

$$J = \lim_{T \rightarrow \infty} \frac{1}{T} \mathbb{E} \left\{ \int_0^T \left((\mathbf{x}_t^\top \mathbf{Q} \mathbf{x}_t) + (\mathbf{u}_t^\top \mathbf{R} \mathbf{u}_t) \right) dt \right\}$$