

Immersive Anatomy Atlas using Virtual Reality

The Computer Graphics and Virtual Reality Research Lab
University of Bremen, Germany

Controls

- Mostly done by using the controllers
- The first page of the virtual tablet should indicate the function of each button
- Teleportation:
 - Moving the right joystick forward will show the teleportation visualization
 - Release the right joystick to teleport

Interaction

- Object Grabbing: Press the grip button on the controller (generally, it is the button on the middle finger) when moving a hand near an object.
- Pressing virtual buttons: Moving the hand to touch a virtual button should trigger the respective function. Collision detection between the hand and virtual buttons is rather coarse (you might see a small wire sphere around the palm, which is what actually triggers the buttons).

The Virtual Tablet

- Page 1: Shows some controller explanations
- Page 2: Contains controls for the operating table
 - Toggling on/off the skin and cloth
 - Move the operating table up and down
- Page 3: Filtering body parts including bones, blood vessels, abdomen, nerve system, lymphatic system, and reset filters
- Page 4 and 5: Controls for showing the liver system; some buttons also contain a quiz. (When showing the liver, it is usually helpful to filter out muscles first)
- Page 6: Controls for some elements in the environment
 - Toggling on/off light and sound
 - Toggling on/off the targets (yellow stars on the instrument table)
 - Showing the distances between targets and their closest needle.
- Page 7: Saving and Loading
- Page 8: Resetting scene and exiting the software

Instruments

- Pen and eraser: instruments to annotate and remove an annotation, resp.
- Magic scalpel (the instrument with a black grip and blue transparent tip): useful for looking inside body parts; move the tip near body parts, and part of the body part will be invisible
- Needle and target: A needle can be used together with a target; the needle will stick to a body part when it is released near a body part.
- Orange scalpel: creates a blood object on a body part. Blood objects will be invisible when the orange scalpel isn't grabbed
- Silver scalpel: triggers blood gushing forth when touched with a blood object
- Scissors with cotton: stops the blood when touched
- Green scissor: makes some part of the cloth invisible; the cloth must be visible in order to use this instrument.

Camera

- View mode: changes the view on the PC; there are 3 modes: the camera view, the VR headset view, and none.
- Lamp: toggles the headlight on the camera on and off