

LECTURE 3

Robot Transformations

Rotation Matrices, Homogeneous Coordinate System,
Euler Angles & Quaternions

Kallol Saha

Research Intern under Prof. K Madhav Krishna

Application - Mobile Manipulation



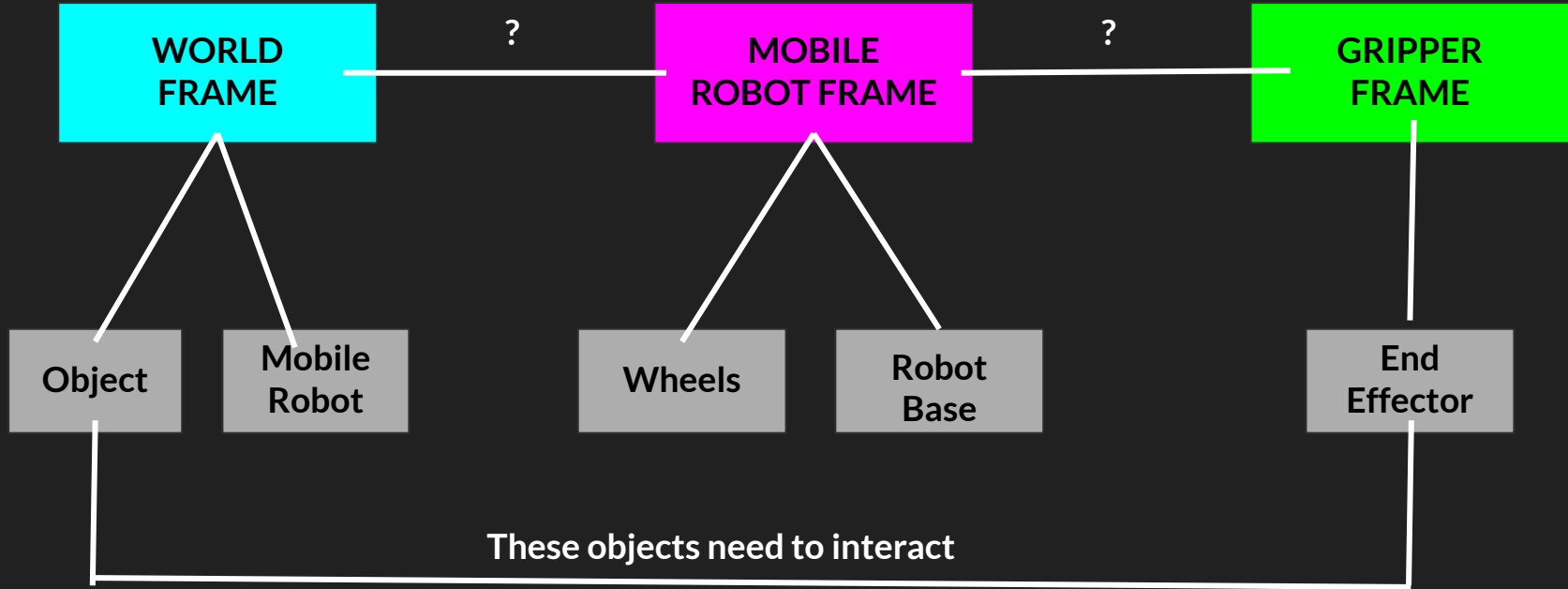
Source: Robohub, University of Waterloo



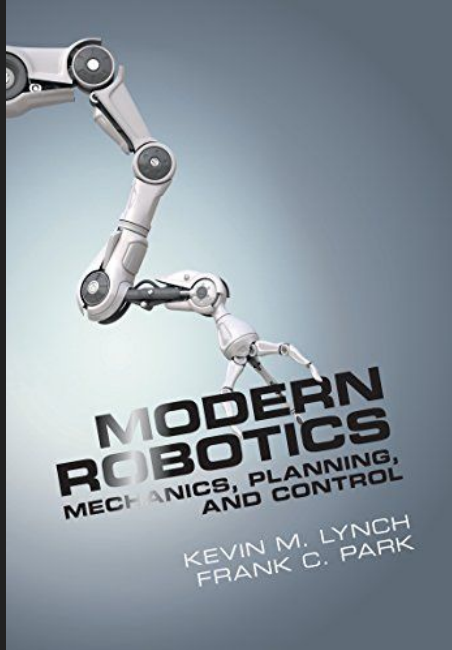
Source: Clearpath Robotics, ICRA 2017

Prerequisites: Linear Algebra, Vectors, Linear Transformations, Matrix Operations, Complex Numbers

The Problem:



Sources:



Quaternions:

<https://eater.net/quaternions>

[https://en.wikipedia.org/wiki/Conversion
between quaternions and Euler ang
les](https://en.wikipedia.org/wiki/Conversion_between_quaternions_and_Euler_angles)