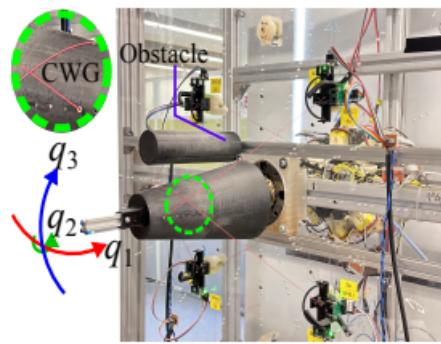
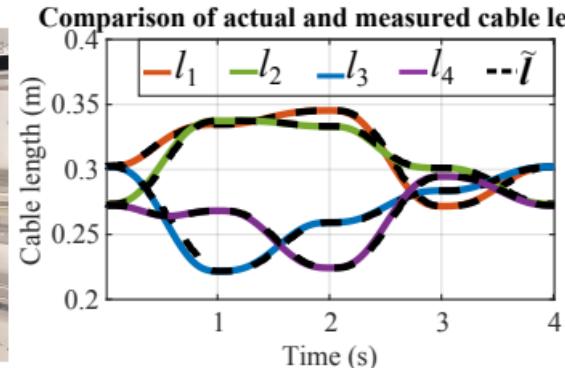


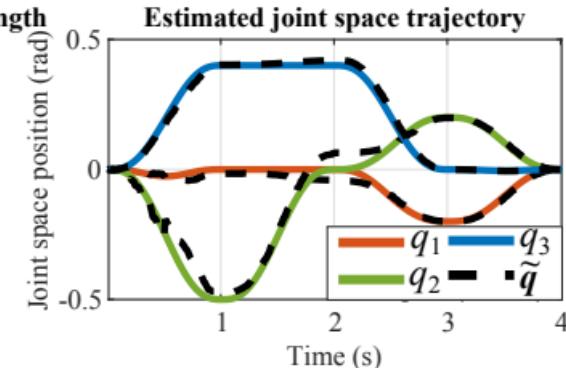
### Cone-frustum shaped mobile-platform and cylindrical shaped obstacle



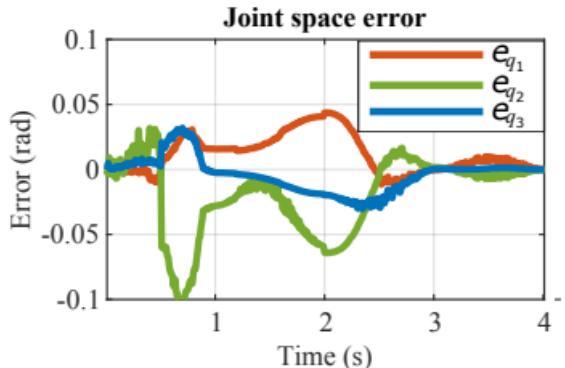
(a) BMWWrapArm hardware: Cone-frustum shaped link and cylindrical shaped obstacle.



(b) Comparison of cable lengths generated from CWGIK model and BMWWrapArm hardware.

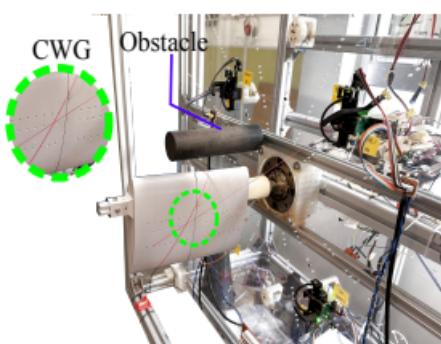


(c) Comparison of reference joint space position and CWGFK model estimated joint space position.

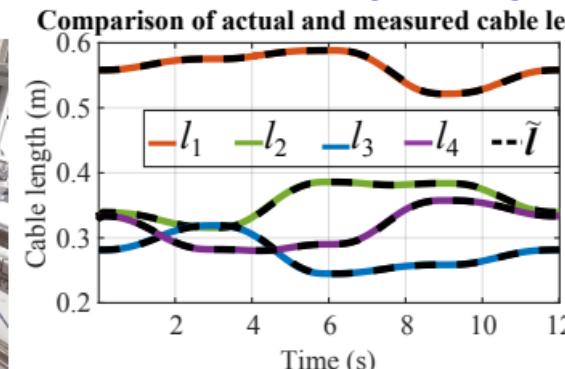


(d) Error between reference joint space position and CWGFK model estimated joint space position.

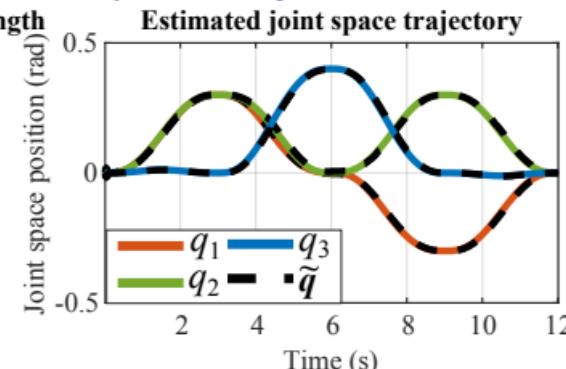
### Almond shaped mobile-platform and cylindrical shaped obstacle



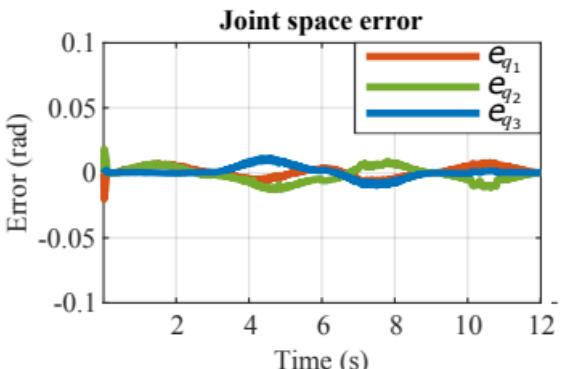
(e) BMWWrapArm hardware: Almond shaped link and cylindrical shaped obstacle.



(f) Comparison of cable lengths generated from CWGIK model and BMWWrapArm hardware.



(g) Comparison of reference joint space position and CWGFK model estimated joint space position.



(h) Error between reference joint space position and CWGFK model estimated joint space position.





