
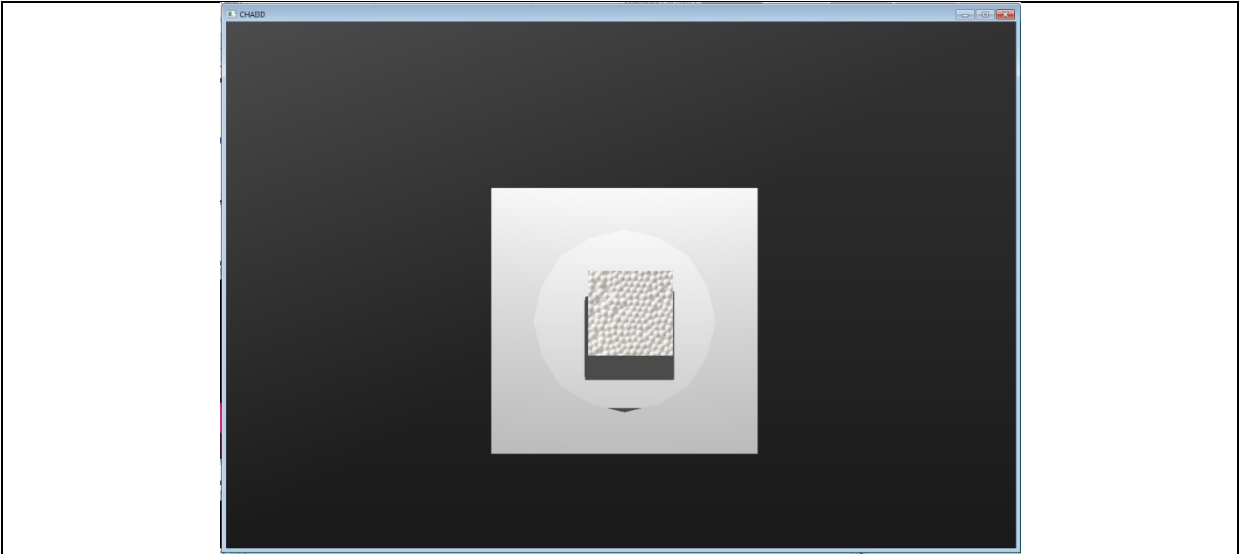


Subject Data Collection

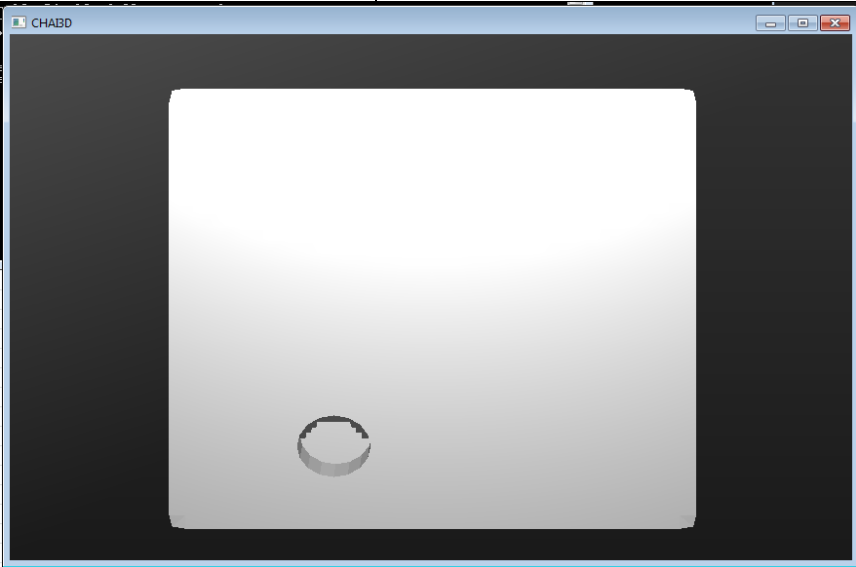
We recruited 32 volunteer subjects that consisted of faculty and students of NYIT. The subject sat down in front of a monitor with two Phantom Omni Haptic devices. They have to complete five tasks presented to them using the haptic device as a controller interface.

Breakdown of tasks: For the first three tasks the subject must explore a static object that varies in texture, stiffness and shape using one haptic device as a controller to interact with the interface.

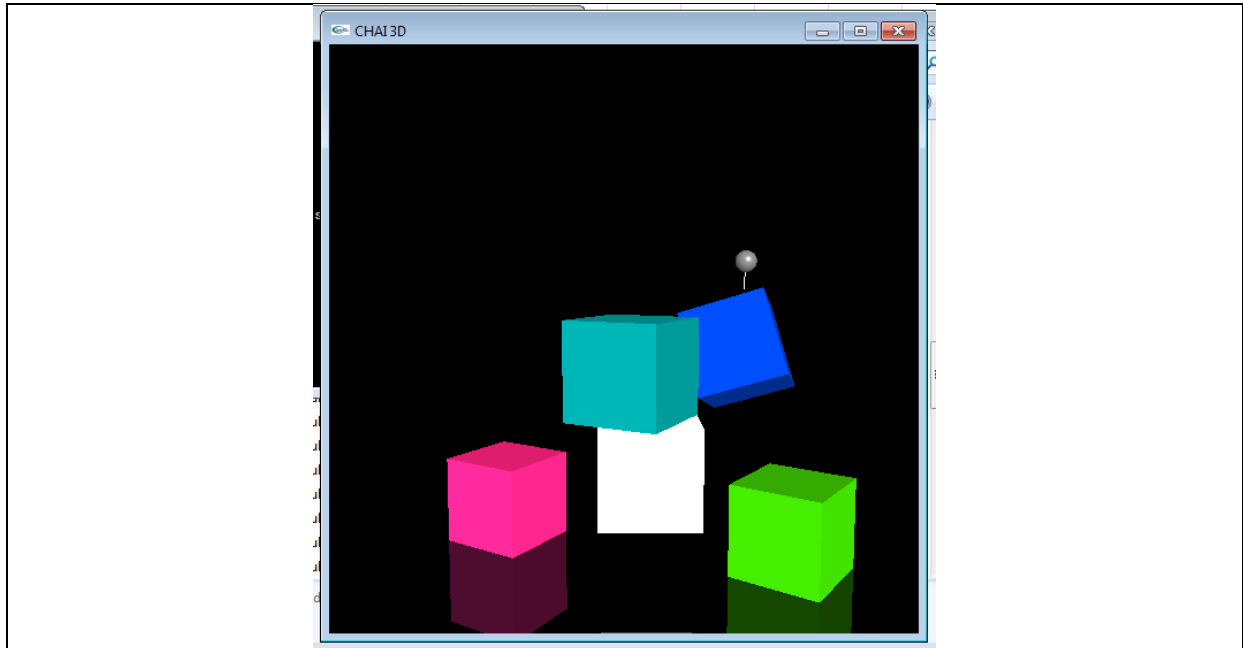
Scene #	Scene Name	Description
004 -	kryptonian	This scene is compiled of four unique textures.
		
005 -	khala	This scene is compiled of a cube mesh with a circle carved into the face. And a cube of fixed size in the center, the face of the cube has a different texture from the sides of the cube.



006 -	rakis	This scene is compiled of a flat mesh with random shapes generated upon keypress.
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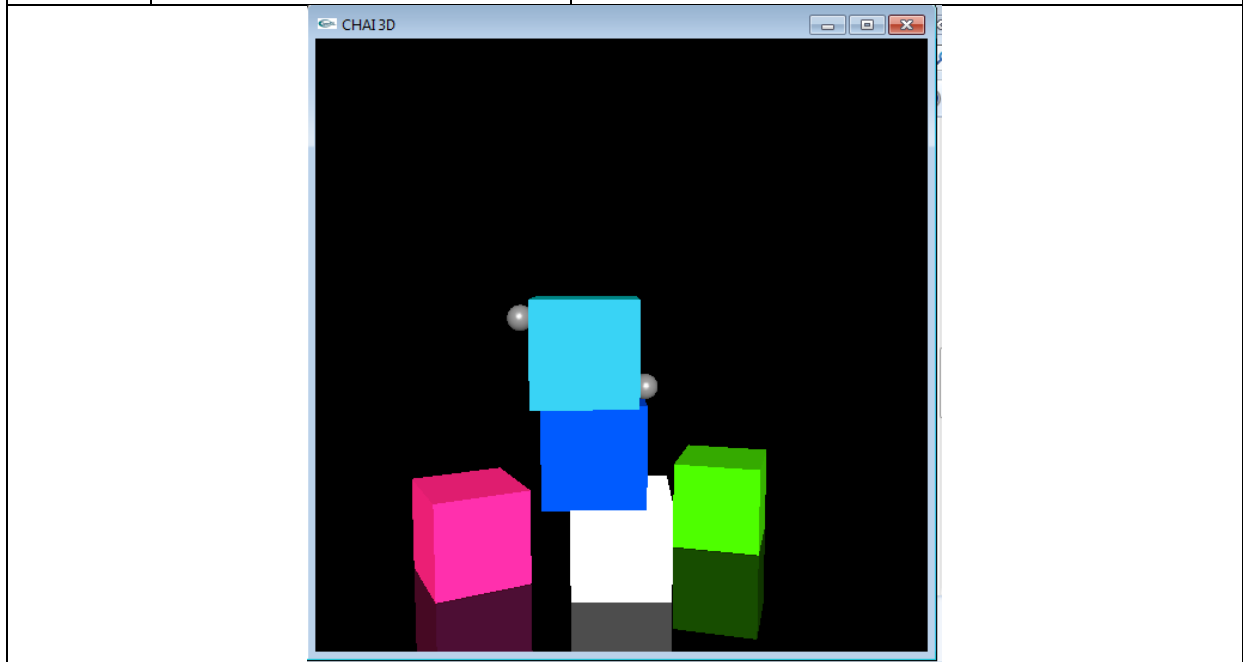
007 -	cubeone	This scene is compiled of five interactive cubes. There is one fixed cube in the center. The user is to stack all cubes on the fixed white cube in the center
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008 -

cubetwo

This scene is compiled of five interactive cubes. There is one fixed cube in the center. The user is to stack all cubes on the fixed white cube in the center



The fourth task consists of stackable cubes in a confide space, a button on the haptic device becomes active. The user must stack all cubes on each other using the button to grip the cube. The fifth and final task is similar to the fourth task with the exception of the button is now disabled and the user must use two haptic devices to stack the cubes.

Dataset

We captured the following fields from the haptic device:

Field Name	Description
Time	Data is captured at 1kHz
Position	Captures current position of the haptic cursor. Units are meters [m].
Force	Presents the forces [N] exerted by the haptic device.
LinearVelocity	Units are meters per second [m/s].
Torque	Sensed torque [N*m] from the haptic device.
AngularVelocity	Estimates the angular velocity by passing the latest orientation frame. Units are in radians per second [m/s].
GripperAngle	Gripper angle in radian
GripperAngularVelocity	Units are in radians per second.

In tasks 005 and 006 there are change keywords printed in the data file when the task is randomized. Subjects completed up to 12 sessions. We collected a total of 180 sessions with 5.6 sessions per subject on average. For each session there is five files. The total size of this dataset is about 22GB.