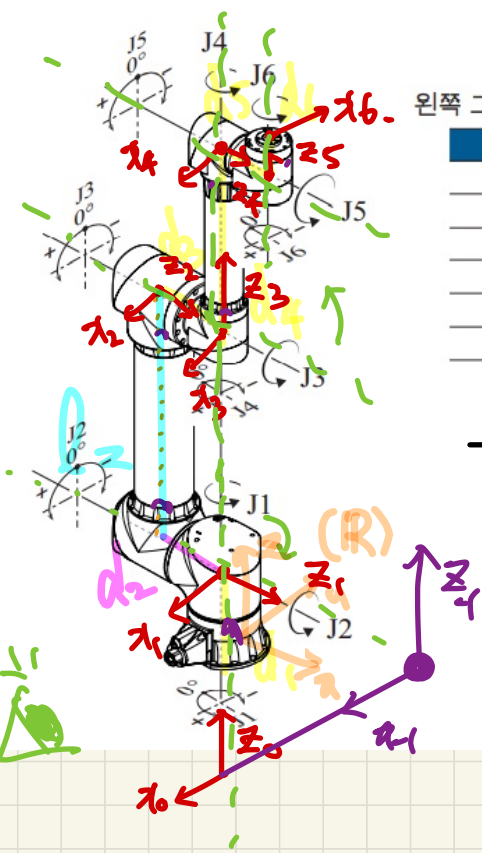
6R Robot Manipulator.



왼쪽 그림의 자세 (원점자세)

축	각도
J1	0°
J2	0°
J3	0°
J4	0°
J5	0°
J6	0°

DH-params

	a_i	α_i	d_i	θ_i
1	0	$-\pi/2$	145	θ_1
2	390	0	135	θ_2
3	0	$\pi/2$	135	θ_3
4	0	$-\pi/2$	210	θ_4
5	0	$+\pi/2$	100	θ_5
6	0	0	55	θ_6

145
390
210
15

Robot Arm performance PT

1. Mechanical Analysis. (Robot Kinematics / Robot Dynamics.

* Robot Kinematics.

< Fwd Kinematics > Joint angle → End effector point.

① Assign Link Frames (values in manual)

② Obtain Danavit-Hartenberg Kinematic Param.

③ Compute homogeneous transformation matrix by links.

④ Compute GND - E.E. transformation matrix.

< Inv Kinematics > End effector → Joint angle.

① Obtain Jacobian matrix. J

② $\tau = K\,dq \;\cdots\; dq = K^{-1}\tau$

③ $\tau = -J^{T}F_{ext}$

④ from $dx = J\,dq$ (by definition) $= J(K^{-1}\tau)$

$= J(K^{-1}(-J^{T}F_{ext}))$

$\therefore dx = -(JK^{-1}J^{T})F_{ext} = -C\,F_{ext}.$

** 이면 범위.
(얼마나 부드럽게.
singularity 발생으로
움직이지 못하는 상황.
수치적 규명, 수치화 가능!?