



Control action 0.10 Robot input  $u_r(t)$ Estimated human input  $\hat{u}_h(t)$ Real human input  $u_h(t)$ 0.08 Total input u(t)Robot input  $u_r(t)$ Estimated human input  $\hat{u}_h(t)$ 0.06 Total input u(t)Robot input  $u_r(t)$ Input force (N) 0.04 Estimated human input  $\hat{u}_h(t)$ Total input u(t)0.02 0.00 -0.02

-0.04

0.0

2.5

5.0

7.5

10.0

Time (s)

12.5

15.0

17.5

20.0







