>> main\_opt\_v20

---------- START RUNNING: 09-Jun-2023 18:26:45 ----------

---------- INPUT USERS SETTING FOR OPTIMIZATION ----------

---------- PREPROCESS ----------

---------- START OPTIMIZATION ----------

\*\* START: Find x0 with bestfval < 0.05

\* Find x0: 1 times

Best Mean Stall

Iteration f-count f(x) f(x) Iterations

0 60 0.1356 NaN 0

1 120 0.1356 1.049 0

2 180 0.1356 1.024 1

3 240 0.1356 0.9961 2

4 300 0.1356 0.9723 3

5 360 0.1356 0.9437 4

6 420 0.1356 1.04 5

7 480 0.1356 0.9078 6

8 540 0.1356 0.8334 7

9 600 0.1166 0.7056 0

10 660 0.1067 0.5804 0

11 720 0.06841 0.573 0

12 780 0.0606 0.5067 0

13 840 0.05826 0.6048 0

14 900 0.05815 0.4785 0

15 960 0.05808 0.3147 0

16 1020 0.05537 0.3898 0

17 1080 0.05323 0.4284 0

18 1140 0.05199 0.3686 0

19 1200 0.05199 0.3108 1

20 1260 0.05199 0.4294 2

21 1320 0.05199 0.4058 3

22 1380 0.05199 0.6046 4

23 1440 0.05199 0.5026 5

24 1500 0.05199 0.4693 6

25 1560 0.05199 0.3481 7

26 1620 0.05151 0.3489 0

27 1680 0.05151 0.4114 1

28 1740 0.05151 0.3808 2

29 1800 0.05128 0.236 0

30 1860 0.05111 0.218 0

Best Mean Stall

Iteration f-count f(x) f(x) Iterations

31 1920 0.05108 0.3316 0

32 1980 0.05108 0.33 1

33 2040 0.05093 0.2867 0

34 2100 0.05046 0.4225 0

35 2160 0.05014 0.3571 0

36 2220 0.04999 0.322 0

Optimization stopped by a plot function or output function.'

\* Find x0: 504.5236 436.3353 0.2259283 0.1541429 0.1576734 0.1565314

\* exitflag: -1

\*\* END: Find x0 with bestfval < 0.05

\*\*\* Find x0: 1246.6 seconds

\*\* START: Find x with bestfval < 0.0001

\* Find x: 1 times

Max

Iter Func-count f(x) Constraint MeshSize Method

0 1 0.0654683 0.05547 1

1 421 0.00522342 0 0.009772 Update multipliers

2 699 0.00514058 0 0.000955 Update multipliers

3 1014 0.00514058 0 9.333e-05 Update multipliers

4 1353 0.00514058 0 9.12e-06 Update multipliers

5 1712 0.00514058 0 8.913e-07 Update multipliers

Optimization terminated: Change in X less than options.StepTolerance

and constraints violation is less that options.ConstraintTolerance.

\* Find x: 574.4904 356.9809 0.1346391 0.107797 0.2326006 0.1948628

\* exitflag: 2

\*\* END: Find x

\*\*\* Find x: 1215.4 seconds

OPT parameter: 574.4904 356.9809 0.1346391 0.107797 0.2326006 0.1948628

---------- SHOW OPTIMAL RESULTS ----------

Target muscle parameter:

624.3000 0.1157 0.2723

435.5600 0.1321 0.1923

Optimal muscle parameter:

574.4904 0.1346 0.2326

356.9809 0.1078 0.1949

Motion 1 joint angle prediction error: 0.000577

Motion 1 joint speed prediction error: 0.005141

---------- VALIDATE OPTIMAL RESULTS ----------

Validate motion joint angle prediction error: 0.4788

Validate motion joint speed prediction error: 0.6855

---------- END RUNNING: 09-Jun-2023 19:07:51 ----------

{

"mot\_desired":

[

{

"direction": 1,

"shoulder\_angle": 0,

"elbow\_angle": [[0, 90]]

}

],

"mot\_validate":

{

"direction": -1,

"shoulder\_angle": 180,

"elbow\_angle": [[0, 90]]

},

"file":

{

"model": "arm26\_2500g.osim",

"setup\_cmc": "xml\_setup\_CMC.xml",

"setup\_fwd": "xml\_setup\_FWD.xml"

},

"interest":

{

"muscle\_name": [["BIClong"], ["BICshort"]],

"param\_bool": [[1, 1, 1], [1, 1, 1]]

},

"opt\_settings":

{

"lb": [[100, 0.05, 0.05], [100, 0.05, 0.05]],

"ub": [[1000, 0.35, 0.35], [1000, 0.35, 0.35]]

}

}