README

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This code plots the MSE in P and records the relative error in gain and cost as produced by the EnKF.

The code is written in Python 3 and there are four files: `constants_enkf.py`, `enkf.py`, `enkf-time.py` `LQSys.py`. The steps for running the code are as follows:

1. In `constants_enkf.py`, set the desired variables as per the modelling and simulation parameters, see Table 1 and Table 2 respectively for location of these variables in the code.

2. Run `enkf.py` to generate the plot of variation of mean square error versus number of particles. It will also output the terminal error in cost and gain.

3. To get the simulation time needed for an individual run, execute `enkf-time.py`

Table 1: Modelling parameters in `constants_enkf.py`

Modelling parameter	Variable name in code	Line number in code	
		$d/2 = 1$	$d/2 \geq 2$
Number of masses	`MASSES`	14	14
C	`C`	24	42
R	`R`	26	44
P_T	`ST`	28	46

Table 2: Simulation parameters in `constants_enkf.py`

Modelling parameter	Variable name in code	Line number in code
Total simulation time (T)	`T`	4
Stepsize (Δt)	`STEP`	5
Number of repetitions for averaging	`NAVG`	7
Vector of number of particles	`NVEC`	9
Length of vector of number of particles	`NSIM`	8
Seed for RNG	`SEED0`	12