CLAIMS

1. A robot comprising:

a body;

at least one physically actuatable component mechanically coupled to the body;

at least one processing unit;

a communication interface communicatively coupled to a tele-operation system;

at least one non-transitory processor-readable storage medium communicatively coupled to the at least one processing unit, the at least one non-transitory processor-readable storage medium storing data for a plurality of subsets of candidate operators of the tele-operation system, wherein each candidate operator in each respective subset of candidate operators is defined according to a respective role, the at least one non-transitory processor-readable storage medium storing processor-executable instructions that, when executed by the at least one processing unit, cause the robot to:

receive, by the communication interface, control selection input indicating a description of a role of an operator of the tele-operation system;

determine, based on the description of the role of the operator, to which subset of candidate operators the operator belongs;

select and access a select control paradigm from a plurality of control paradigms based on the control selection input, the select control paradigm specific to the tasks expected to be performed by the robot based at least in part on the subset of candidate operators to which the operator is determined to belong, wherein each control paradigm in the plurality of control paradigms is trained based on use and feedback input by at least one operator in a respective subset of candidate operators;

determine at least one candidate action of the at least one actuatable component based on the select control paradigm;

actuate one or more of the at least one actuatable component in accordance with one or more of the at least one candidate action;

receive feedback input on one or more of the at least one candidate action from the tele-operation system;

update the select control paradigm based on the feedback input to produce an updated control paradigm;

receive, by the communication interface, control selection input indicating a description of a role of an additional operator of the tele-operation system;

determine, based on the description of the role of the additional operator, that the additional operator belongs to the same subset of candidate operators as the operator; and

select and access the updated control paradigm.

2. The robot of claim 1, wherein the instructions which cause the robot to access the select control paradigm cause the processing unit to retrieve the select control paradigm from the non-transitory processor-readable storage medium.

3. The robot of claim 1, wherein the instructions which cause the robot to access the select control paradigm cause the robot to retrieve, by the communication interface, the select control paradigm from the tele-operation system.

4. The robot of claim 1, wherein:

the instructions further cause the robot to output, by the communication interface, an indication of the at least one candidate action, wherein reception of feedback input occurs before actuation of at least one actuatable component; and

the instructions which cause the robot to receive feedback input cause the robot to receive, from the tele-operation system, at least one instruction selected from a group consisting of: approval to proceed with at least one candidate action; disapproval to proceed with the at least one candidate action; and at least one alternate action

instruction indicating an alternate action to be performed instead of the at least one candidate action.

5. The robot of claim 4, wherein the instructions which cause the robot to update, by the at least one processing unit, the select control paradigm based on the feedback input cause the at least one processing unit to:

increase a confidence in the at least one candidate action if the feedback input indicates approval;

decrease the confidence in the at least one candidate action if the feedback input indicates disapproval; or

specify new behavior or increase the confidence of existing behavior in the select control paradigm which corresponds to the alternate action provided by the tele-operation system.

6. The robot of claim 1, wherein:

reception of feedback input occurs after causing actuation of the at least one actuatable component in accordance with a candidate action;

the instructions which cause the robot to receive feedback input cause the robot to receive, from the tele-operation system by the communication interface, positive or negative feedback input on the actuation; and

the instructions which cause the robot to update, by the at least one processing unit, the select control paradigm based on the feedback input cause the robot to: increase confidence in the candidate action if the feedback input is positive; or decrease confidence in the candidate action if the feedback input is negative.

7. The robot of claim 1, wherein the instructions further cause the robot to provide for storage the updated control paradigm for subsequent access.

8. The robot of claim 1 wherein the instructions further cause the robot to store the updated control paradigm in the non-transitory processor-readable storage medium.

9. The robot of claim 1, wherein the instructions further cause the robot to transmit, by the communication interface, the updated control paradigm to the tele-operation system.

10. The robot of claim 1, further comprising a plurality of sensors communicatively coupled to the at least one processing unit, wherein the instructions further cause the robot to:

collect, by the plurality of sensors, environmental data from an environment of the robot; and

transmit, by the communication interface, the environmental data to be received by the tele-operation system.

11. The robot of claim 1 wherein each role is characterized by a respective set of tasks.

12. A robot comprising:

a body;

at least one physically actuatable component mechanically coupled to the body;

at least one processing unit;

a communication interface communicatively coupled to a tele-operation system;

at least one non-transitory processor-readable storage medium communicatively coupled to the at least one processing unit, the at least one non-transitory processor-readable storage medium storing data for a plurality of subsets of candidate operators of the tele-operation system, wherein each candidate operator in each respective subset of candidate operators is defined according to a respective role, the at least one non-

transitory processor-readable storage medium storing processor-executable instructions that, when executed by the at least one processing unit, cause the robot to:

receive, by the communication interface, control selection input indicating a description of a role of an operator of the tele-operation system;

determine, based on the description of the role of the operator, to which subset of candidate operators the operator belongs;

select and access a select control paradigm from a plurality of control paradigms based on the control selection input, the select control paradigm specific to the tasks expected to be performed by the robot based at least in part on the subset of candidate operators to which the operator is determined to belong, wherein each control paradigm in the plurality of control paradigms is trained based on use and feedback input by at least one operator in a respective subset of candidate operators;

determine at least one candidate action of the at least one actuatable component based on the select control paradigm;

actuate one or more of the at least one actuatable component in accordance with one or more of the at least one candidate action;

receive feedback input on one or more of the at least one candidate action from the tele-operation system;

update the select control paradigm based on the feedback input to produce an updated control paradigm;

receive, by the communication interface, control selection input indicating a description of a role of an additional operator of the tele-operation system;

determine, based on the description of the role of the additional operator, that the additional operator belongs to a different subset of candidate operators from the operator; and

select and access a select control paradigm that is different from the updated control paradigm.

13. The robot of claim 12, wherein the instructions which cause the robot to access the select control paradigm cause the processing unit to retrieve the select control paradigm from the non-transitory processor-readable storage medium.

14. The robot of claim 12, wherein the instructions which cause the robot to access the select control paradigm cause the robot to retrieve, by the communication interface, the select control paradigm from the tele-operation system.

15. The robot of claim 12, wherein:

the instructions further cause the robot to output, by the communication interface, an indication of the at least one candidate action, wherein reception of feedback input occurs before actuation of at least one actuatable component; and

the instructions which cause the robot to receive feedback input cause the robot to receive, from the tele-operation system, at least one instruction selected from a group consisting of: approval to proceed with at least one candidate action; disapproval to proceed with the at least one candidate action; and at least one alternate action instruction indicating an alternate action to be performed instead of the at least one candidate action.

16. The robot of claim 12, wherein the instructions which cause the robot to update, by the at least one processing unit, the select control paradigm based on the feedback input cause the at least one processing unit to:

increase a confidence in the at least one candidate action if the feedback input indicates approval;

decrease the confidence in the at least one candidate action if the feedback input indicates disapproval; or

specify new behavior or increase the confidence of existing behavior in the select control paradigm which corresponds to the alternate action provided by the tele-operation system.

17. The robot of claim 12, wherein:

reception of feedback input occurs after causing actuation of the at least one actuatable component in accordance with a candidate action;

the instructions which cause the robot to receive feedback input cause the robot to receive, from the tele-operation system by the communication interface, positive or negative feedback input on the actuation; and

the instructions which cause the robot to update, by the at least one processing unit, the select control paradigm based on the feedback input cause the robot to: increase confidence in the candidate action if the feedback input is positive; or decrease confidence in the candidate action if the feedback input is negative.

18. The robot of claim 12 wherein the instructions further cause the robot to store the updated control paradigm in the non-transitory processor-readable storage medium.

19. The robot of claim 12, wherein the instructions further cause the robot to transmit, by the communication interface, the updated control paradigm to the tele-operation system.

20. The robot of claim 12, further comprising a plurality of sensors communicatively coupled to the at least one processing unit, wherein the instructions further cause the robot to:

collect, by the plurality of sensors, environmental data from an environment of the robot; and

transmit, by the communication interface, the environmental data to be received by the tele-operation system.