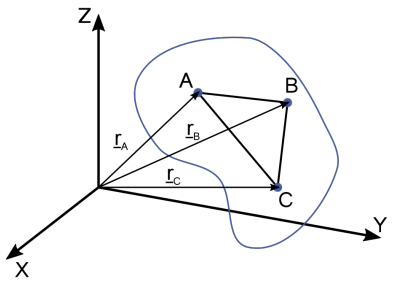
06. Principles of robotics, programming a da Vinci surgical robot in a simulated environment

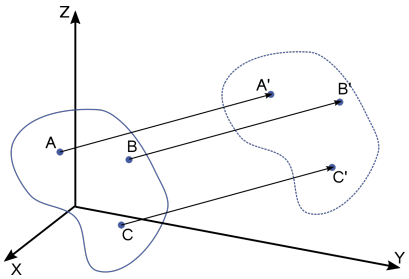
Rigid body motion



Def. Rigid body

A rigid body is defined as a body on which the distance between two points remains constant in time regardless of the force applied on it.

- Shape and the volume of the rigid bodies are also constant.
- The **pose** of a rigid body can be given by the three coordinates of three of its points that do not lie on the same straight line.



- The **pose** of a rigid body can be described in a more expressive way by the three coordinates of one of its points chosen arbitrarily **position** and the body's **orientation**.
- The **motion of rigid bodies** is composed by two elemental motions: **translation** and **rotation**.
- During **translation**, all points of the body move along straight, parallel lines.