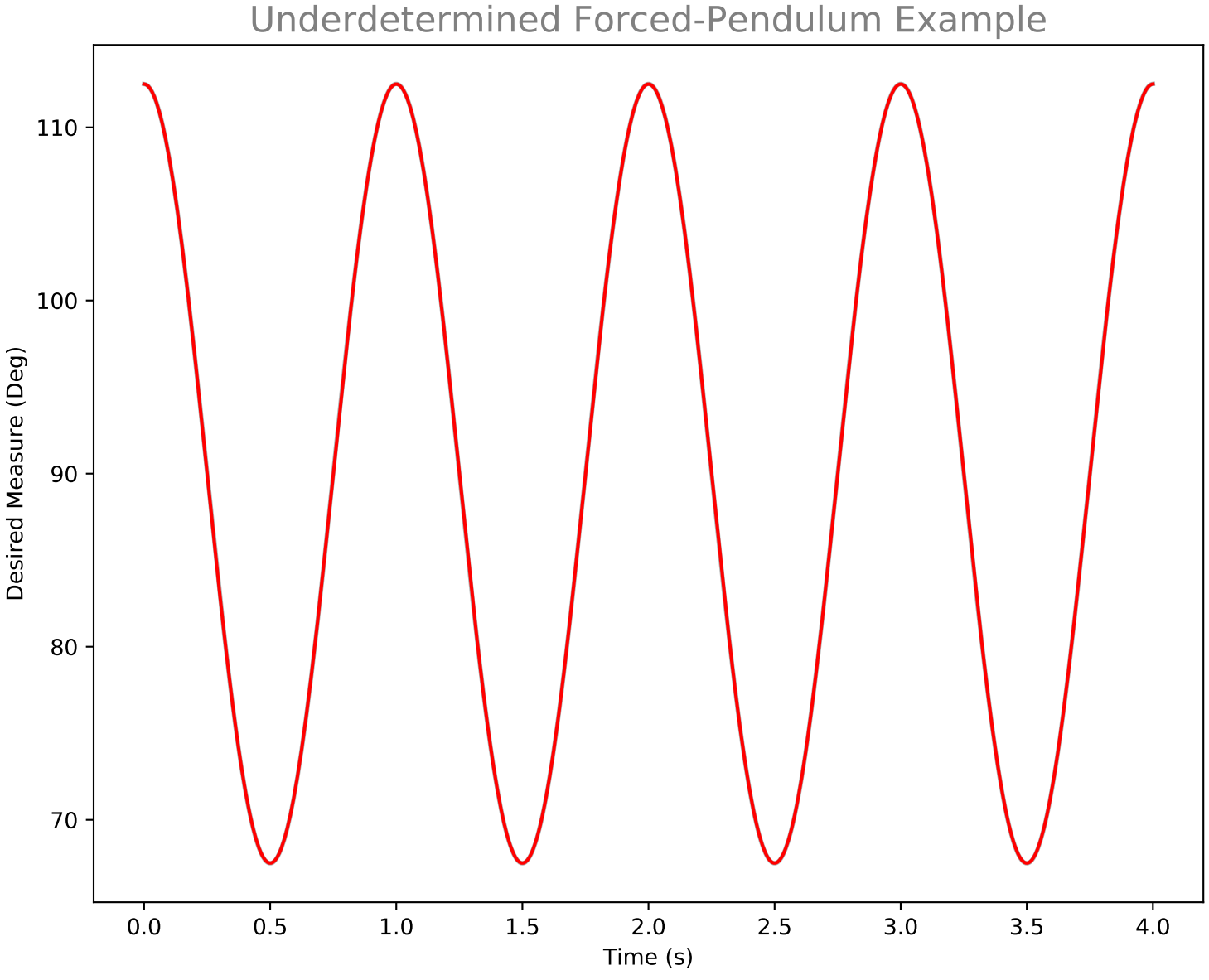
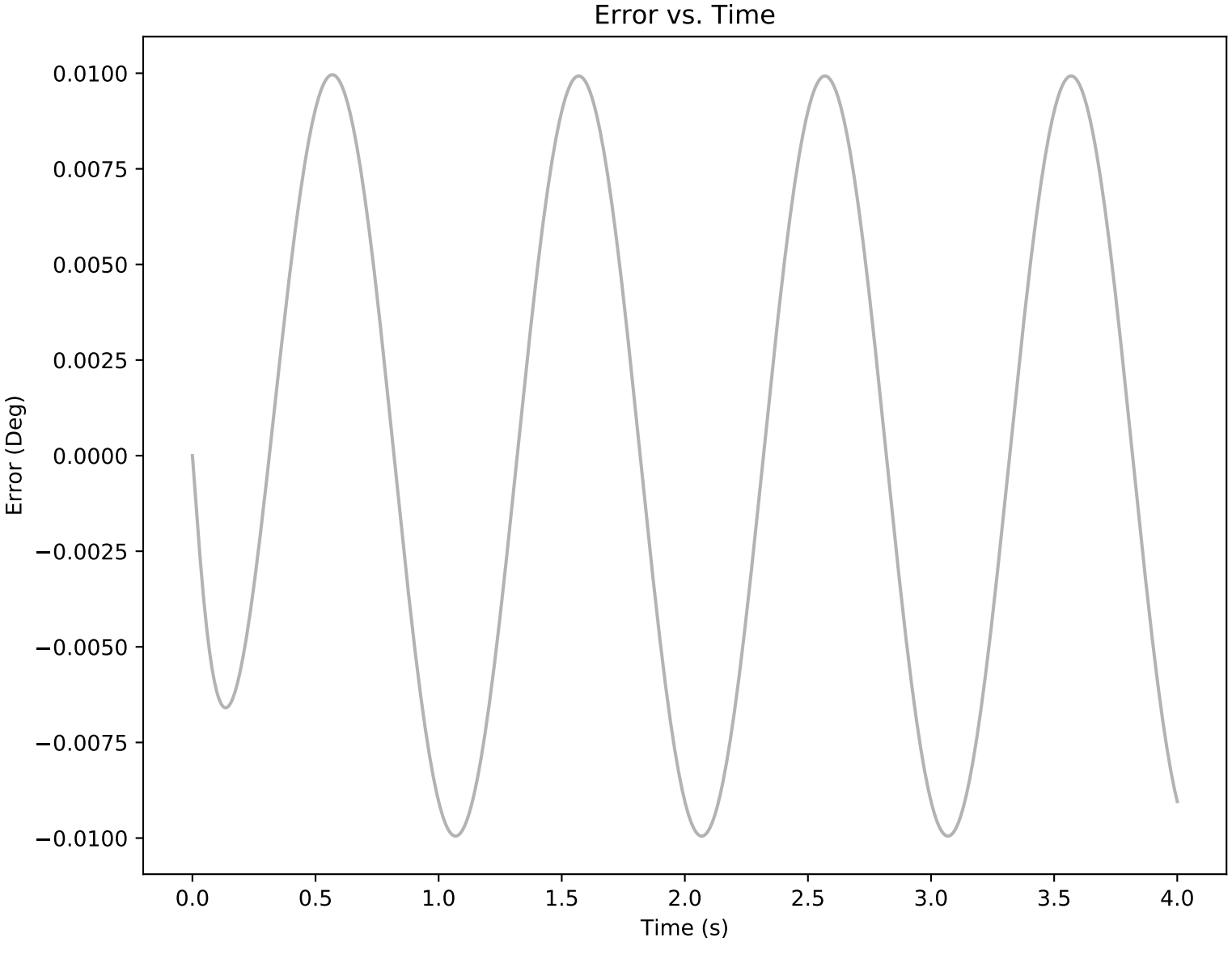
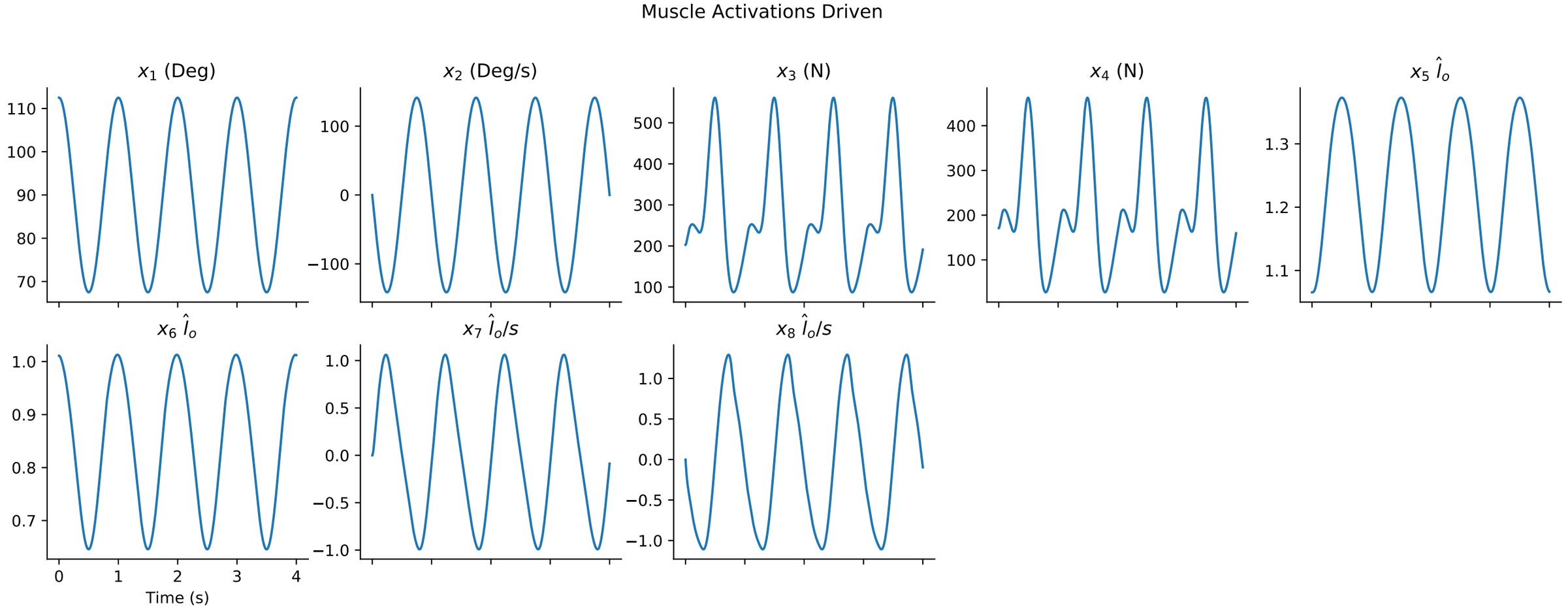
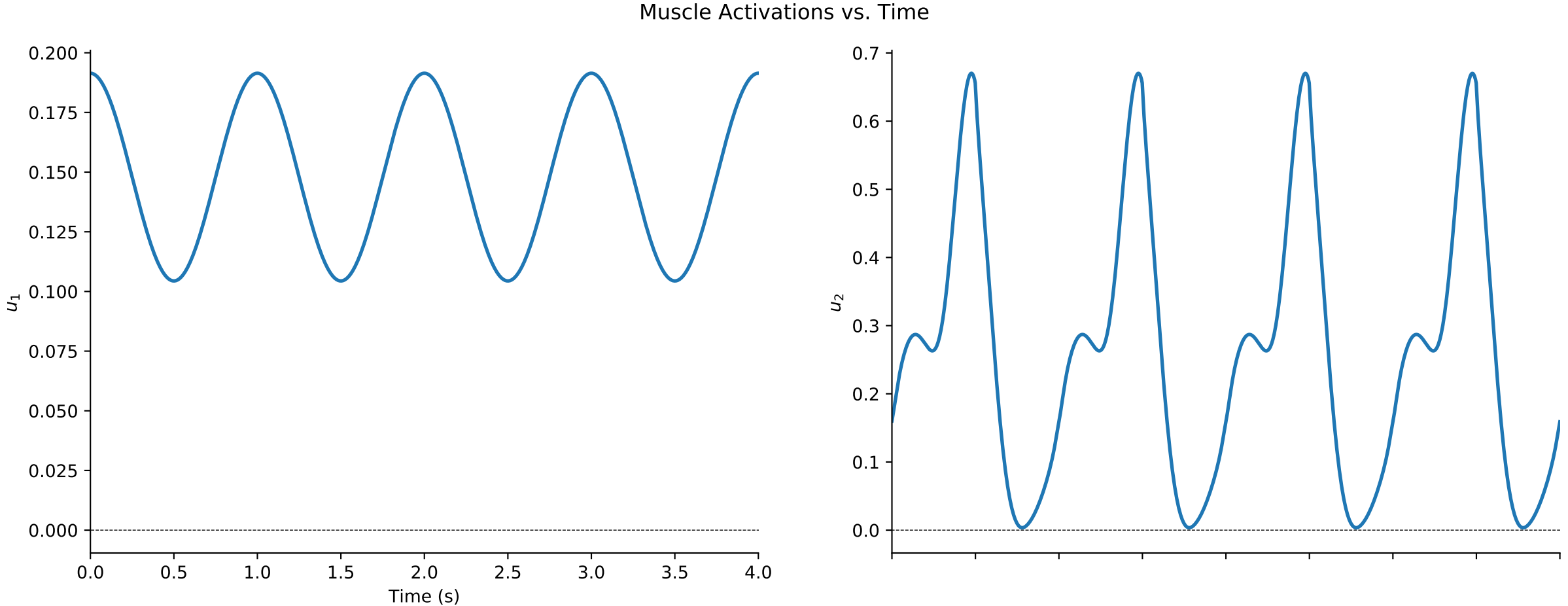
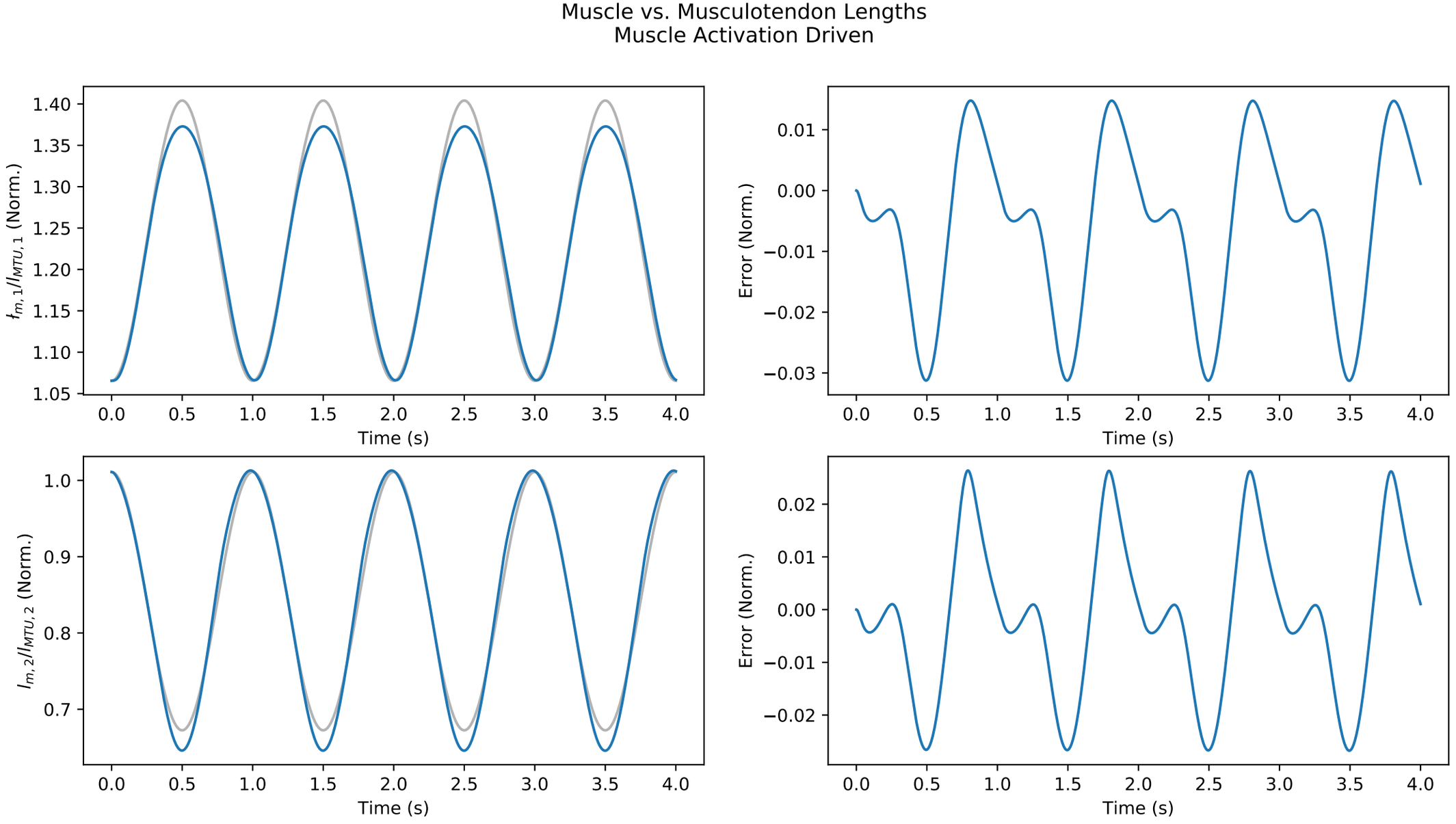
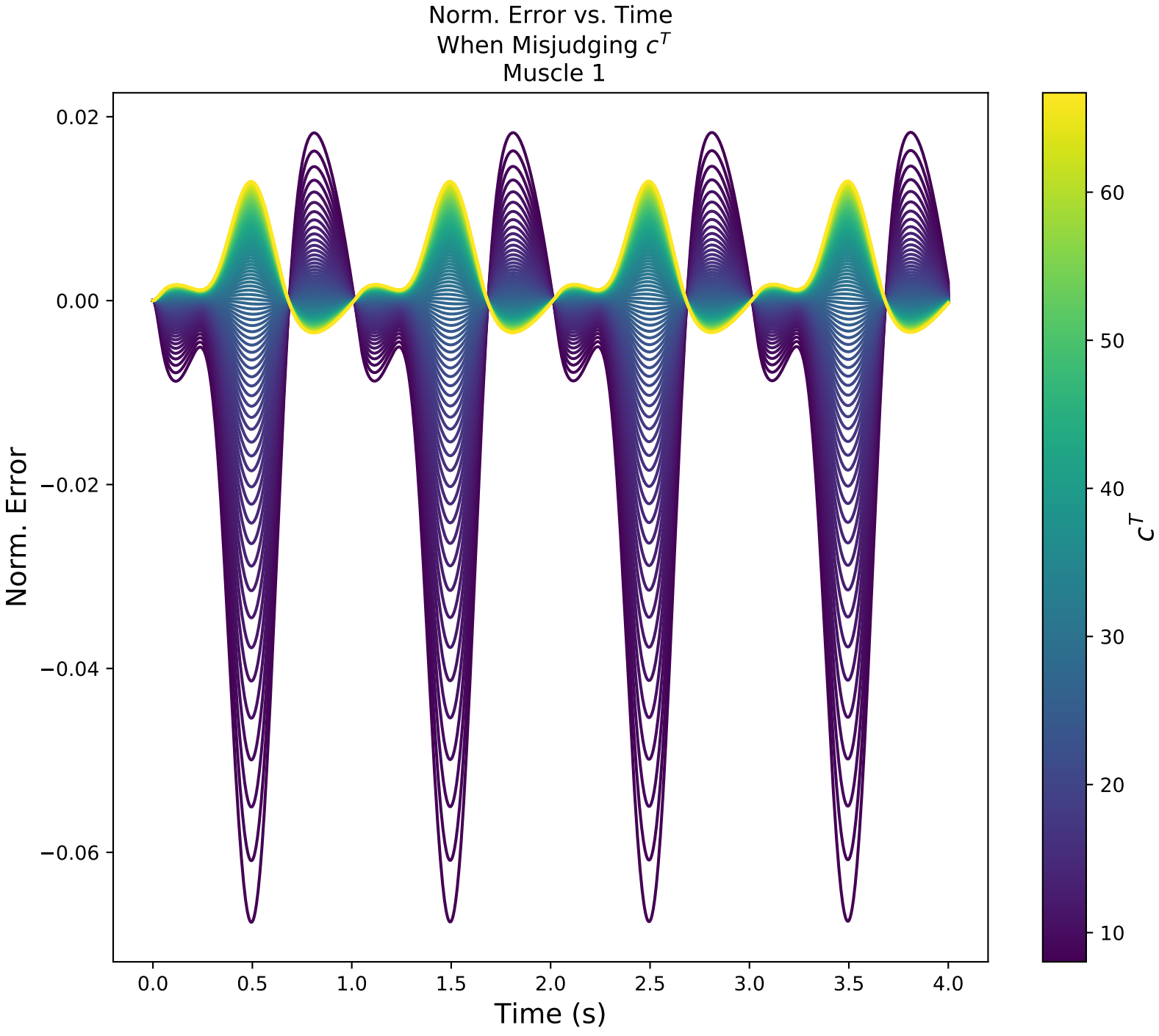

Underdetermined Forced-Pendulum Example
Desired Measure (Deg)
110
100
90
80
70
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Time (s)

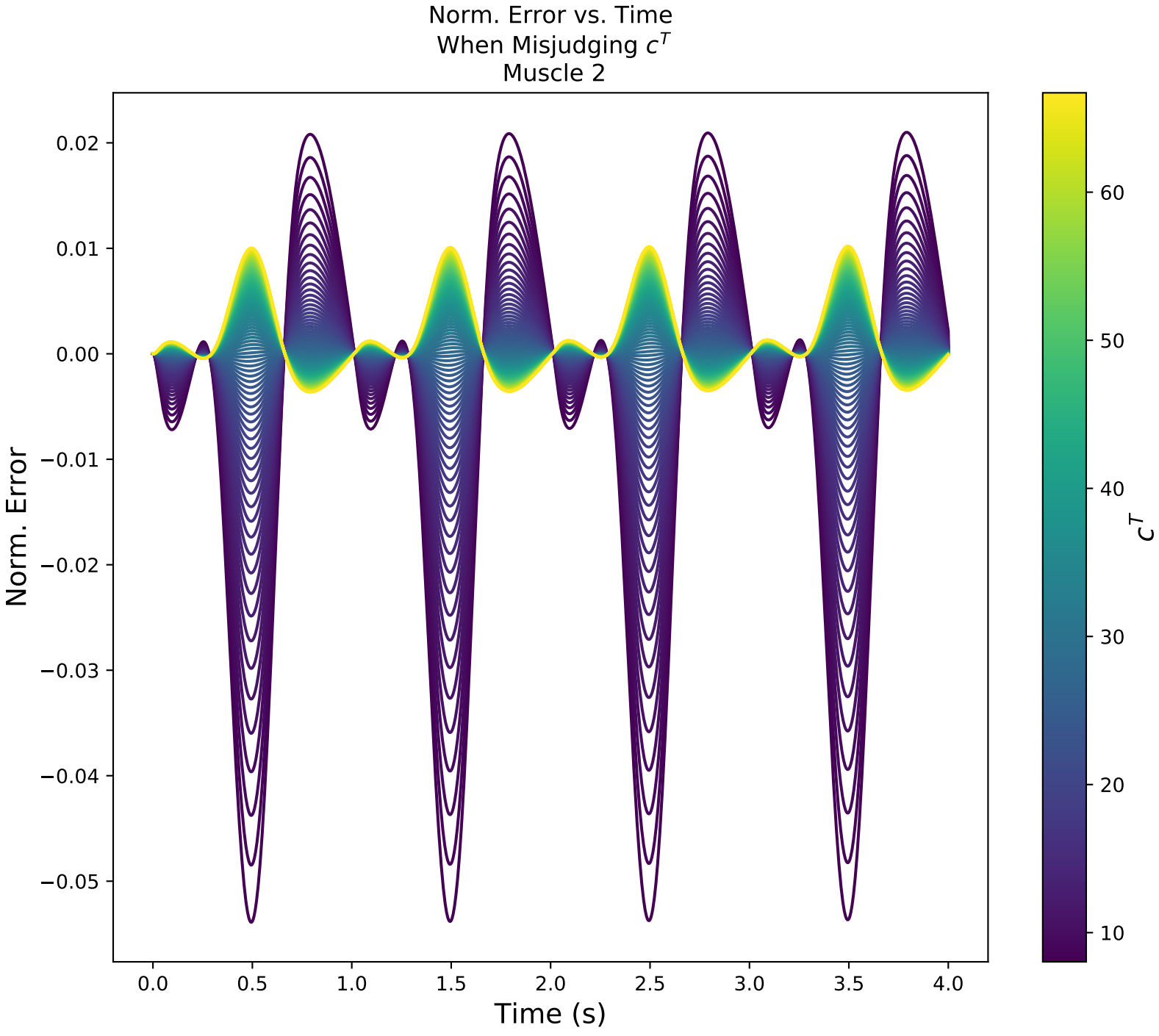

Error vs. Time
0.0100
0.0075
0.0050
0.0025
0.0000
−0.0025
−0.0050
−0.0075
−0.0100
Error (Deg)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Time (s)

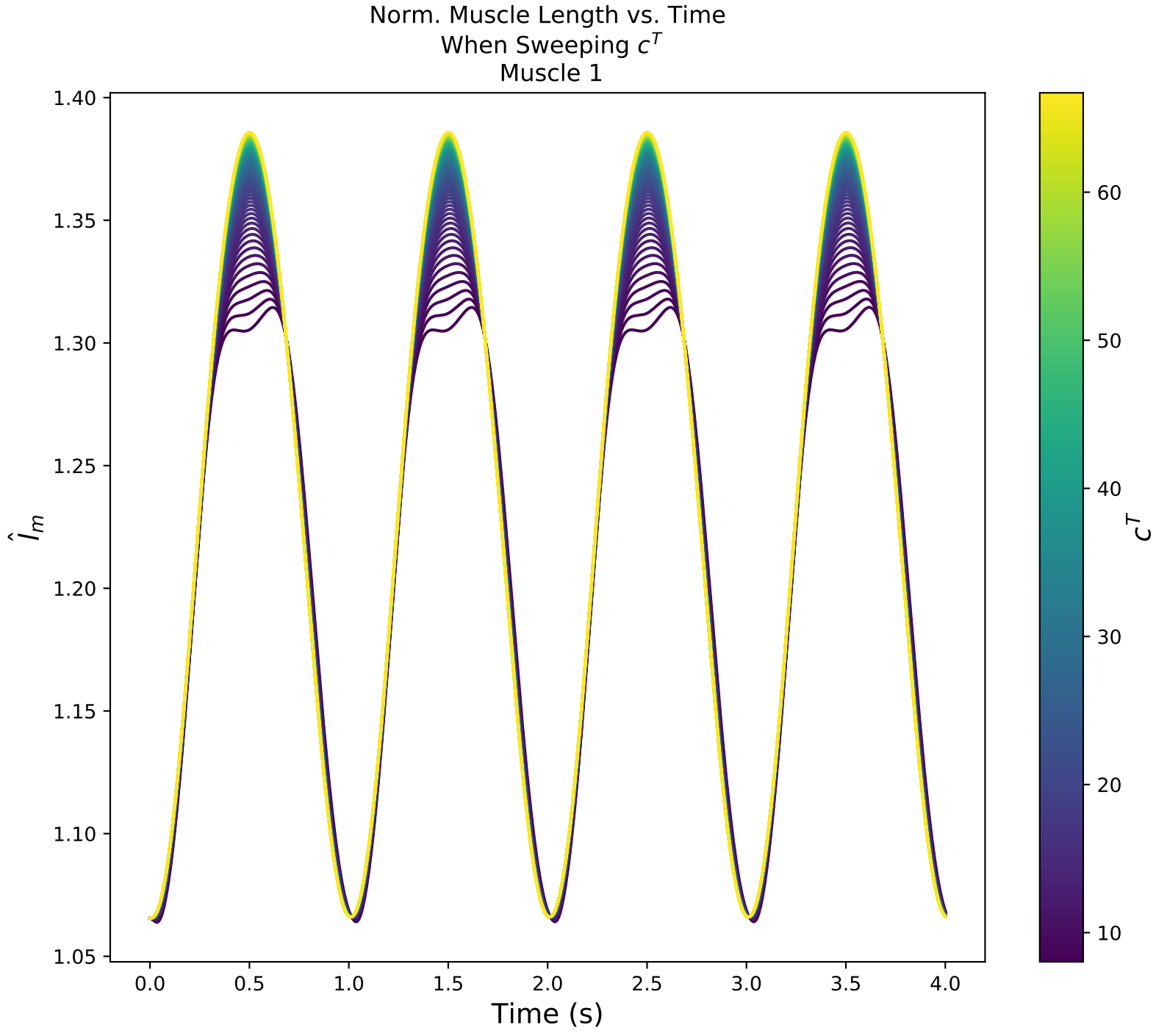

Muscle Activations Driven
x_1 (Deg)
x_2 (Deg/s)
x_3 (N)
x_4 (N)
x_5 $\hat{l}_o$
x_6 $\hat{l}_o$
x_7 $\hat{l}_o/s$
x_8 $\hat{l}_o/s$
Time (s)

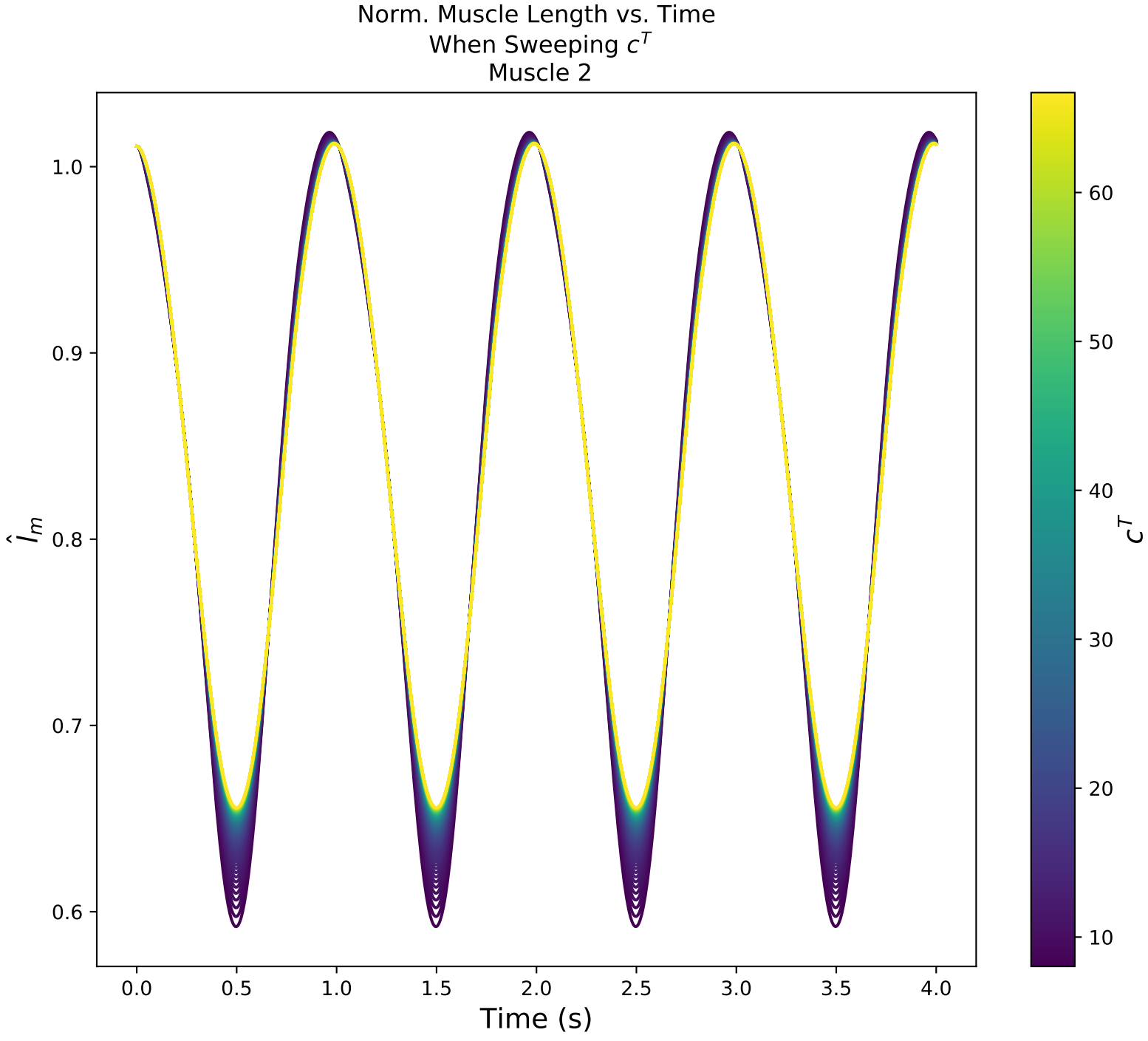

Muscle Activations vs. Time
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
u_1
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Time (s)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
u_2


Muscle vs. Musculotendon Lengths
Muscle Activation Driven
$l_{m,1}/l_{MTU,1}$ (Norm.)
Time (s)
Error (Norm.)
Time (s)
$l_{m,2}/l_{MTU,2}$ (Norm.)
Time (s)
Error (Norm.)
Time (s)


Norm. Error vs. Time
When Misjudging c^T
Muscle 1
Norm. Error
Time (s)
0.02
0.00
−0.02
−0.04
−0.06
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
c^T
10
20
30
40
50
60


Norm. Error vs. Time
When Misjudging c^T
Muscle 2
Norm. Error
Time (s)
0.02
0.01
0.00
−0.01
−0.02
−0.03
−0.04
−0.05
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
c^T
60
50
40
30
20
10


Norm. Muscle Length vs. Time
When Sweeping c^T
Muscle 1
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
$\hat{l}_m$
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Time (s)
60
50
40
30
20
10
c^T


Norm. Muscle Length vs. Time
When Sweeping c^T
Muscle 2
$\hat{l}_m$
1.0
0.9
0.8
0.7
0.6
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Time (s)
c^T
60
50
40
30
20
10