KINOVA

SOLUTION

Iterative Inverse Kinematics

2021-04-21

Gen3 lite Cursus

KINOVA

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Manipulations

Part 1: Implementation of the inverse kinematics

1.1

$$W^s = E^s + d_{wo}(sin(\theta_6)\mathbf{y}_e - cos(\theta_6)\mathbf{x}_e) - d_{we}\mathbf{z}_e$$

1.2

See related .m file

Part 2: Validation on the robot

2.1

You may test the points selected by the students.

2.2

You may test the students' input using the associated .m file

2.3

It is an improvement, although the algorithm now takes significantly longer to run.

2.4

Runtime will be significantly longer and, for many poses, the algorithm may not converge.

2.5

The main downside is the time required to run a single IK calculation and, if it fails, the robot does not move at all. This is addressed in the following lab.

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