learning

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Conclusions.
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References

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Acknowledgements
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