Improving Robot Learning from Feedback and Demonstration using Natural Language

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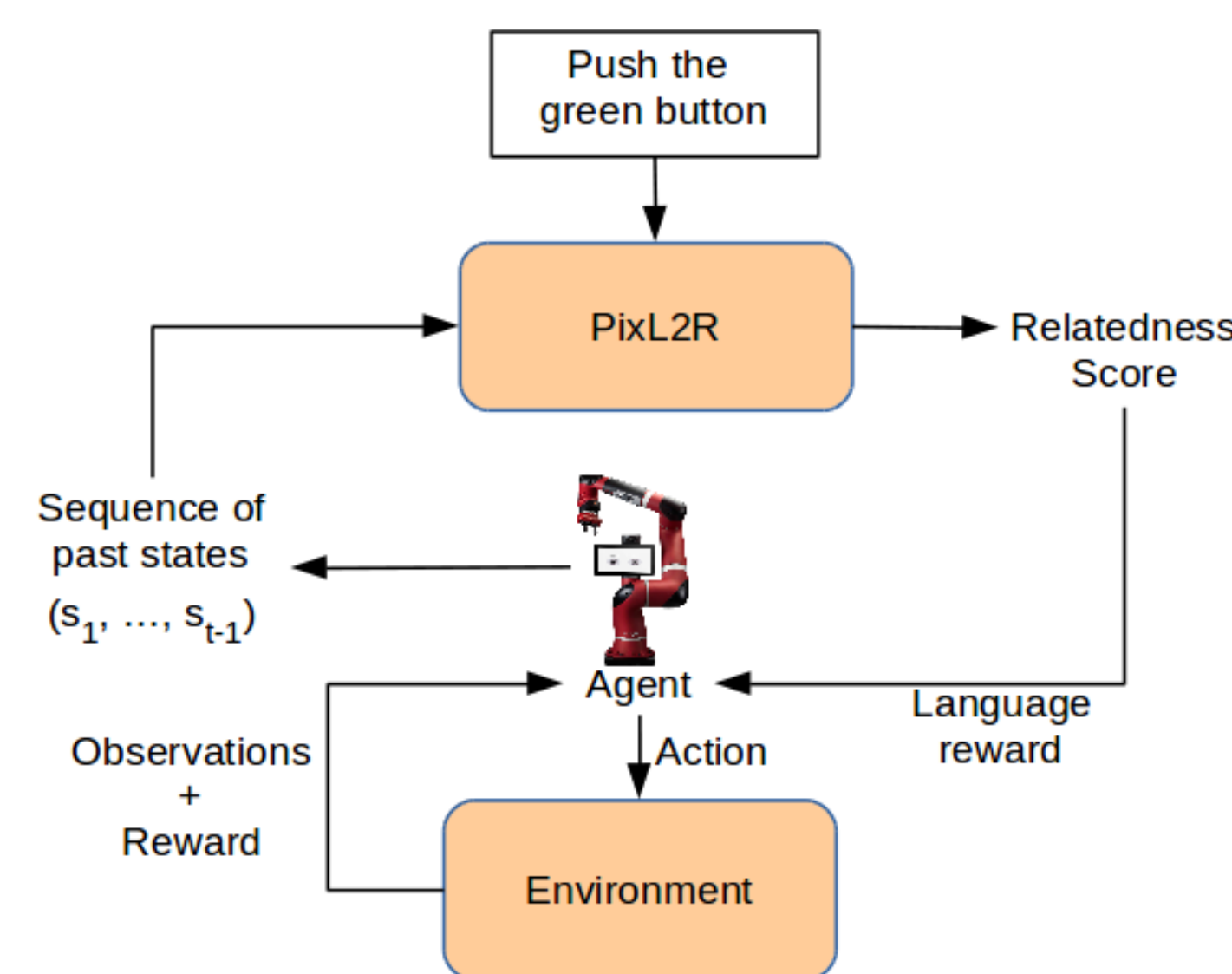
Challenge

- Use natural language narration to aid robot learning from feedback and demonstration.

Scientific Impact

- Novel methods for using natural language to improve task learning from limited training data.

Solution

- Generate rewards from relatedness of state sequence of images and language command.

  Experiments show that rewards generated from natural language significantly improve policy training efficiency for robot manipulation tasks.
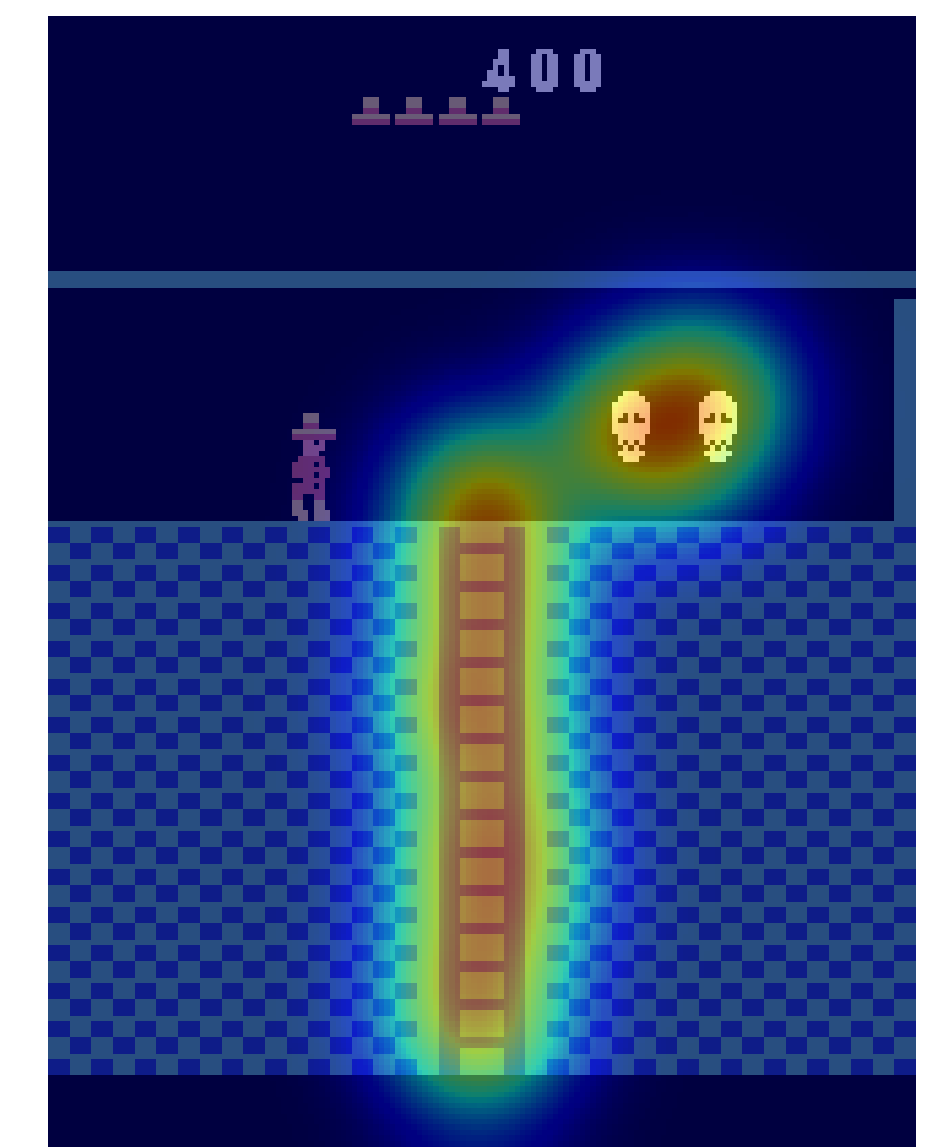

- Use natural language as supervised attention to improve generalization.

  Experiments under progress.

"Climb down the ladder while avoiding the skulls"

Broader Impact

- Allow novice users to naturally and effectively train robots to perform novel tasks.

- Improve education for grad, ugrad (FRI), and HS (First Bytes) students.

- Measure improved learning rate from using natural language narration.