

Appendix to “Motion Planning and Control of A Morphing Quadrotor in Restricted Scenarios”

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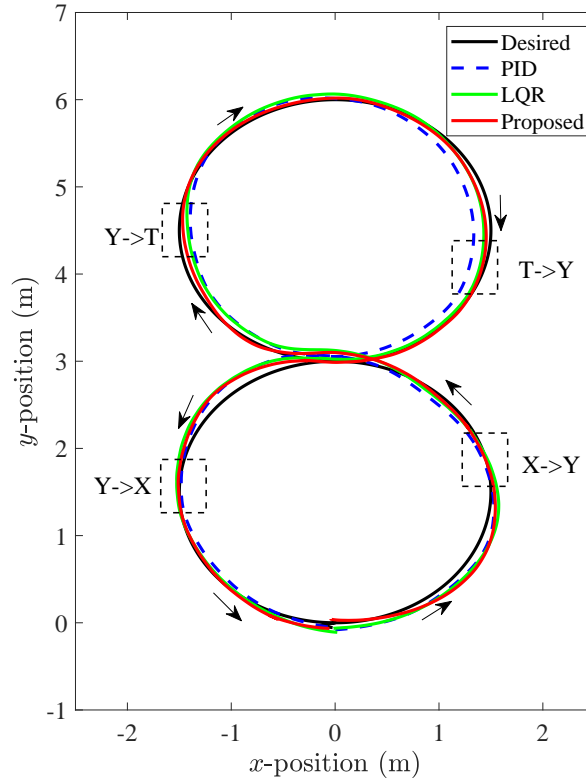


Figure 1: Benchmark of tracking 8-figure trajectories at a maximum velocity of 1.2 m/s while changing the configuration from X to Y, T, Y, and X. More details are included in the video, <https://youtu.be/ARP9xfXtMAU>.

Furthermore, we also compare the proposed controller with the PID (Ref. [4]) and LQR (Ref. [3]) controller 10 times in real-world environments. The quadrotor flies at a maximum of 1.2 m/s along 8-figure at a height of 1.5 m, transitioning its configuration from X to Y, T, Y, and X. As shown in Tab. I and Fig. 1, our proposed method has minor tracking errors compared to other methods.

Table I: Statistical Analysis Trajectory Tracking Error of PID, LQR and Proposed controller

v_{max} (m/s)	Error (average) (m)			Error (max) (m)		
	PID[4]	LQR[3]	Proposed	PID[4]	LQR[3]	Proposed
1.2	0.080	0.055	0.037	0.207	0.153	0.113