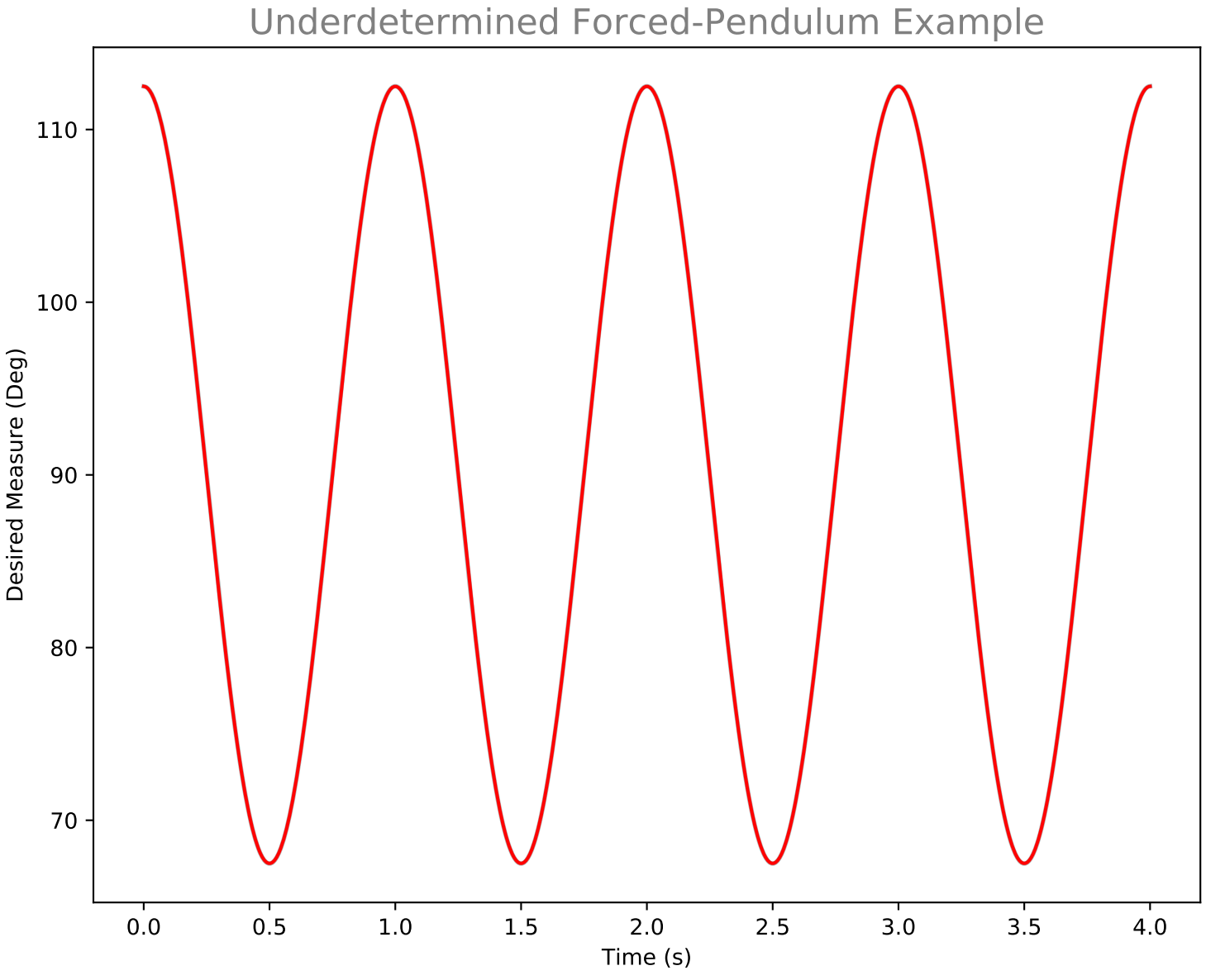
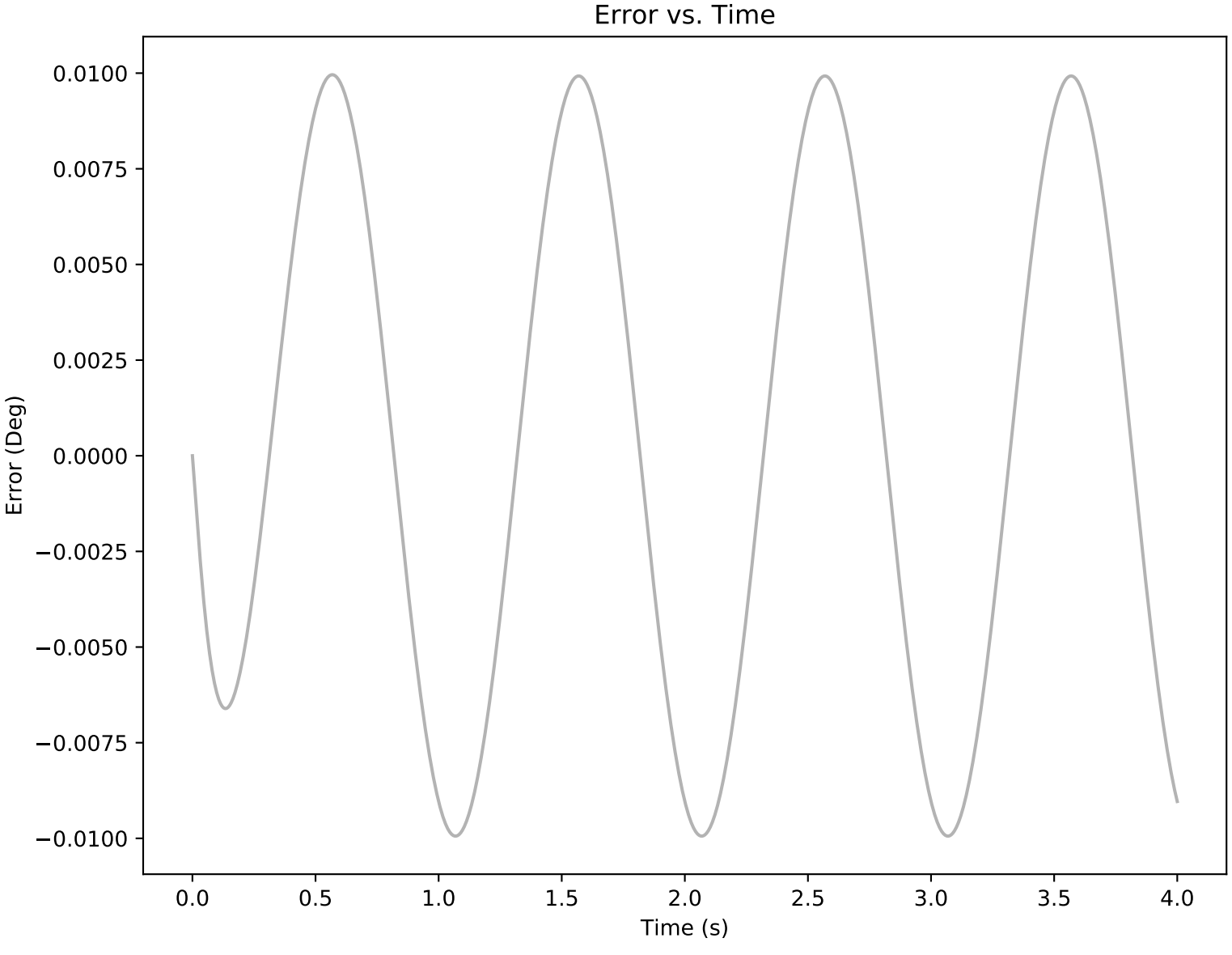
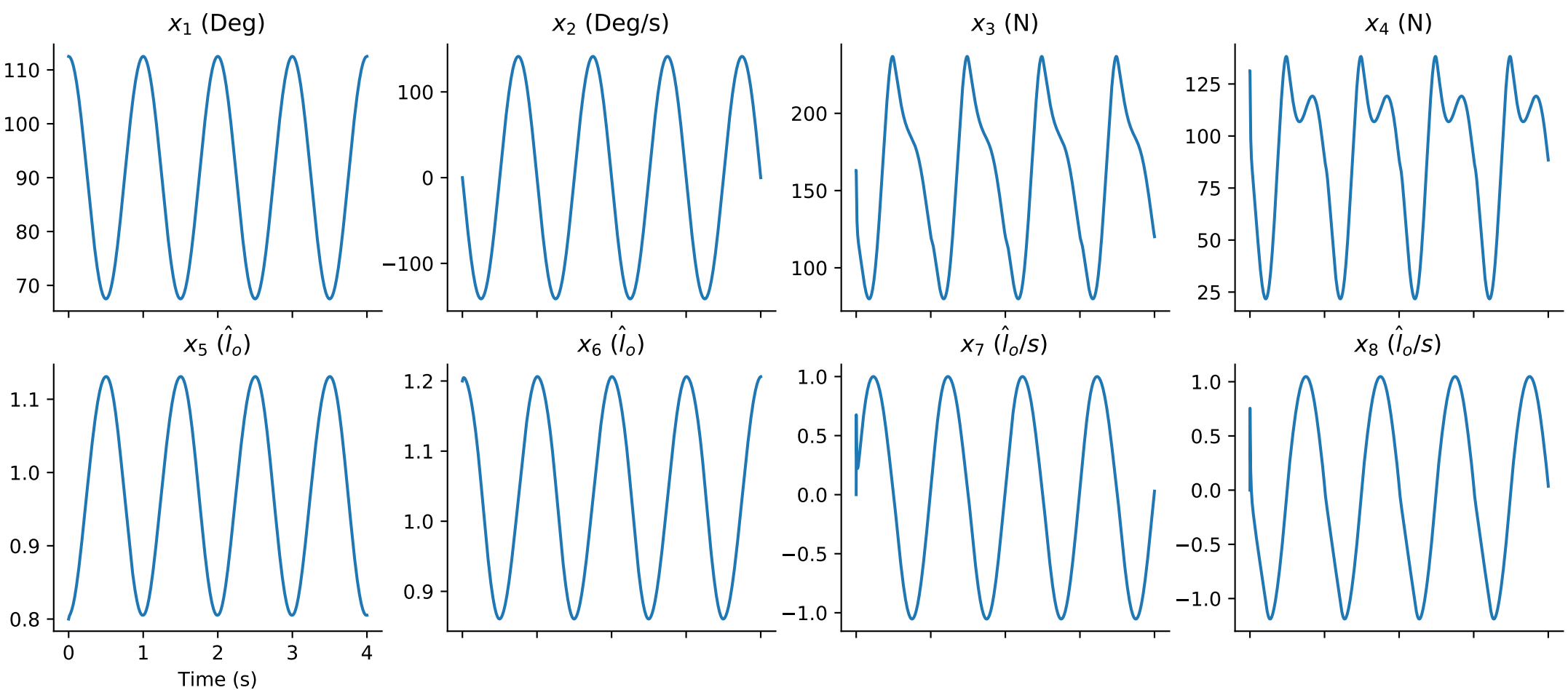
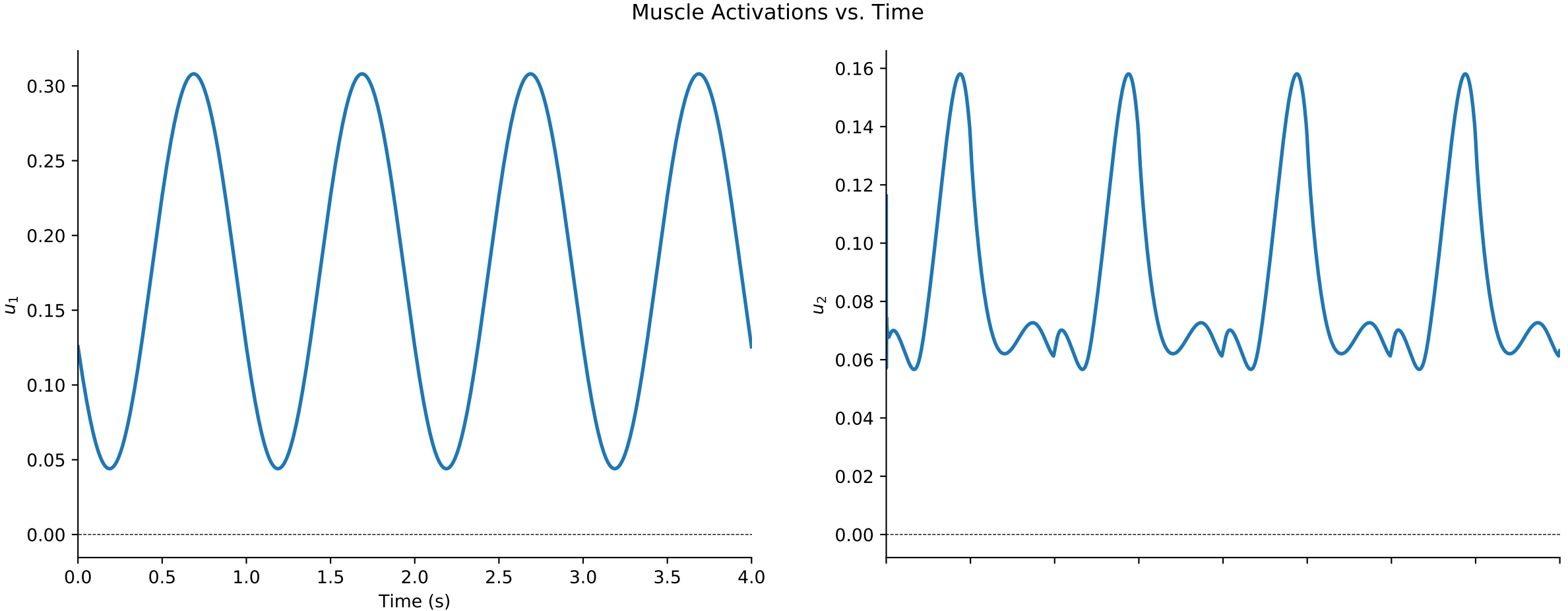
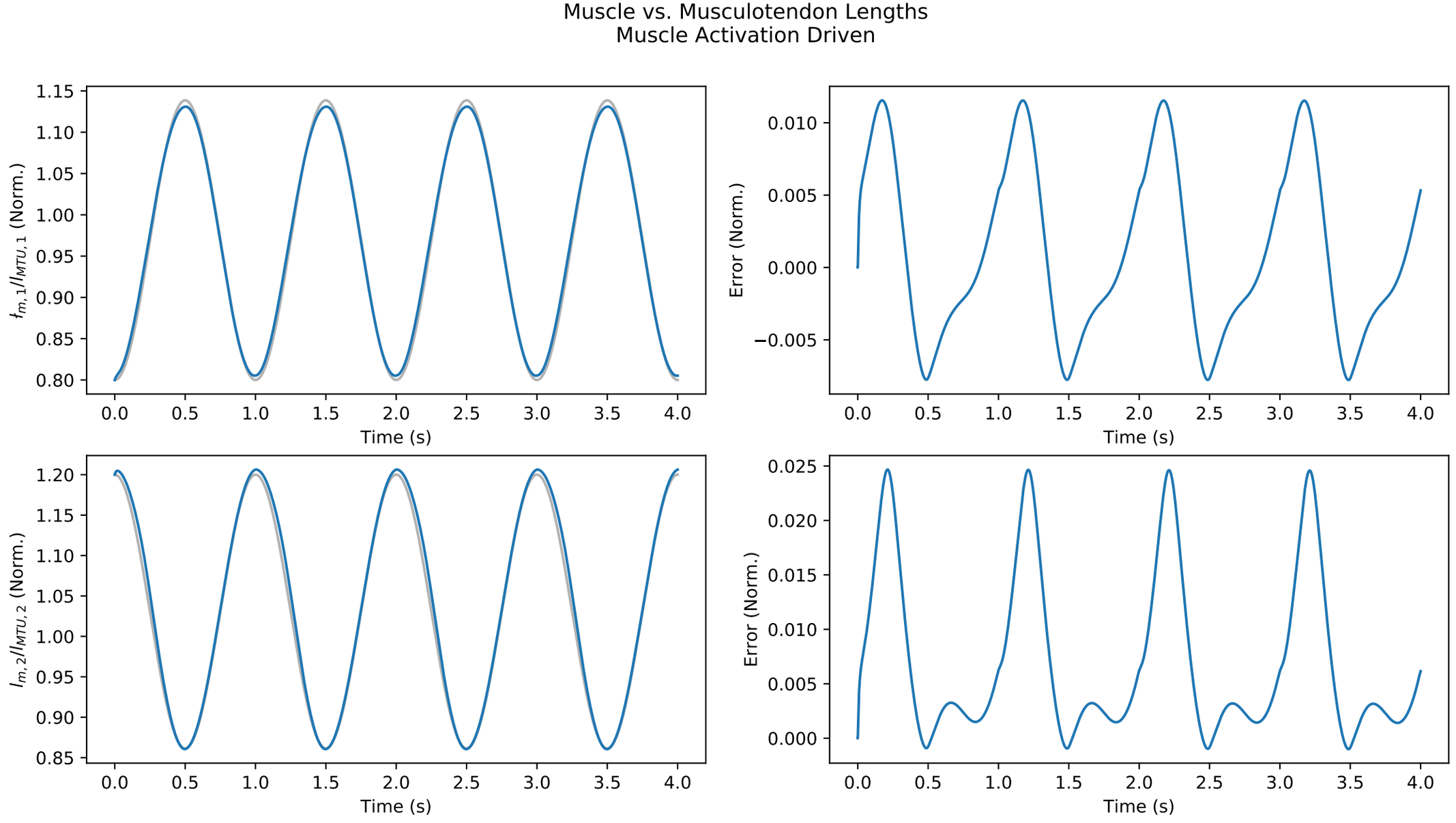
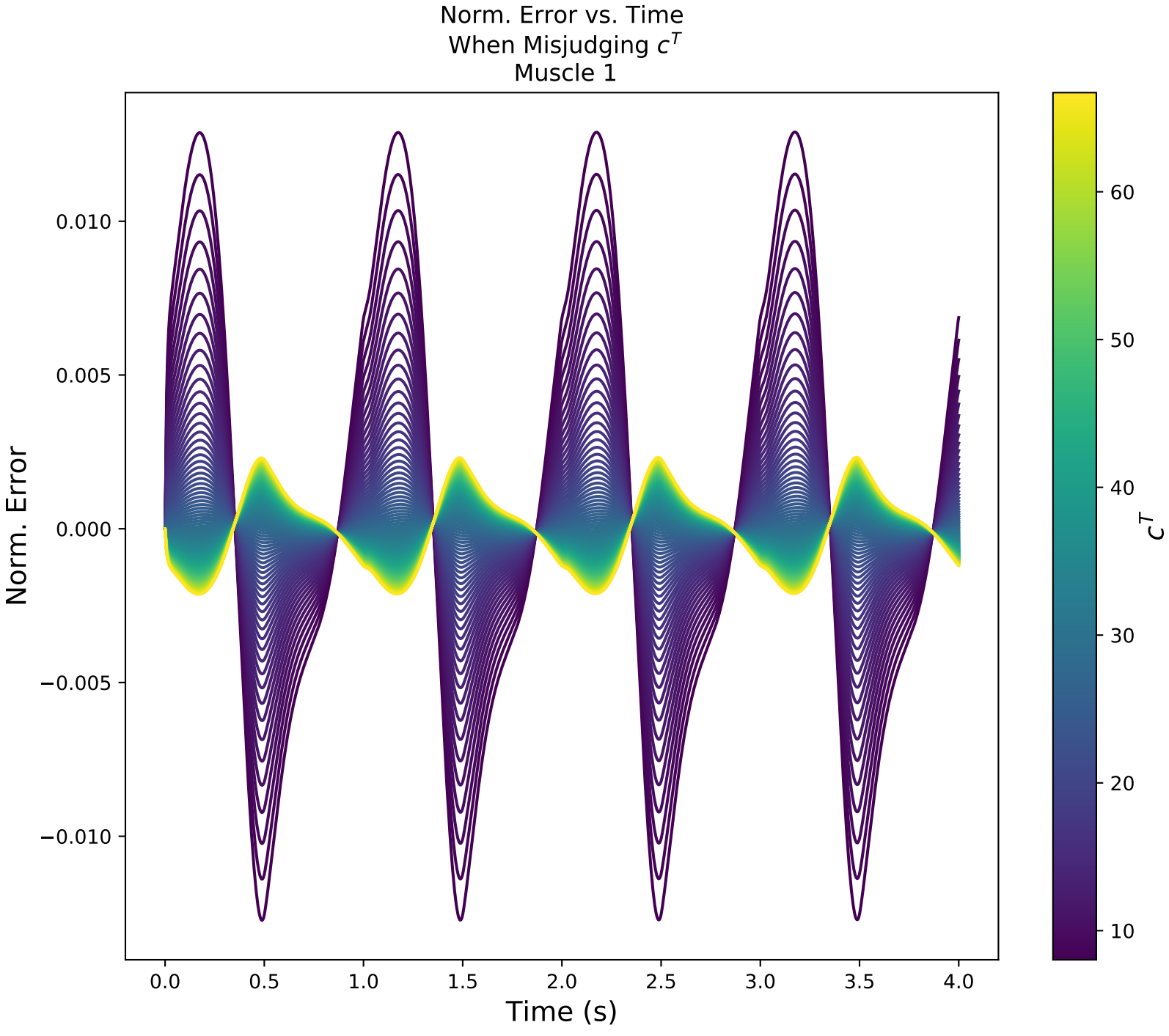

Underdetermined Forced-Pendulum Example
Desired Measure (Deg)
110
100
90
80
70
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Time (s)

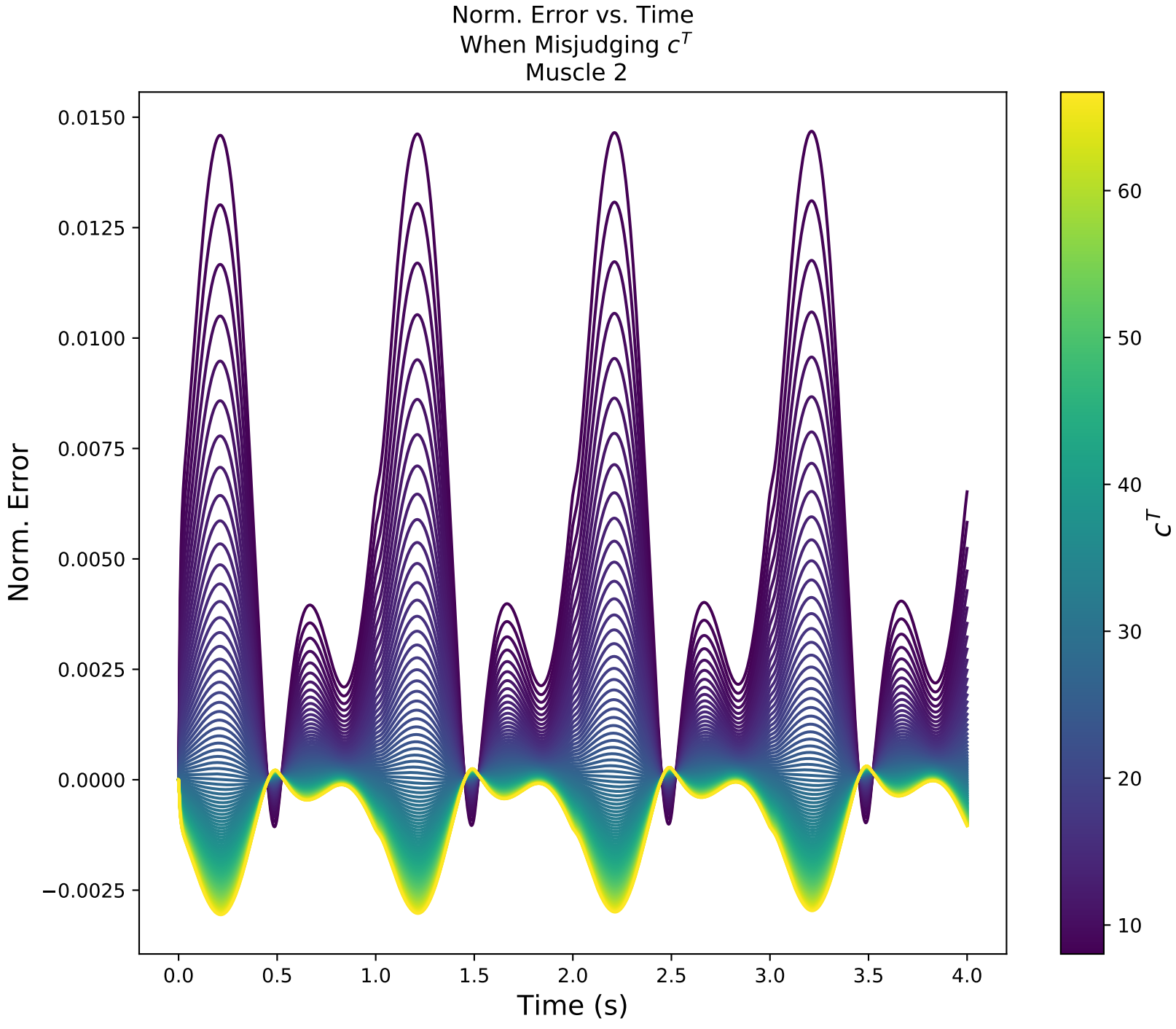

Error vs. Time
0.0100
0.0075
0.0050
0.0025
0.0000
−0.0025
−0.0050
−0.0075
−0.0100
Error (Deg)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Time (s)

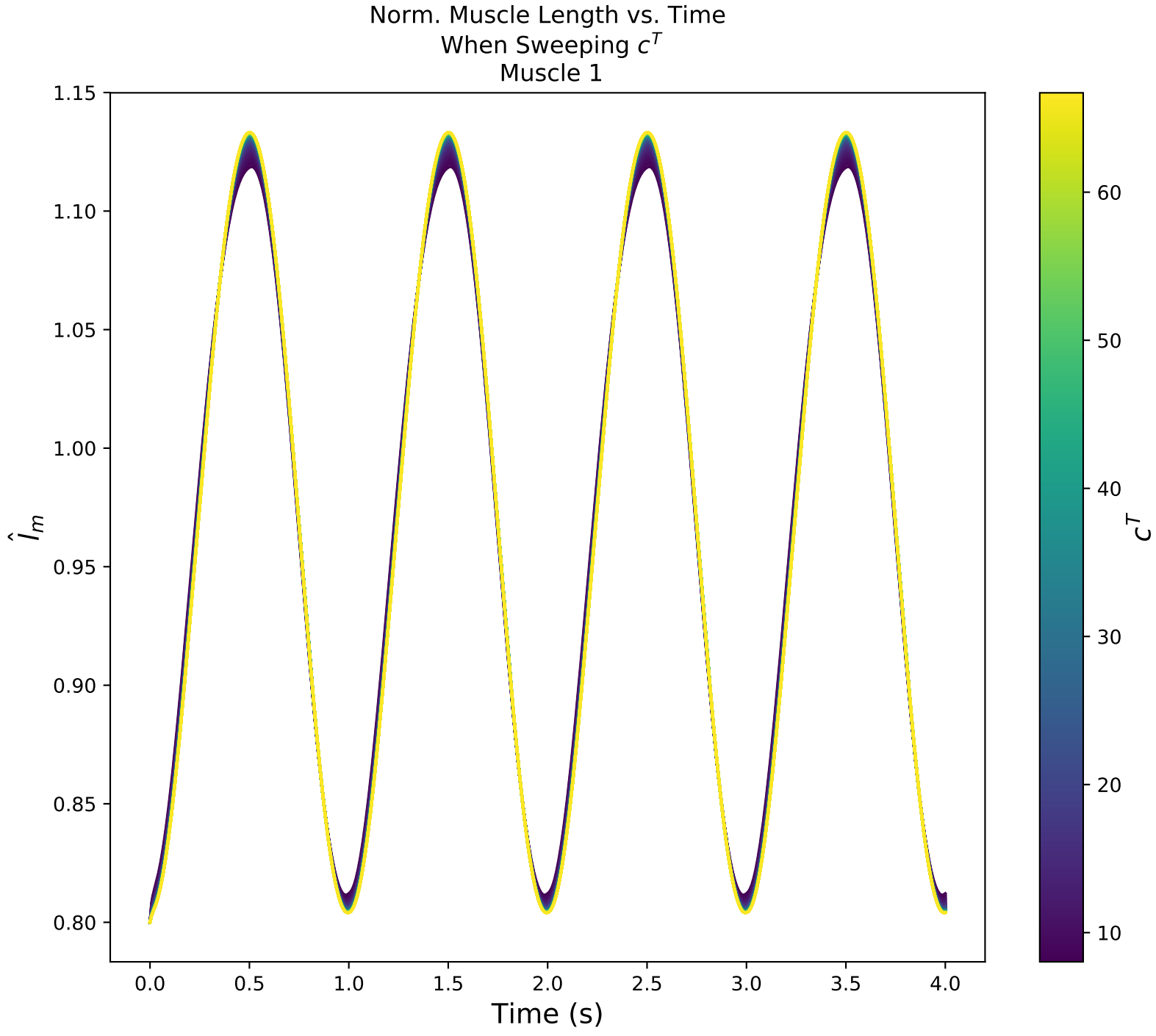

Muscle Activations Driven
x_1 (Deg)
x_2 (Deg/s)
x_3 (N)
x_4 (N)
x_5 ($\hat{l}_o$)
x_6 ($\hat{l}_o$)
x_7 ($\hat{l}_o/s$)
x_8 ($\hat{l}_o/s$)
Time (s)

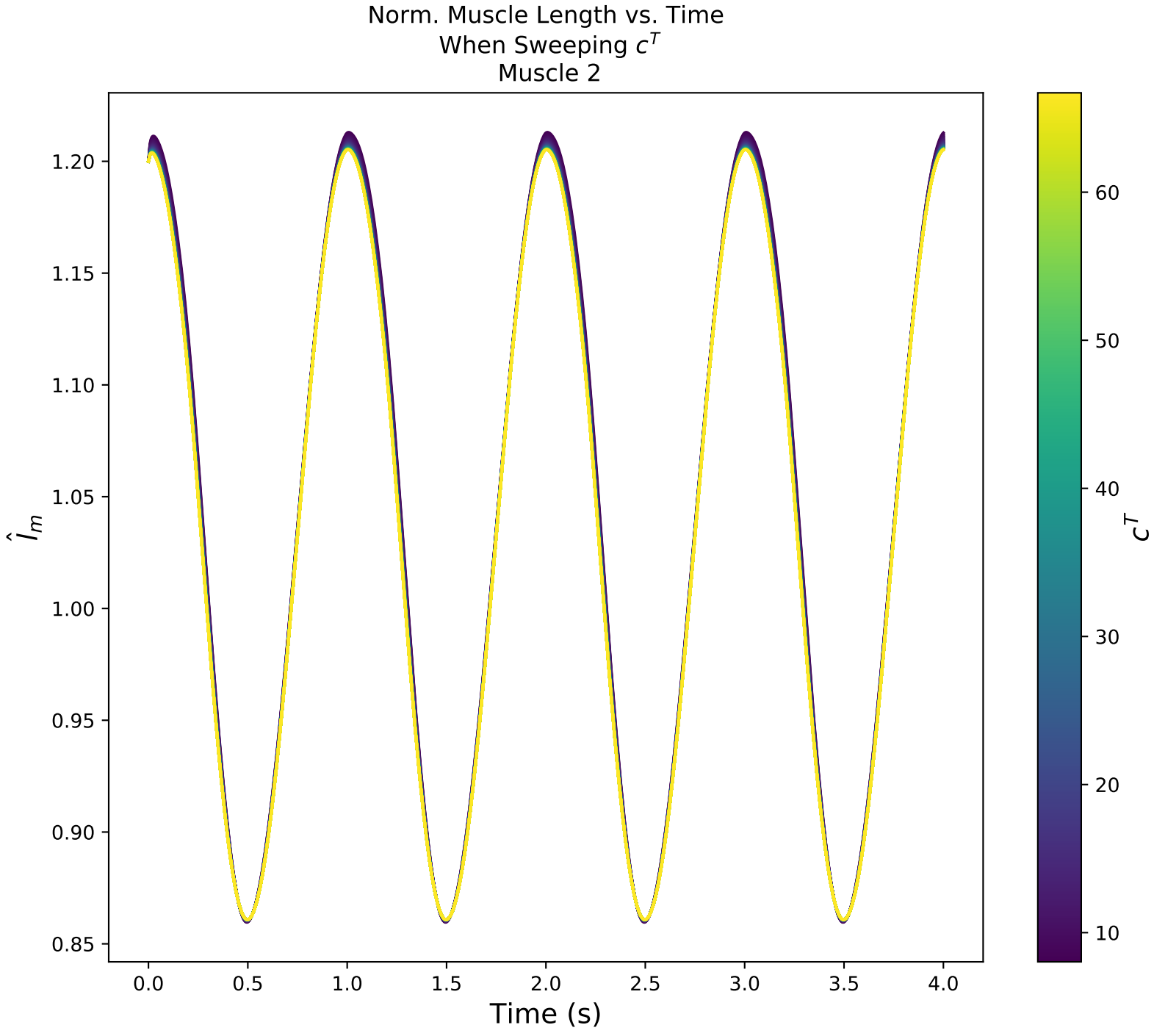

Muscle Activations vs. Time
u_1
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Time (s)
u_2
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00


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
0.010
0.005
0.000
−0.005
−0.010
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. Error vs. Time
When Misjudging c^T
Muscle 2
Norm. Error
0.0150
0.0125
0.0100
0.0075
0.0050
0.0025
0.0000
−0.0025
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 1
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
$\hat{l}_m$
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
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
$\hat{l}_m$
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