

NOTE: the ξ -axis is pointing out of the paper.

Options (please choose one):

1. Create a kinematic model of the crane above.
2. Create a kinematic model of a part (or multiple parts) of the human anatomy (see next page for a skeleton).

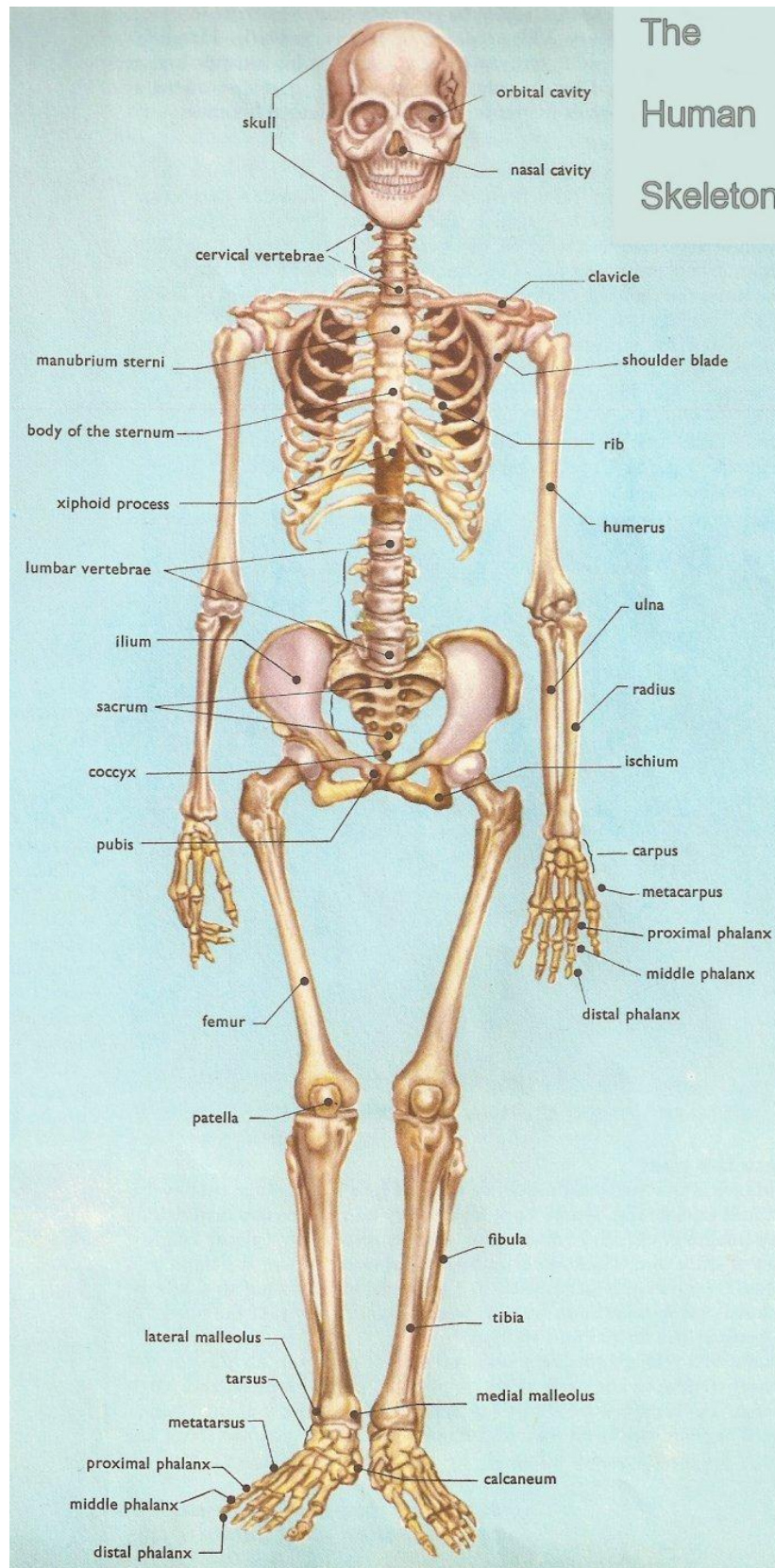
NB! It is allowed to get up and exercise the relevant joints to understand how many DOF they have!

Exercise 1:

1. Identify the different joint types in the chosen system.
2. How many degrees of freedom does your chosen system have?
3. Set up one system of kinematic constraint equations to describe the system.

Exercise 2:

1. Derive the Jacobian matrix for the kinematic constraint equations.
2. Derive the gamma vector.



The Human Skeleton