

Path optimization and jerk reduction in laser processing systems using iterative machine learning.

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This self-defined project is intended to be done as an industrial placement with Tannlin, an industry leading developer of high speed, high accuracy laser processing systems. These systems rely on position-time information generated from CAD data to plot the trajectory the laser will follow. The high speed motion of the system introduces a small mechanical error between the intended and actual trajectories, which I will look to reduce utilising iterative learning control.

The focus of this project will be on looking to increase the system efficiency and throughput by using iterative machine learning. If time allows further work will be done to use the iterative learning process to allow the system to actively correct for mechanical error to reduce jerk in the motion of the laser. This path optimization would facilitate motion at higher speeds and could significantly improve the efficiency of the system.

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