>> startup\_rvc

Robotics, Vision & Control: (c) Peter Corke 1992-2011 http://www.petercorke.com

- Robotics Toolbox for MATLAB (release 10.2)

- ARTE contributed code: 3D models for robot manipulators (C:\Users\MUSA\Desktop\rvctools\robot\data\ARTE)

- pHRIWARE (release 1.1): pHRIWARE is Copyrighted by Bryan Moutrie (2013-2018) (c)

>> Link()

ans =

Revolute(std): theta=q, d=0, a=0, alpha=0, offset=0

>> help Link

LinkRobot manipulator Link class

A Link object holds all information related to a robot joint and link such as

kinematics parameters, rigid-body inertial parameters, motor and

transmission parameters.

Constructors::

Link general constructor

Prismatic construct a prismatic joint+link using standard DH

PrismaticMDH construct a prismatic joint+link using modified DH

Revolute construct a revolute joint+link using standard DH

RevoluteMDH construct a revolute joint+link using modified DH

Information/display methods::

display print the link parameters in human readable form

dyn display link dynamic parameters

type joint type: 'R' or 'P'

Conversion methods::

char convert to string

Operation methods::

A link transform matrix

friction friction force

nofriction Link object with friction parameters set to zero%

Testing methods::

islimit test if joint exceeds soft limit

isrevolute test if joint is revolute

isprismatic test if joint is prismatic

issym test if joint+link has symbolic parameters

Overloaded operators::

+ concatenate links, result is a SerialLink object

Properties (read/write)::

theta kinematic: joint angle

d kinematic: link offset

a kinematic: link length

alpha kinematic: link twist

jointtype kinematic: 'R' if revolute, 'P' if prismatic

mdh kinematic: 0 if standard D&H, else 1

offset kinematic: joint variable offset

qlim kinematic: joint variable limits [min max]

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m dynamic: link mass

r dynamic: link COG wrt link coordinate frame 3x1

I dynamic: link inertia matrix, symmetric 3x3, about link COG.

B dynamic: link viscous friction (motor referred)

Tc dynamic: link Coulomb friction

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G actuator: gear ratio

Jm actuator: motor inertia (motor referred)

Examples::

L = Link([0 1.2 0.3 pi/2]);

L = Link('revolute', 'd', 1.2, 'a', 0.3, 'alpha', pi/2);

L = Revolute('d', 1.2, 'a', 0.3, 'alpha', pi/2);

Notes::

- This is a reference class object.

- Link objects can be used in vectors and arrays.

- Convenience subclasses are Revolute, Prismatic, RevoluteMDH and

PrismaticMDH.

References::

- Robotics, Vision & Control, P. Corke, Springer 2011, Chap 7.

See also Link, Revolute, Prismatic, SerialLink, RevoluteMDH, PrismaticMDH.

Overloaded methods:

cgoppoint/Link

>> L\_1 = 20;

L\_2 = 50;

L\_3 = 40;

L (1) = Link([0 L\_1 0 pi/2]);

L (2) = Link([0 0 L\_2 0]);

L (3) = Link([0 0 L\_3 0]);

>> Robot = SerialLink(L)

Robot =

noname:: 3 axis, RRR, stdDH, slowRNE

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| j | theta | d | a | alpha | offset |

+---+-----------+-----------+-----------+-----------+-----------+

| 1| q1| 20| 0| 1.5708| 0|

| 2| q2| 0| 50| 0| 0|

| 3| q3| 0| 40| 0| 0|

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>> Robot.name = 'RobotArm'

Robot =

RobotArm:: 3 axis, RRR, stdDH, slowRNE

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| j | theta | d | a | alpha | offset |

+---+-----------+-----------+-----------+-----------+-----------+

| 1| q1| 20| 0| 1.5708| 0|

| 2| q2| 0| 50| 0| 0|

| 3| q3| 0| 40| 0| 0|

+---+-----------+-----------+-----------+-----------+-----------+

>>

>> SerialLink(L)

ans =

noname:: 3 axis, RRR, stdDH, slowRNE

+---+-----------+-----------+-----------+-----------+-----------+

| j | theta | d | a | alpha | offset |

+---+-----------+-----------+-----------+-----------+-----------+

| 1| q1| 20| 0| 1.5708| 0|

| 2| q2| 0| 50| 0| 0|

| 3| q3| 0| 40| 0| 0|

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>> Robot.plot([0 0 1])