TELEOPERATED ROBOT ART

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INTRO VIDEO
PROJECT GOALS

• Teleoperate HERB using Razer Hydra
• Use HERB to paint with multiple colors
• Lock paintbrush to canvas
RAZER HYDRA

- 6 DOFs and 7 buttons on each controller
- Smooth relative position by averaging performed over every 15 inputs
- Using 3 buttons – one analog trigger, two binary buttons
- Publishing at a rate of 10Hz
ROS COMMUNICATION

- Interpreted input from razer hydra to send:
  - Relative X, Y, and Z delta positions
  - Binary indicators of:
    - Tele-Op
    - Lock to Plane
    - Rotate Wrist
FUNCTIONS

- Relative XYZ positions used to servo joints based on Jacobian
- Look ahead collision checker ensures HERB does not collide with environment
- Planner used to change wrist orientation to dip brush
- Lock to plane restricts HERB’s hand to move in a plane parallel to canvas
LOCK TO PLANE

- Point in 3D is projected onto a plane parallel to the canvas
- $Q_{\text{projected}} = Q - \text{dot}(Q-P,n)\times n$
- Canvas normal is defined while defining the environment
SIMULATION VIDEO
SET UP
FINAL VIDEO
R E Triangle

Happy Sea Demon

Angler Fish Attack on Love
Swan
Red Broccoli
Woman on Trapeze Fleeing Sun
“OMG is that a swan?!”
-S. Srinivasa

“Big circles, very bold”
-Siddhartha Srinivasa

“I have no idea what I’m doing but it’s fun”
-Siddhartha Srinivasa

“Highly addictive”
-Experienced User

“It’s really fun”
-S. Srinivasa

“I don’t know why it’s fun, but it’s a lot of fun”
-Siddhartha Srinivasa

“It’s super awesome, I love it!”
-Professor Srinivasa

“I’m very proud of myself”
-Professor Srinivasa

“I’m so scared”
-Sidd

“Oh my god, I’m rocking it”
-Sidd

“This is so much fun!”
-Mr. Srinivasa

“Oh my god, can I change colors?!”
-S. Srinivasa
 USER REVIEWS

“It works.”
-Laura Herlant
THANK YOU

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