

### Instructions for using the Telemed ultrasound system

(NOTE: Only for use by JYU students as these instructions refer to our specific equipment)

#### Setup

1. Login to the laptop using the username and password shown on the post-it note (**username:** .\localadmin **password:** Fq\_1vzUvye6b)
2. Make sure that the power switch at the back of the white ultrasound unit is on, and that the usb cable is connected to the laptop. If you are recording video and need to synchronise it with other data sources (e.g. force, EMG in signal/spike), plug the output pulse cable from the white ultrasound unit into an input channel in the A/D board (we have 1 cable specifically for this purpose).
3. Run the Echo Wave II software (shortcut on desktop)
4. Before recording anything, set the save location by choosing Menu → Tools → Options → Click the 'Saving and printing' tab → In the 'Save files to folder' area (top left) click 'Browse' and choose the folder to save to (use C:\Echo Images and then add your own folder) and click OK
5. Attach the probe or find the region you want to scan

#### Recording data

##### **Video recordings:**

Before recording, click the down arrow just to the right of the save button at the bottom of the screen:



Make sure the 'Cine Quick Save' option is selected. If you have defined a saving folder as shown in step 4 above, all videos will be saved to this folder.

- To record a video, first pause the image (space bar).
- Start signal/spike then press space bar again and this will start the ultrasound recording and send an 'on' pulse to the A/D board so you know exactly when ultrasound started recording and can use this pulse to later synchronise ultrasound data with other data sources.
- When the movement/contraction is finished, press space bar again to pause the image and stop recording with ultrasound.
- To save the video, press number 9 or click on the 'Cine quick save' button at the bottom of the screen:



- Video filenames include the date and time that they were recorded, so make sure you have a list of the order in which your trials were recorded.

##### **Single image recordings:**

Before recording, click the down arrow just to the right of the save button at the bottom of the screen:



Make sure the 'Image Quick Save' option is selected. If you have defined a saving folder as shown in step 4 above, all images will be saved to this folder.

- To record an image, simply find the region of interest with the probe and press the quick save button:



time, first pause the image (space bar) and then press the quick save button.

- Images are saved as jpegs in the target folder
- Image filenames include the date and time that they were recorded, so make sure you have a list of the order in which your trials were recorded.

#### Convert video (.tvd) data to avi files

- Click start and in the 'Search programs and files' box, type 'cmd' and then press enter. This brings up a command line interface.
- In the cmd window, type the following commands in order (must be spelt correctly):

```
cd c:\ (then enter)
cd program files (x86) (enter)
cd telemed (enter)
cd Echo Wave II (enter)
```

The next command starts the conversion. This must be exactly as typed below:

```
Echowave.exe -convert_directory "C:\Echo Images\YourFolderName" tvd avi_comp
```

(where you replace 'YourFolderName' with the actual name of your folder)

One by one, each .tvd file in the folder you specified will automatically be opened in the Telemed software and then converted to a .avi file with the same name as the original.

Note that to avoid this step, it is possible to record your video files directly to .avi instead of .tvd. You can change this in the software settings, but keep in mind that saving directly to avi can take a lot longer, especially if your videos are long. For this reason I have always recorded to .tvd, since it is much faster, and the conversion process is straight forward.

**NOTE:** If you are recording videos, and if synchronisation with other data sources is important, please contact me ([neil.cronin@jyu.fi](mailto:neil.cronin@jyu.fi)). This device does not record each frame of video at a consistent time interval, so if you assume a given sampling frequency is constant (e.g. 80 Hz / 12.5ms per frame), you will get timing errors in your data.