Q2

15 February 2023 17:19

checkingQ1.m

- Simply checks the jacobian I derived in Q1 using MATLAB. This was copied into Q2.

p2preaching.m

- Simply plots the x and y positions throughout the endpoint trajectory in task space.
- Uses forward kinematics to find the initial position of the end effector.
- Adds this to the function given in the question which gives *the change in trajectory* throughout time.
- Forward kinematics was derived in Q1.

p2pangles.m

- Differentiates the equations given in the question to find the end-point velocity (still in task space).
- Plots the x and y velocity with respect to time.

p2pvelocity.m

- Finds the velocities and positions of the end-effector in *joint space.*
- We rearrange this equation to convert to joint space:
- $$\dot{\mathbf{x}} = \mathbf{J}(\mathbf{q})\,\dot{\mathbf{q}}$$
- $$\dot{q} = J^{-1} \cdot \dot{x}$$
- The pseudo inverse is used since the jacobian isn't square.
- Integrate using the cumulative trapezium method to find the joint angles.