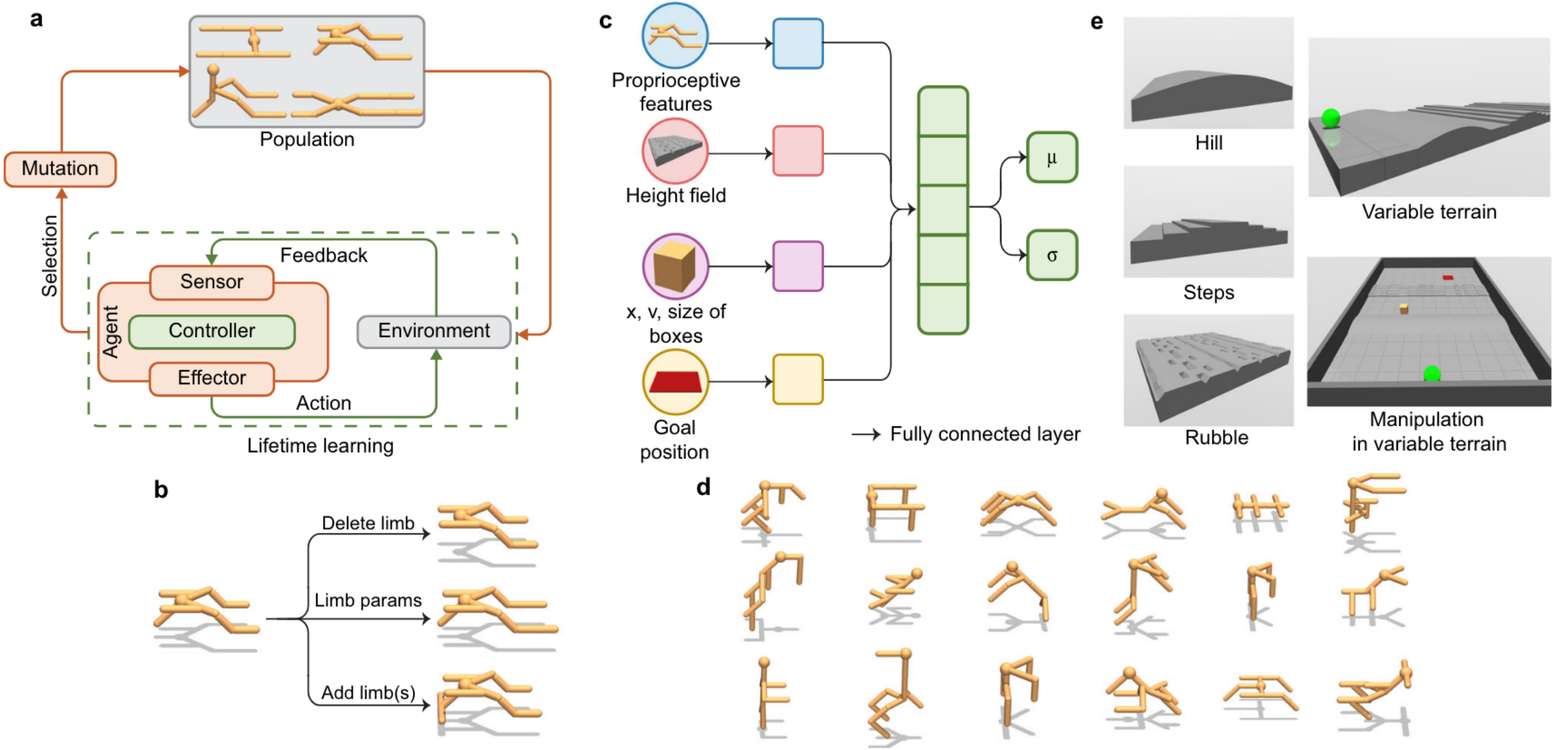

Fig. 1 DERL overview. a DERL is a general framework to make embodied agents via two interacting adaptive processes. An outer loop of evolution optimizes agent morphology via mutation operations, some of which are shown in (**b**) and an inner reinforcement learning loop optimizes the parameters of a neural controller (**c**). **d** Example agent morphologies in the UNIMAL design space. **e** Variable terrain consists of three stochastically generated obstacles: hills, steps, and rubble. In manipulation in variable terrain, an agent must start from an initial location (green sphere) and move a box to a goal location (red square).