

Figure 4 is a line graph showing the evolution of the cost function over time (0.0 to 20.0 seconds) for three algorithms: MPPI w/ imperfect model (blue line), MPPI w/ perfect knowledge (orange line), and EMPPI (green line). The y-axis represents the cost function on a logarithmic scale. The orange line (MPPI w/ perfect knowledge) rises sharply and plateaus at the highest cost level. The green line (EMPPI) rises sharply and plateaus at a lower cost level than the orange line. The blue line (MPPI w/ imperfect model) rises sharply, plateaus, and then exhibits significant fluctuations and a general downward trend, ending at the lowest cost level. Shaded regions around the lines indicate the variance or uncertainty of the cost function.

Figure 10 is a line graph titled "Normalized Absolute Error versus Time (s)". The y-axis is labeled "Normalized Absolute Error" and ranges from 0.0 to 1.0. The x-axis is labeled "Time (s)" and ranges from 0 to 10. The graph displays 18 different curves, each representing a different P gain value, as indicated by the legend:

- P gain0 (blue)
- P gain1 (orange)
- P gain2 (green)
- P gain3 (red)
- P gain4 (purple)
- P gain5 (brown)
- P gain6 (pink)
- P gain7 (grey)
- P gain8 (olive)
- P gain9 (cyan)
- P gain10 (dark blue)
- P gain11 (dark orange)
- P gain12 (dark green)
- P gain13 (dark red)
- P gain14 (dark purple)
- P gain15 (dark brown)
- P gain16 (dark pink)
- P gain17 (dark grey)

The graph shows that the error decreases over time for all gain values. Higher gain values generally result in faster convergence to a lower error. P gain17 (grey) shows the fastest convergence, reaching near-zero error by 2 seconds. P gain0 (blue) shows the slowest convergence, remaining above 0.2 error at 10 seconds. Most curves stabilize between 0.05 and 0.15 error after 4 seconds.