

VERSION [0.0.4]

Modified: 2018/3/12



# UTHAI-HUMANOID KINEMATICS PROPERTIES

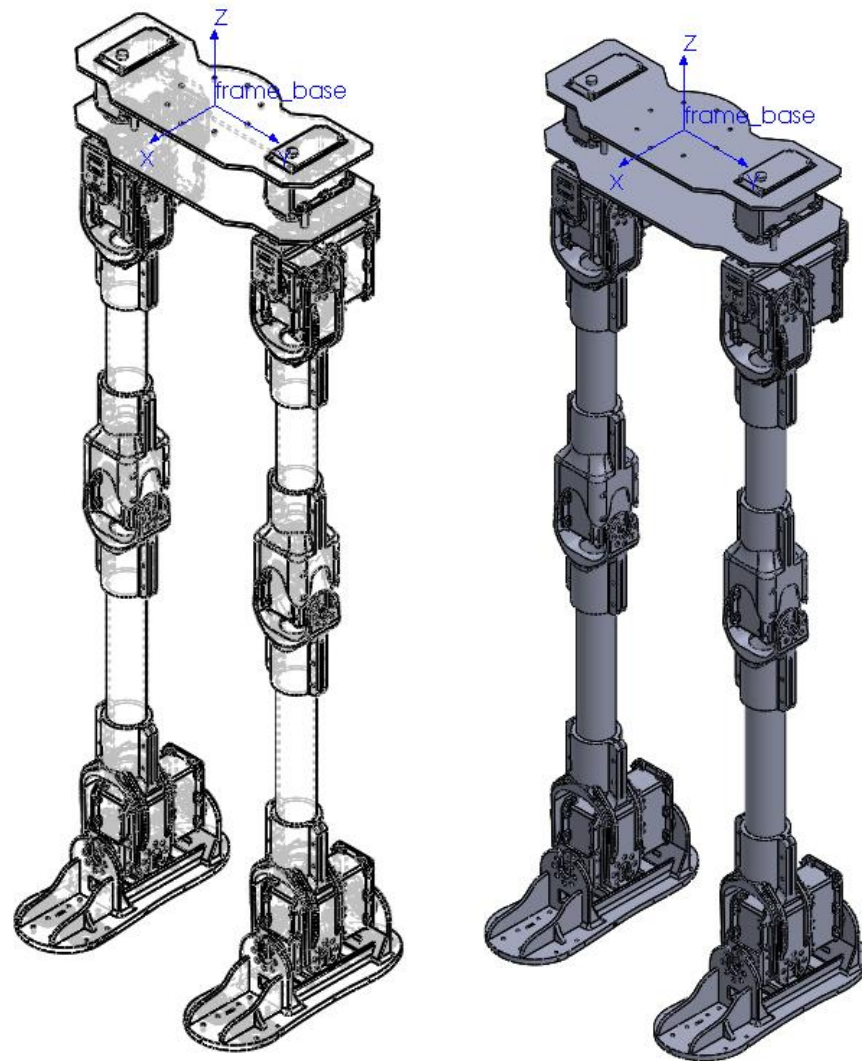
PRINCIPLE AUTHORS:

LIEWS

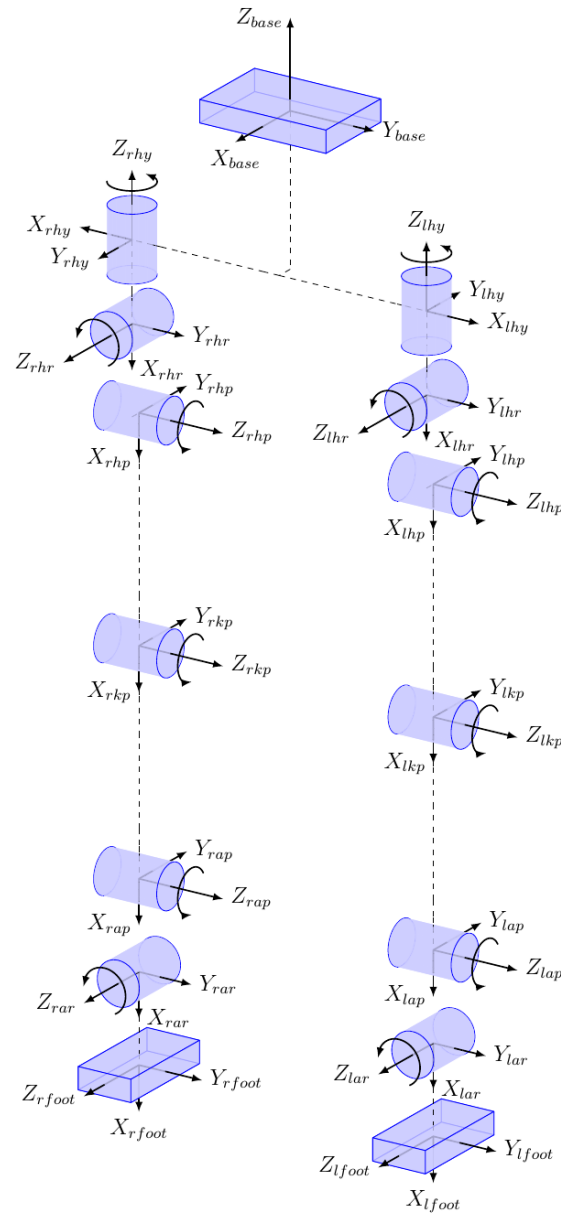
TAA

BIRD

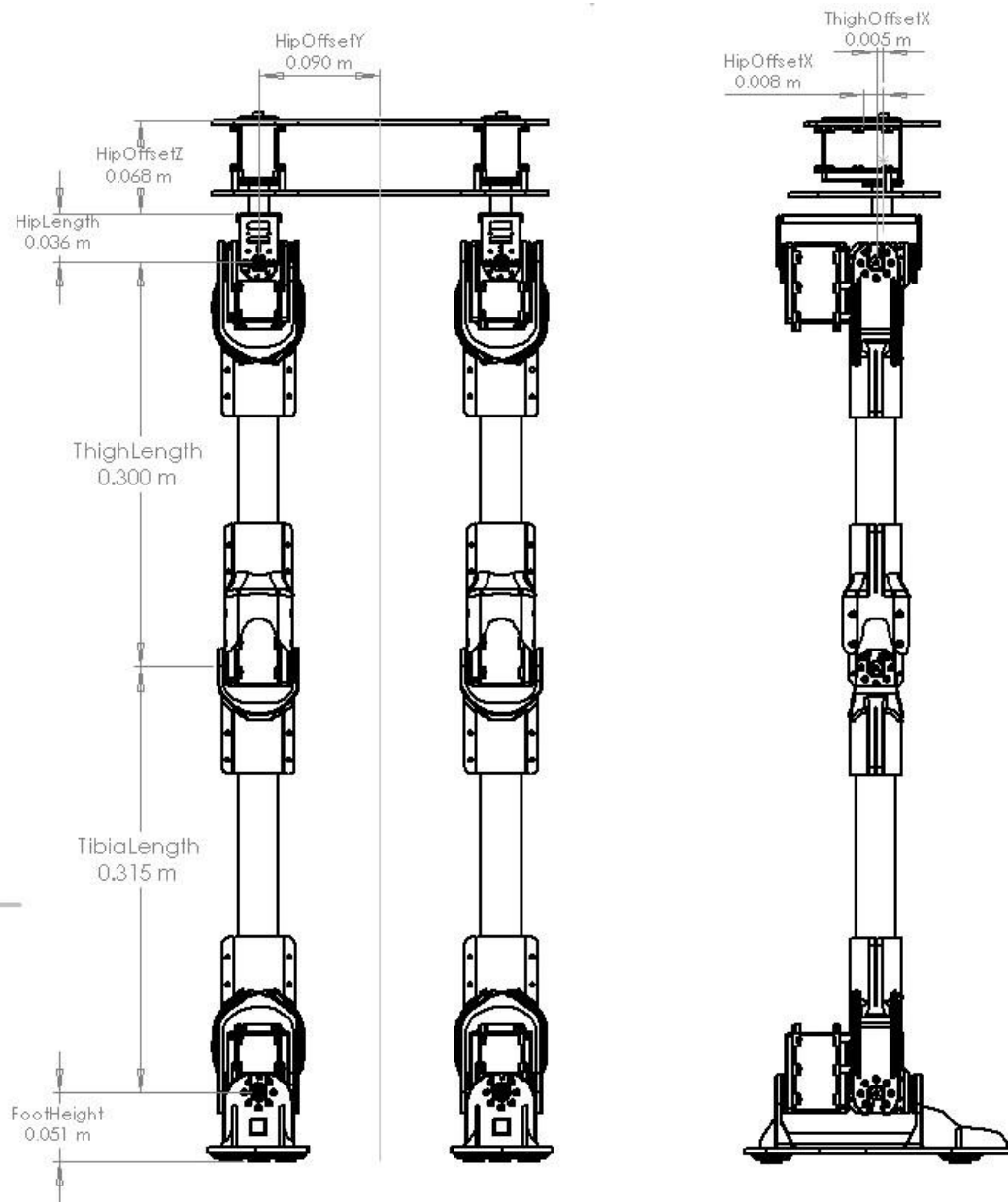
## UTHAI HUMANOID



# UTHAI FRAMES



## UTHAI KINEMATICS LEG



Name	Size [m]
HipOffsetX	0.008
HipOffsetY	0.090
HipOffsetZ	0.068
HipLength	0.036
ThighOffsetX	0.005
ThighLength	0.300
TibiaLength	0.315
FootHeight	0.051

Technical drawing of a mechanical assembly, likely a robotic arm or a specialized lifting device, showing multiple views and dimensions.

**Top View (Left):** Shows the base of the assembly with two main sections. The left section has a 60° angle, and the right section has a 50° angle. The overall width is 190.

**Side View (Right):** Shows the profile of the assembly. The total height is 95. The base has a 30° angle. The main vertical section has a 120° angle. The total width at the base is 200.33.

**Front View (Left):** Shows the front of the assembly. The total height is 318. The base has a 30° angle. The main vertical section has a 120° angle. The total width at the base is 200.33.

**Dimensions and Angles:**

- Top View (Left): 190 (width), 60° (angle), 50° (angle).
- Side View (Right): 95 (height), 30° (angle), 120° (angle), 200.33 (width).
- Front View (Left): 318 (height), 30° (angle), 120° (angle), 200.33 (width).
- Base Dimensions: 37.04, 75.00, 102.80.
- Internal Dimensions: 30, 30, 30.

Joint Name	Range in Degrees	Range in Radians
r_hip_yaw_joint	-60.0 to 50.0	-1.047197 to 0.872664
r_hip_roll_joint	-40.0 to 50.0	-0.698131 to 0.872664
r_hip_pitch_joint	-120.0 to 40.0	-2.094395 to 0.698131
r_knee_pitch_joint	0.0 to 130.0	0 to 2.268928
r_ankle_pitch_joint	-30.0 to 60.0	-0.523598 to 1.047197
r_ankle_roll_joint	-20.0 to 60.0	-0.349065 to 1.047197
l_hip_yaw_joint	-50.0 to 60.0	-0.872664 to 1.047197
l_hip_roll_joint	-50.0 to 40.0	-0.872664 to 0.698131
l_hip_pitch_joint	-120.0 to 40.0	-2.094395 to 0.698131
l_knee_pitch_joint	0.0 to 130.0	0 to 2.268928
l_ankle_pitch_joint	-30.0 to 60.0	-0.523598 to 1.047197
l_ankle_roll_joint	-60.0 to 20.0	-1.047197 to 0.349065

## UTHAI URDF

Parent	Child	Translation [m]			Rotation [radian]		
		X	Y	Z	Roll	Pitch	Yaw
base	pelvis_link	0	0	0	0	0	0
pelvis_link	r_hip_yaw_link	0.008	-0.09	-0.06	0	0	-1.5708
r_hip_yaw_link	r_hip_roll_link	0	0	-0.036	1.5708	0	0
r_hip_roll_link	r_hip_pitch_link	0	0	-0.005	-1.5708	0	-1.5708
r_hip_pitch_link	r_knee_pitch_link	0.3	0	0	0	0	0
r_knee_pitch_link	r_ankle_pitch_link	0.315	0	0	0	0	0
r_ankle_pitch_link	r_ankle_roll_link	0	0	0	1.5708	0	0
r_ankle_roll_link	r_foot_ft_link	0.05	0	0	0	-1.5708	0
pelvis_link	l_hip_yaw_link	0.008	0.09	-0.06	0	0	1.5708
l_hip_yaw_link	l_hip_roll_link	0	0	-0.036	1.5708	0	0
l_hip_roll_link	l_hip_pitch_link	0	0	-0.005	-1.5708	0	-1.5708
l_hip_pitch_link	l_knee_pitch_link	0.3	0	0	0	0	0
l_knee_pitch_link	l_ankle_pitch_link	0.315	0	0	0	0	0
l_ankle_pitch_link	l_ankle_roll_link	0	0	0	1.5708	0	0
l_ankle_roll_link	L_foot_ft_link	0.05	0	0	0	-1.5708	0

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## UTHAI DH TABLES

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The logo consists of the word "UTHAI" in a large, white, serif font, positioned above the word "HUMANOID" in a smaller, white, sans-serif font. Both words are centered within a solid orange square.

# UTHAI

## HUMANOID