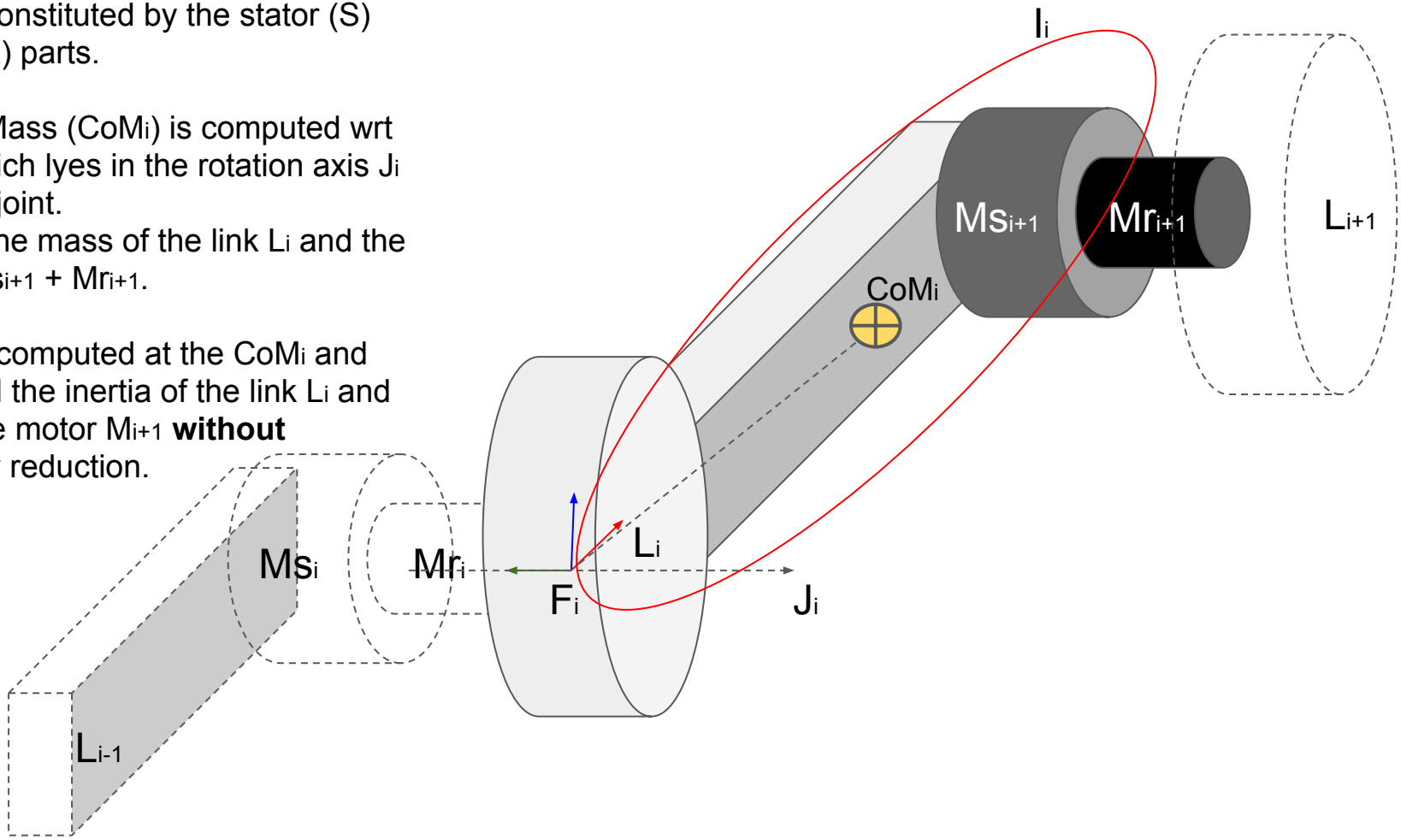
URDF Specs

Each link L_i carries the following motor variables M_{i+1} constituted by the stator (S) and the rotor (R) parts.

The Center of Mass (CoM_i) is computed wrt the frame F_i which lyes in the rotation axis J_i of the previous joint.
CoM_i contains the mass of the link L_i and the motor $M_{i+1} = Ms_{i+1} + Mr_{i+1}$.

The Inertia Ii is computed at the CoM_i and contains as well the inertia of the link L_i and the inertia of the motor M_{i+1} **without** considering any reduction.



Considerations

- **Link side model**: we consider all the inertial terms in the diagonal, off diagonal terms are approximated (coupling terms given by $\sum$(N*Imr) given by all the following motor inertias multiplied by the gear ratio N).
- **Computed torques gives link side torques** (N^2*Imr term of each joint are internally compensated by the controller)
- **Forward dynamics computes link side accelerations**