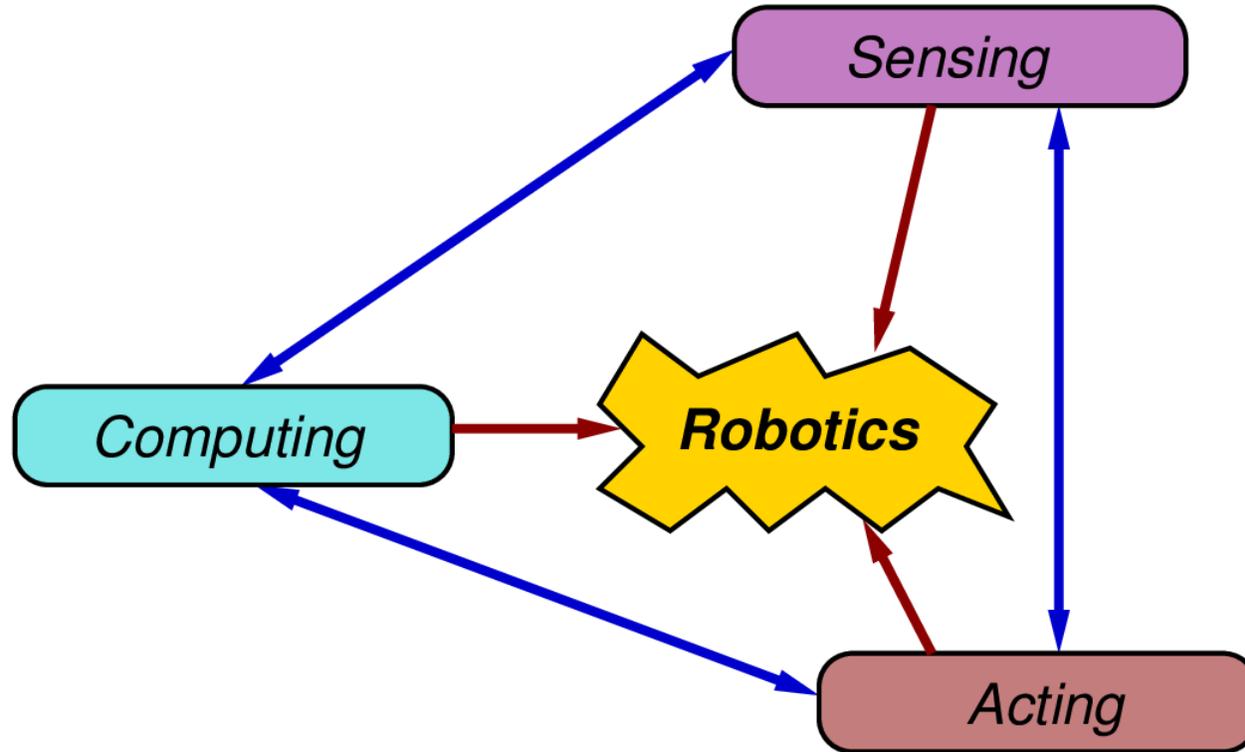


Robot hardware

Actuators

Robot components

Recall from last time: Robotics problems exist at the intersection of **computation**, **action**, and **sensing**.



Each of these three elements must be supported by specific hardware.

Types of actuators

- A **DC motor** rotates at a high velocity with low torque and limited control over the amount of rotation.
- A **gearhead motor** has gears attached to a DC motor, decreasing velocity and increasing torque.

Types of actuators

- A **stepper motor** rotates in small fixed increments, providing precise control over the amount of rotation.
- A **servo** is a motor equipped with electronics to sense and control the position of the rotor, but without the ability to complete a full rotation.

Types of actuators

- **Linear actuators** generate translational motion in various ways.