**NRI-CSA User Study Steps/Script**

**Before User Arrives**

* Attach ablation phantom
* Start robot (roslaunch dvrk\_nri\_robot dvrk\_nri\_teleop\_vu.launch organ\_letter≔A), force sensor, microntracker, dvrk\_vision (roslaunch dvrk\_vision user\_study\_vu.launch)

**User Arrives**

* Consent form
* Payment information form (required at VU)
* Pre-Experiment Questionnaire – give the user an ID

**User Orientation**

* Start StudyControl.py (rosrun dvrk\_nri\_robot StudyControl.py), let user drive to learn the system
* Make a note of organ order. Palpation: \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ GP: \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_
* Mode 11: Run Teaching user force level, wait for 3 successes to show up in StudyControl

**Ablation Experiment**

* Mode 2: unaided
* User TLX
* Mode 3: visual bar
* User TLX
* Mode 4: lateral VF, direct force
* User TLX
* Mode 5: lateral VF, model-mediated force
* User TLX

**Palpation Experiment – direct force feedback – restart robot with different organ letter each time**

* First organ – Mode 6: palpation
* Repeat for 2nd organ
* Repeat for 3rd organ
* Repeat for 4th organ
* User TLX

**Palpation Experiment – GP – restart all components: robot, vision, and StudyControl each time – update organ\_letter**

* First organ – Mode 7: palpation with GP
* Repeat for 2nd organ
* Repeat for 3rd organ
* Repeat for 4th organ
* User TLX

**Wrapping up**

* User finishes TLX survey with open-ended questions
* Give user gift card

**Help:** if the MTM is frozen/locked, try restarting teleop (ctrl+O to turn off, ctrl+T to start teleop)

If something is weird in the experiment, try unbiasing the force sensor (can be done from StudyControl)