

# README

October 5, 2021

This code implements [m21] and plots the error in gain and cost.

The code is written in Python 3 and there are three files: `constants_m21.py`, `m21.py`, `LQSys.py`. The steps for running the code are as follows:

1. In `constants_m21.py`, set the desired variables as per the simulation parameters, see Table 1 respectively for location of these variables in the code.
2. Run `m21.py`

Table 1: Simulation parameters in `constants_m21.py`

Modelling parameter	Variable name in code	Line number in code
Total simulation time ( $T$ )	<code>T</code>	4
Stepsize ( $\Delta t$ )	<code>STEP</code>	5
Seed for RNG	<code>SEEDO</code>	9
Gradient descent iterations	<code>GD_ITER</code>	12
Number of repetitions for averaging	<code>N</code>	7
Gradient descent step ( $\alpha$ )	<code>NVEC</code>	13
Smoothing parameter ( $r$ )	<code>NSIM</code>	11
Number of masses ( $d/2$ )	<code>MASSES</code>	15