① Perception-to-action

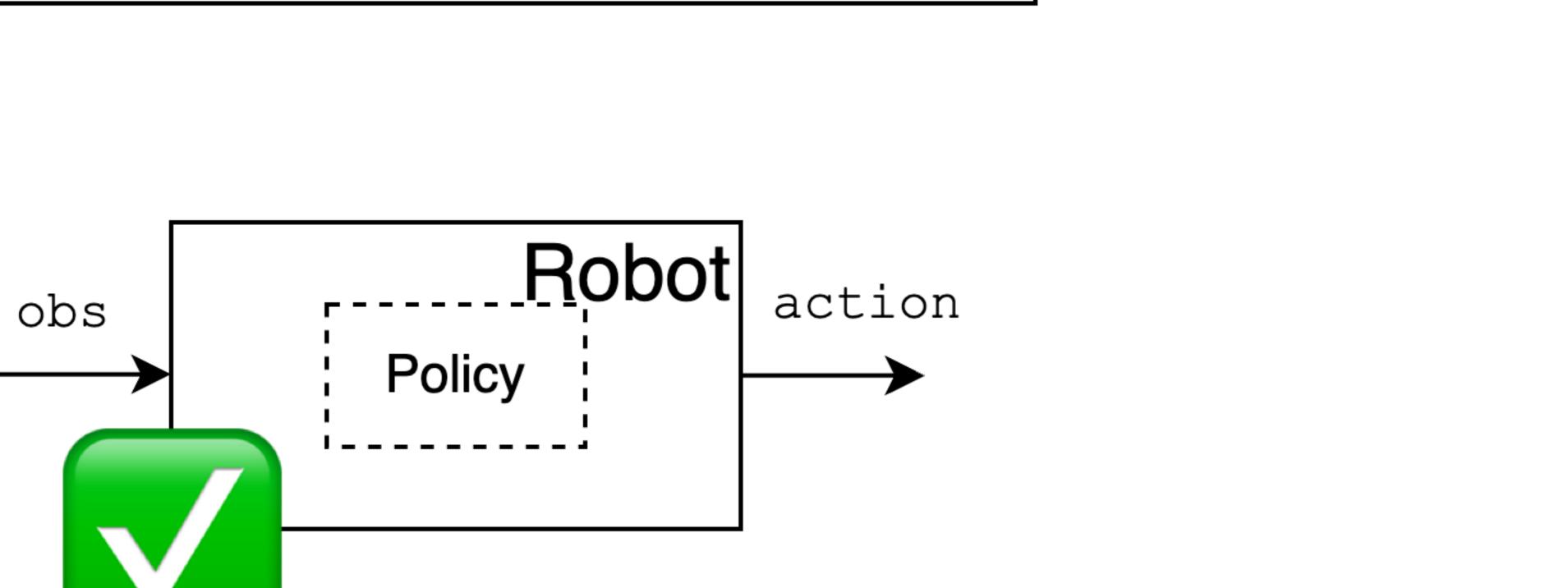# ② Learned feature extraction

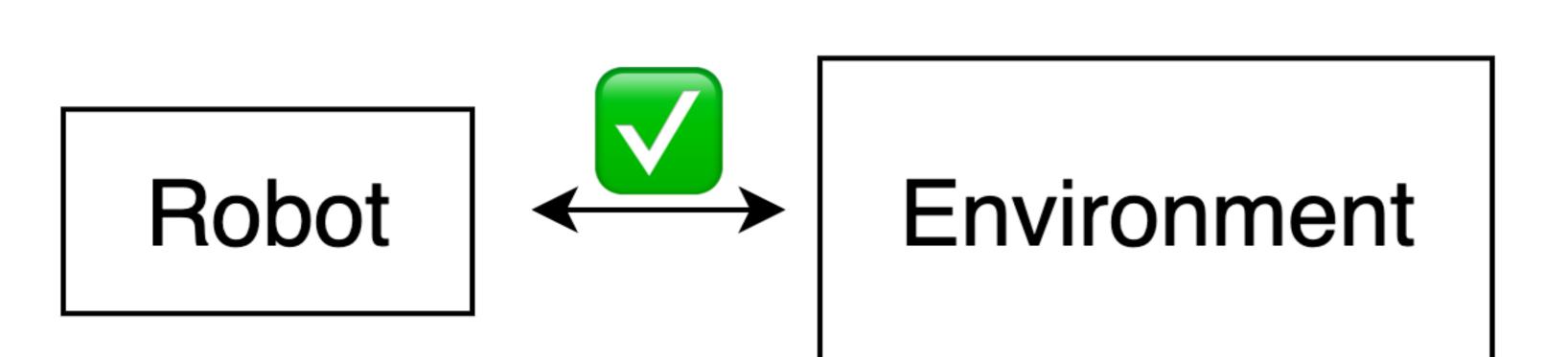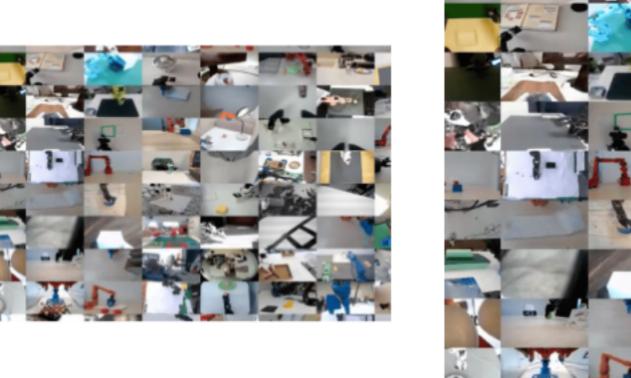
gyro (rad/s)

unified pipeline

features

③ Interactions over modeling

$$(I + mr^2 + mlr\cos(\phi_{tl}))\ddot{\phi}_{grp} + (I + mr^2)\ddot{\phi}_{tl} + ...$$
$$... + mlr\sin(\phi_{tl})\dot{\phi}_{grp}^2 ... mgr\cos(\phi_{grp} + \phi_{tl}) = \tau_f,$$

Robot ←→ Environment

④ Data-scaling

Performance