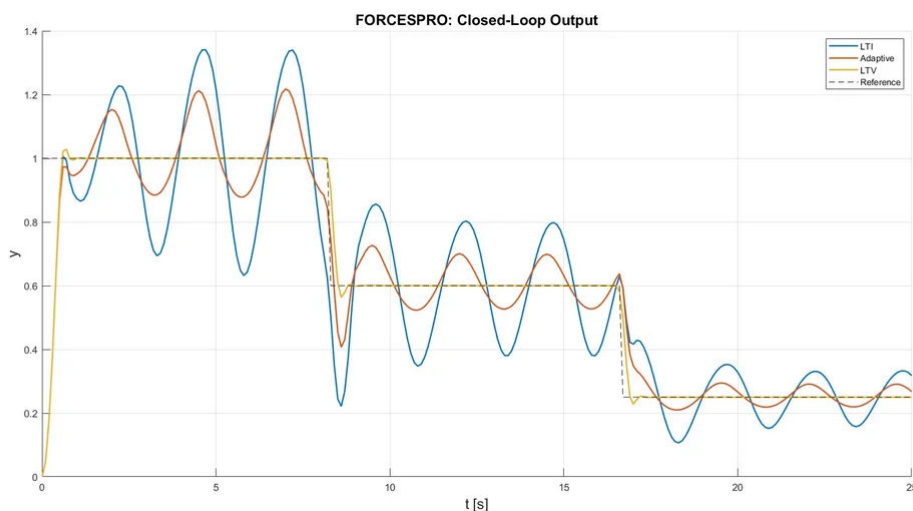


# FORCESPRO

## Using Adaptive MPC with MathWorks' Model Predictive Control Toolbox™

**Adaptive MPC:** The new FORCESPRO 6.2.0 version supports adaptive MPC when used from within MathWorks' Model Predictive Control Toolbox™. Adaptive MPC formulations offer a compromise between a linear MPC controller with fixed system dynamics, objective, and constraints and a fully nonlinear MPC one. This offers additional opportunities to trade off fastest controller runtime against best control performance. Both adaptive but fixed and linear-time variant (LTV) formulations are supported.

The following [example](#) illustrates the gain in control performance over a linear (LTI) formulation when using the new adaptive and LTV capabilities:



The plant dynamics are varying and unstable, which makes it very challenging for an LTI controller to track the changing setpoints. Both the

adaptive and the LTV controller show a greatly improved tracking performance, while the increase in computation time may be as low as 10%.

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You can find a list of all algorithmic improvements in the [Release Notes of FORCESPRO](#).

Existing users can easily switch to the new version by using our [auto-update function](#).

Alternatively, you can use the new server at: <https://forces-6-2-0.embotech.com>

**Please note:**

FORCESPRO 6.2.0 also offers an improved way to provide a BFGS initialization to your solver, which may require a minor change in your existing problem formulation. See [Chapter 4](#) for any required changes to maintain backward compatibility with the behaviour of earlier FORCESPRO versions.

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