The above results demonstrate the excellent robust tracking performance of the proposed ARC algorithms – Tracking errors are mostly within 10 micrometers with final tracking error around the encoder resolution of 1 micrometer for both loaded and unloaded cases.
The above plots show the accurate parameter estimation capability of the proposed DIARC and IARC – estimates of the inertia load converge to their actual values for both loaded and unloaded cases.

⇒ Non-Conservative Task Planning and Controller Gain Tuning
On-line estimates of the Coulomb friction converge to their actual values for both loaded and unloaded cases.

⇒ Features like prognostics, machine health monitoring, fault detection, etc, can be added when one knows the time history of certain critical parameters (e.g., accurate friction estimate can be used to schedule service of the motor on-demand)