

# Sculpting with the Leap Motion : Application

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# Project goals

- Only use the Leap Motion device to manipulate 3D meshes.
- Discover the viability of using only your hands as a means of interacting with virtual objects.
- Navigate menus without the use of traditional buttons and tangible feedback.

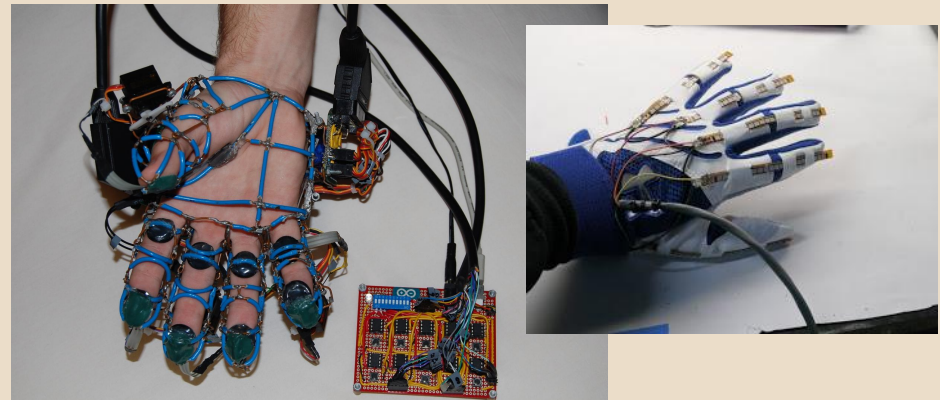
# Motivations

- Sculpting clay is about as hands on as it gets in the physical world.
- Cheap device, discover the viability of a keyboard and mouse free future.
- Higher levels of interactivity than current day consumer computer interactive peripherals. (Mouse, Keyboards, Tablets, Stylus, Buttons).

# Related Work - related input devices

## Force Feedback Exoskeleton Gloves

-clunky, intrusive



## Bend Sensing Gloves

-encumbersome, set up time



## Pinch Gloves

-Lack of positional data, binary data

# LeapSculpting Application

- Separated the roles of each hand
  - 1 controls Menu and Camera (default left)
  - 1 controls Selection and Manipulations
- Source Language: HTML5, Javascript
- Libraries Used: Three.js, Leap.js
- Geometry manipulation using raycasters on fingers
- Variety of starting geometries
- Mode swaps with finger gestures or the menu

# Results

- Accuracy without a button to start and stop molding is low.
- Molding when fingers are vertically aligned is limited with just one device.
- Hand occlusions cause several detection problems
- Fingers go in and out of detection randomly, causes unwanted manipulations

## Next Steps

- Better manipulation algorithm (Better physics and coupling of adjacent faces)
- Undo/Redo
- Networked, Interactive with more than one person
- Save results to a local file
- Speed Optimizations with surface selections

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