

STANDARD EQUIPMENT

3T PRISMA SCANNER



Written by Davide Bono

Version 1, 29 July 2021!

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Console room map 3

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Section A – Communication and monitoring devices.....4

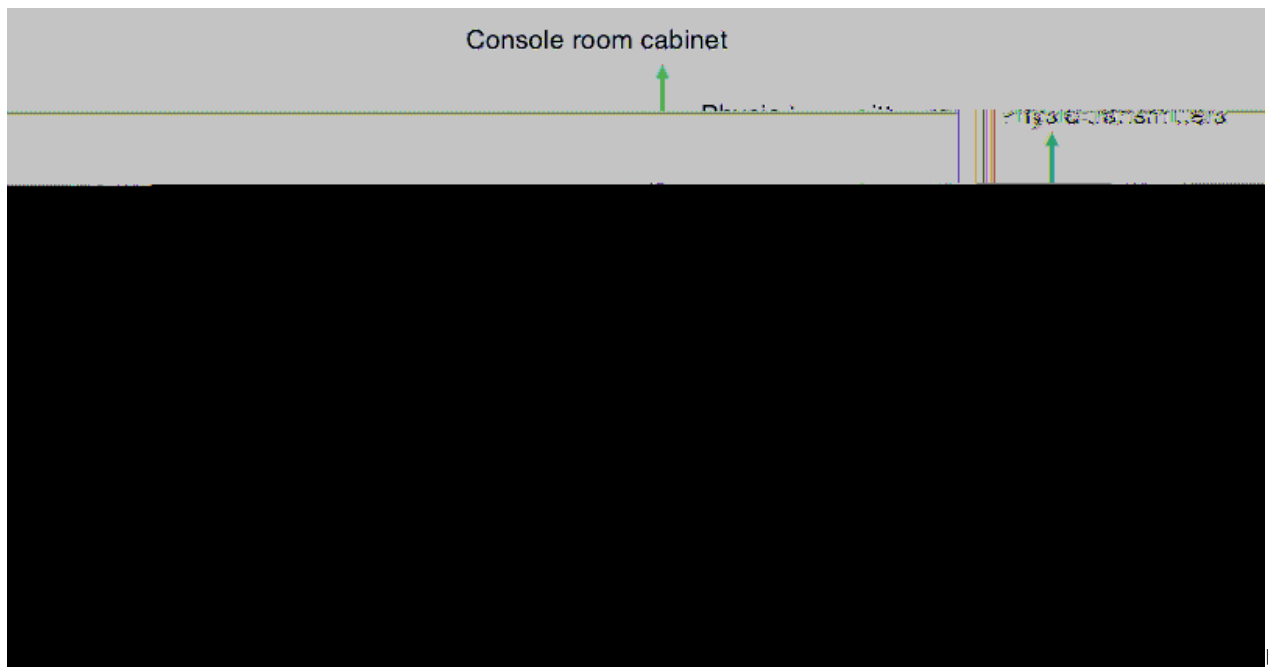
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Section B –

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Location of different pieces of equipment

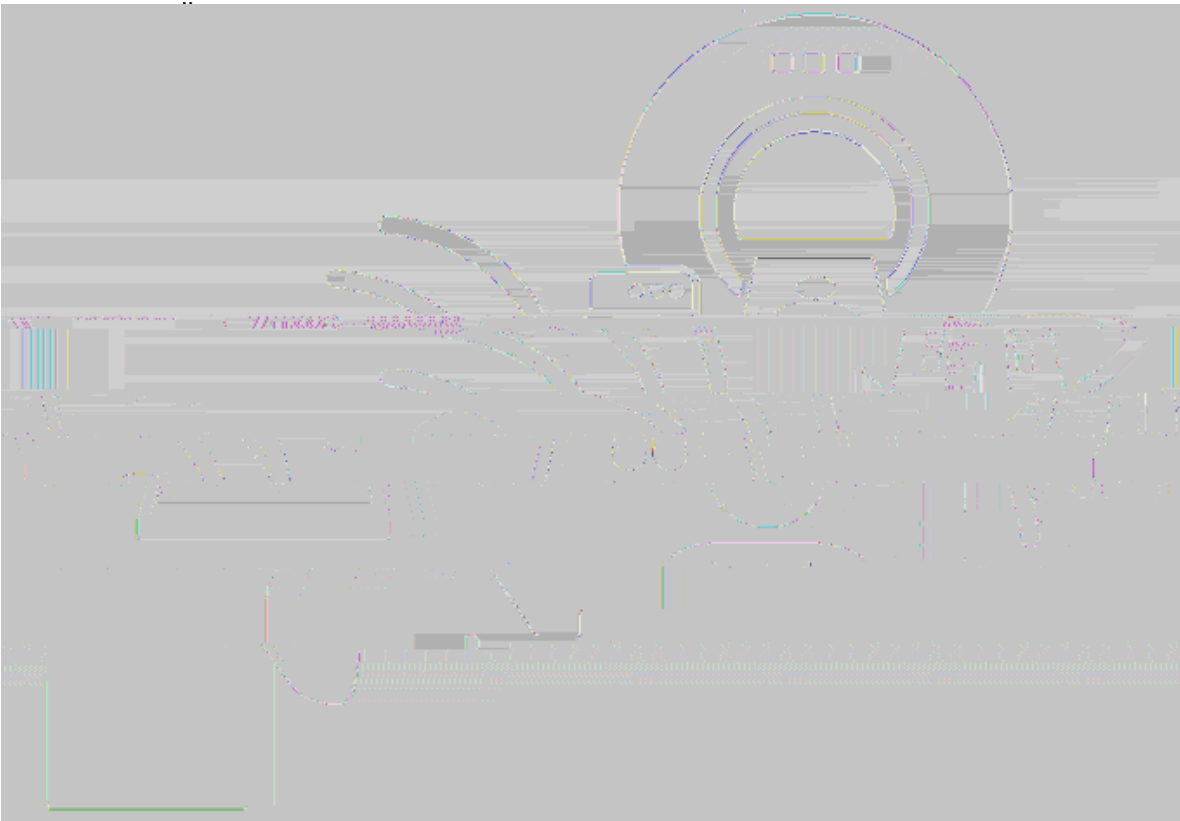
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Communication and monitoring devices



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Intercom

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The Siemens intercom is a device that allows you to communicate with the participant when they are inside the scanner bore and you are in the console room.

To use the intercom, keep in mind the following notes:

1. Press the “Listen button” (#1) to hear what the participant has to say when they are inside the scanner room. Feel free to use the + and – keys to adjust the volume.

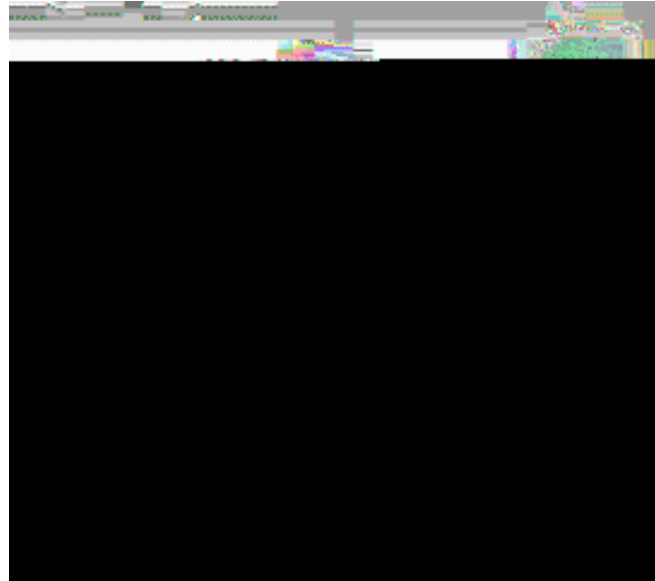
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2. Press the “Talk button” (#2) to talk with the participant. Feel free to use the + and – keys to adjust the volume in case participants report your voice as being perceived either too soft or too loud.

: Remember: the intercom is a unilateral system. You can either talk with the participant or hear what they have to say.
To be sure not

After, the manual button is pressed, you will need to restore the scanner bed to resume the automatic operation mode of the scanner bed.

: To reset the scanner bed, go into the scanner room and simultaneously press the Table Up and Table Down button for ~30s.

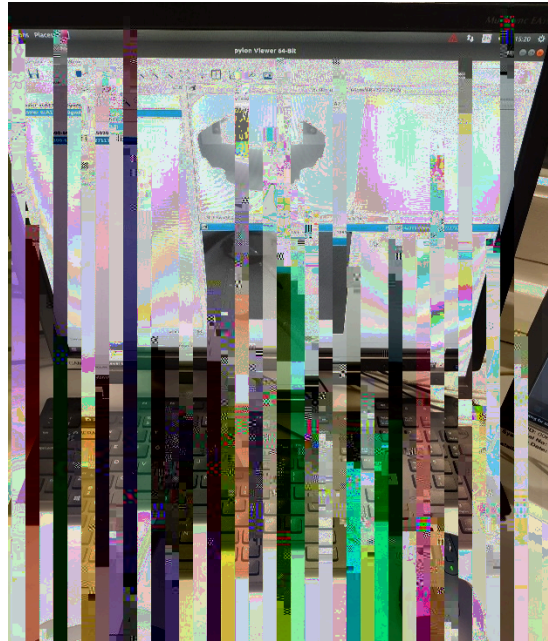


Finally, press the Home button to complete the resetting process Detailed instructions will pop up on the scanner monitor.

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Infrared camera



Camera display. The infrared camera is automatically oriented to the location of the head coil.

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1. Turn on the illuminator by pressing the power button on the top shelf of the console room cabinet.



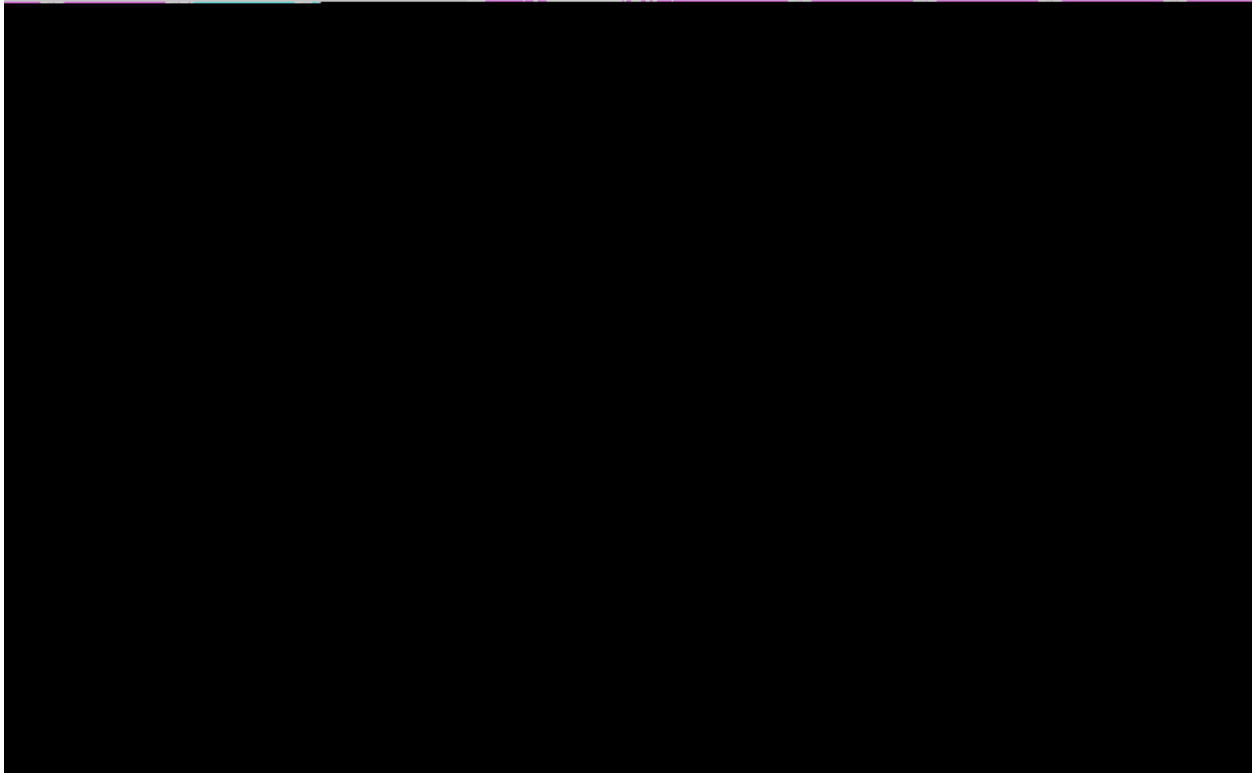
2. Double-click Scanner camera icon on the Desktop of the camera pc

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3.

Physiological data recording

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When scanning at BUCNI, we strongly recommend to also monitor the physiological parameters of your participants, such as their pulse and their respiration throughout the testing session.

To do so, you can use the respiratory belt transducer and the oximeter. Both controllers can be found on their chair position, on the wall of the console cabinet that faces the scanner room door (also indicated on the map).

PRA

Warning!

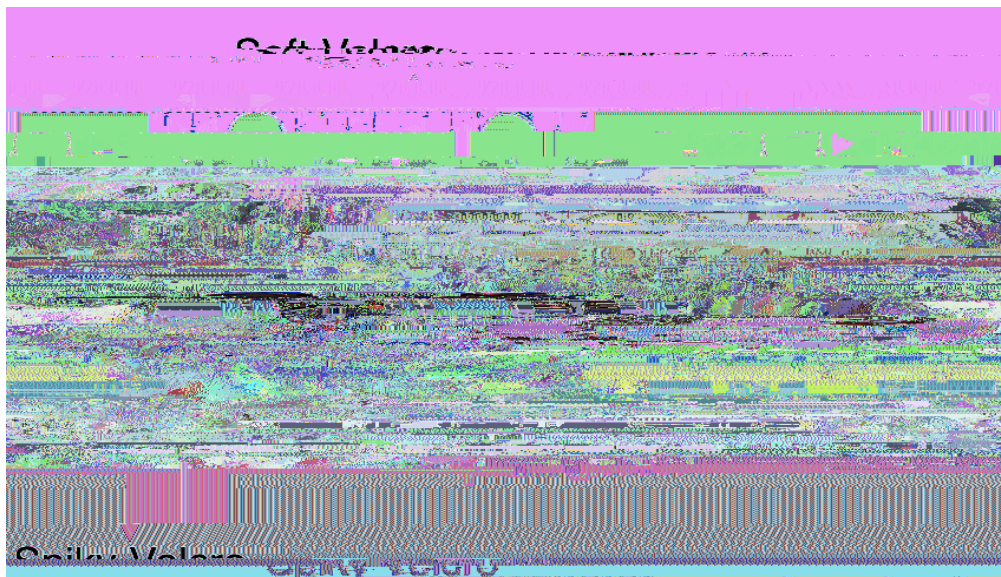
The following guidelines enable you to only record and _____ save physiological data. To make sure that the sequence you are using is storing physiological data and to retrieve physiological data after testing, please be in touch with a member of BUCNI staff.

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The respiratory belt transmitter has 4 non-detachable electrodes for ECG and one port for the breathing sensor. The breathing sensor, altogether with all the other physio-related equipment mentioned below can be found in the cabinet located on the left of the scanner within the scanner room.



1. Invite the participant to wear the respiratory belt. Advise them that the soft Velcro stripes should not face the body, so as to allow the spiky Velcro stripe to fasten the belt accordingly. The belt should be worn AS TIGHT AS COMFORTABLE and just below the chest as shown in the picture below.



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2. Ask the participant to place the breathing sensor below the respiratory belt. The sensor should be inserted from the lower

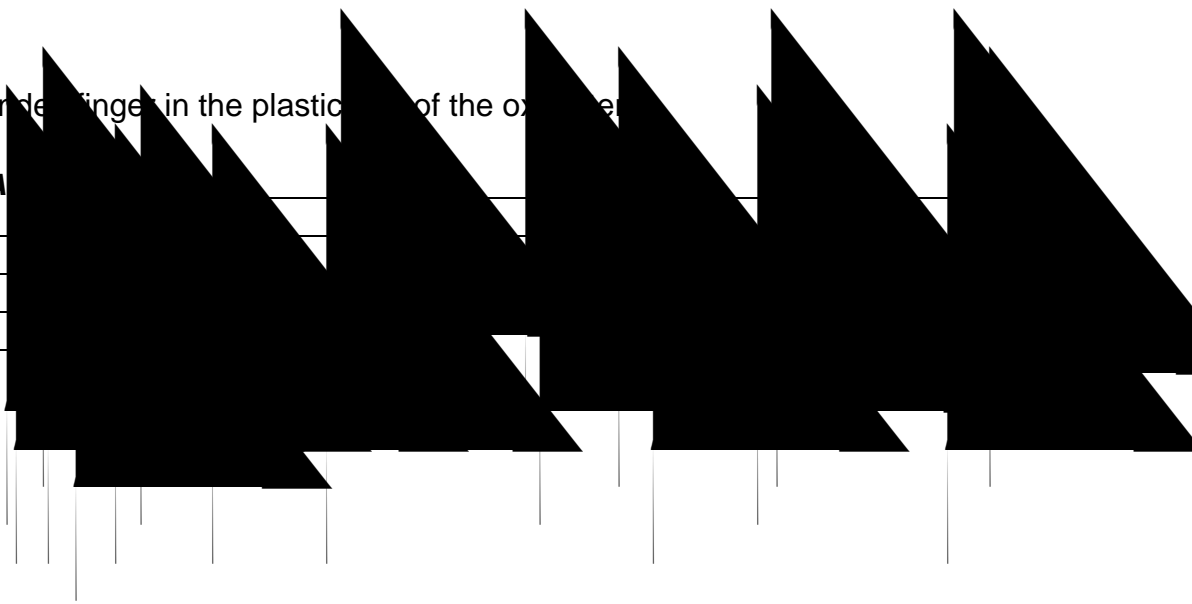
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1. Insert the index finger in the plastic of the oximeter

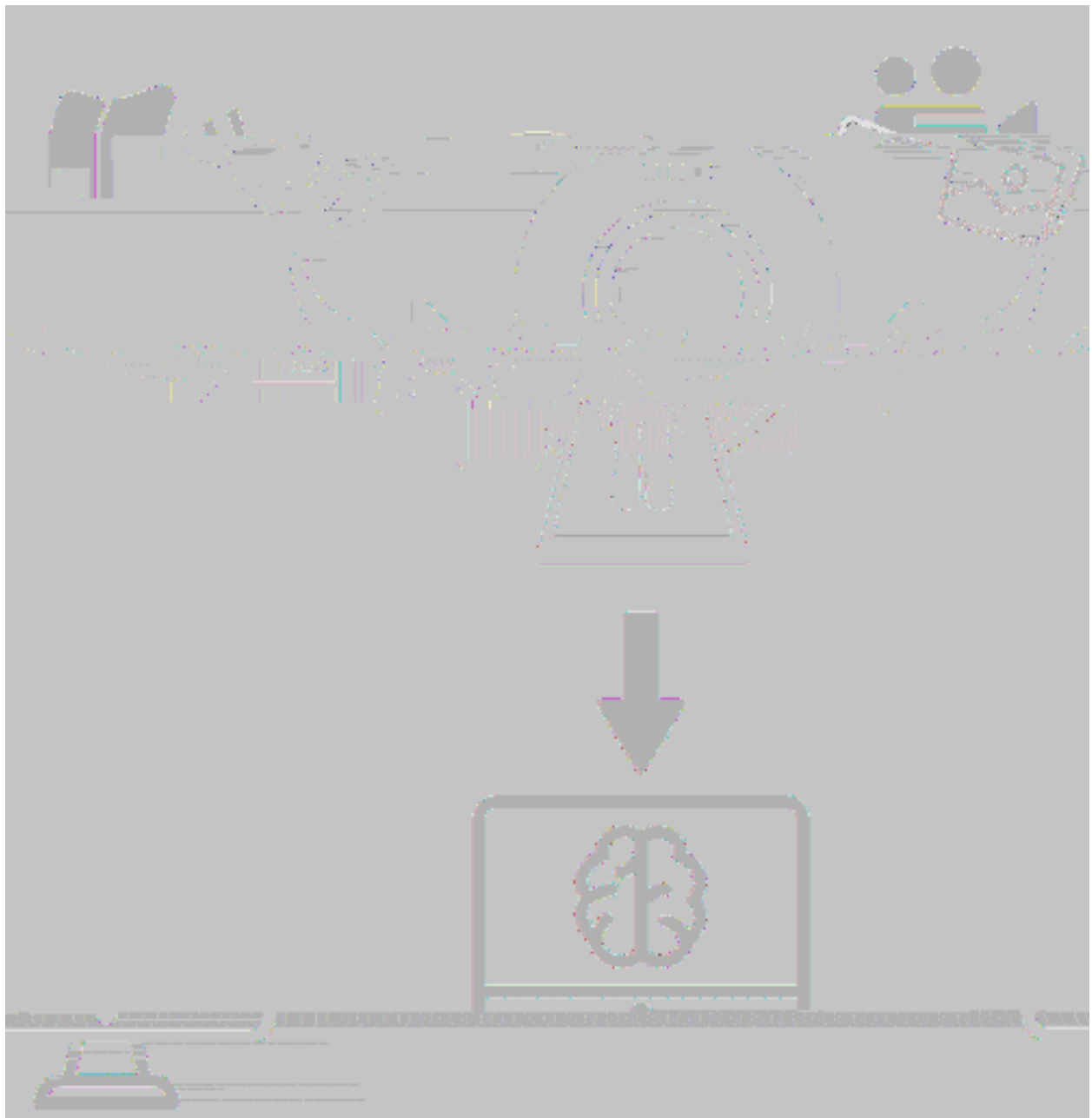
PRA



2. Make sure that the optical sensors

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Presentation of visual and auditory stimuli



Using PROJECTOR & COGENT displays with COGENT PC!

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 - Make sure **Display Scaling** is selected for both the PROJECTOR and the COGENT displays (NVIDIA control panel -> Adjust Desktop size and Position -> No Scaling)



- Use the default resolution (1920x1200) and refresh rate (60Hz) of the display.

-

If using Psychtoolbox, consider that there may be some imprecisions in the presentation of visual stimuli if you use a multi-display setting on Microsoft Windows and Apple Mac OS X. This is a relevant issue for users that need reliable timing and precise visual outputs (e.g., visual psychophysics) and that use Psychtoolbox. The inaccuracies encountered could vary from inaccurate timing in the stimulus presentation to tearing artifacts caused by a failure in synchronization of the displays refresh rate.

To address this issue, we recommend using our stimulus PC with one display only (the display labelled PROJECTOR). This our default setting.



This is a temporary solution, while we work to implement a permanent change in the setup that allows us to keep a secondary display or a laptop and still guarantees optimal stimulus presentation.

- Setting up and using

If you need to use a multiple display setting, please consider whether your experiment will be affected by the aforementioned problems. If you do change the display settings, please at the end of your session.



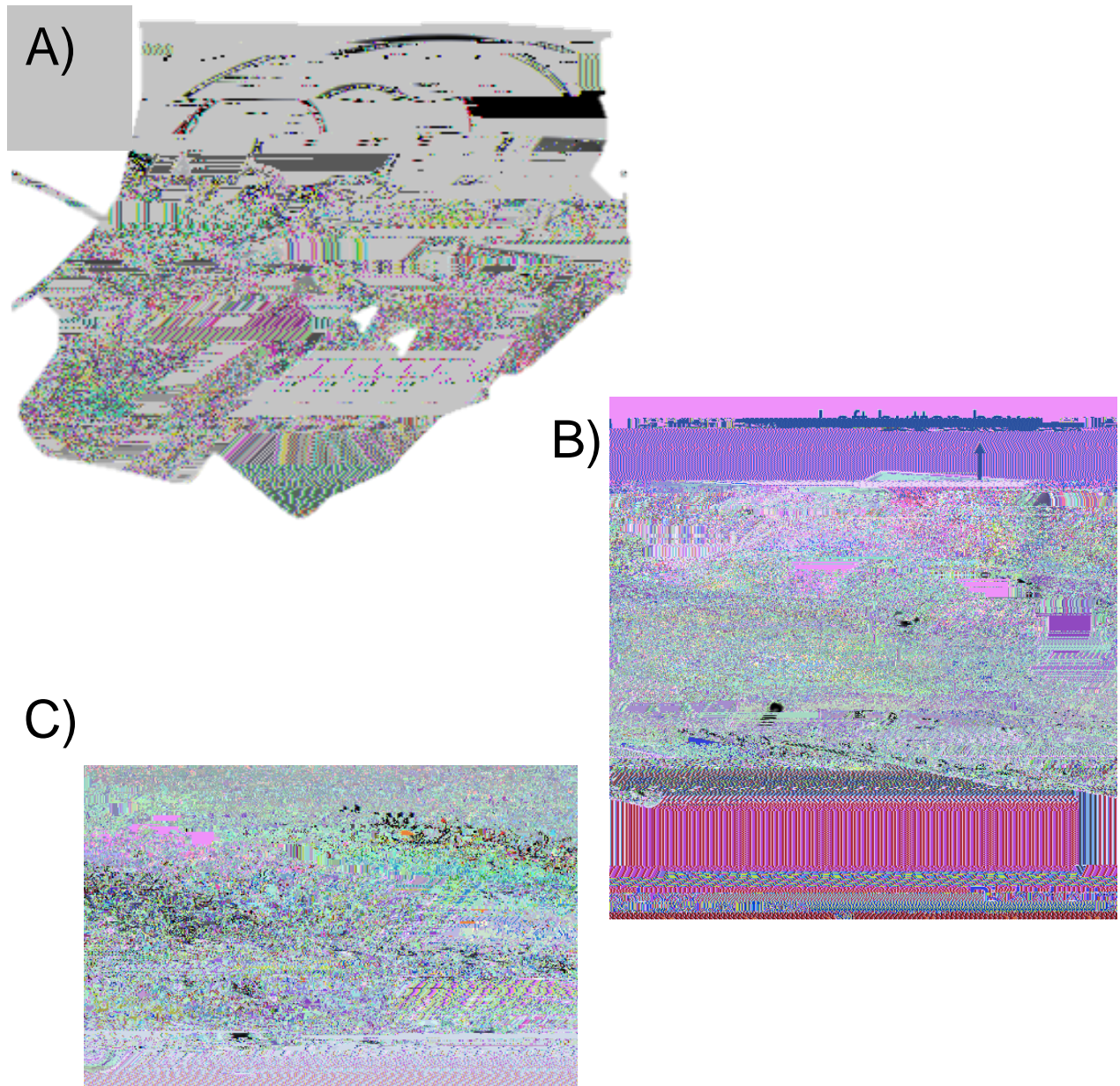


4) Make sure to check the sound settings (either system preferences → sounds on MacOs or Control panel → sound, on Windows) and set the sound output to D10 (D10 is detected as soon as the amplifier is connected to the stimulus presentation laptop).

5)

To start with the volume knob should be set at 9 o'clock. Up to 10 is still ok but it shouldn't be much higher (otherwise it could damage your participant's auditory canal).

Response boxes



Response boxes. Response box led display. Close up of the led on the response box led display. For each hand, button presses will appear on the response led display in correspondence of the finger pressed. The order of the fingers (from left to right) is: Thumb, Index, middle finger, ring finger and little finger

Example:

```
KbName('UnifyKeyNames');  
% Define accepted keys  
responseKey = KbName('7£');
```

Before starting your data collection, test that the responses are registered correctly in your script:

1. Plug the USB cable into laptop or Cogent pc
2. Check that the signal is coming through:

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Do you see a red led signal in correspondence of the button that has been pressed?

```
%% Psychtoolbox demo - trigger and key preses (D. Bono, 21-04-2021)

% - This is a short demo which could help you when running an experiment at
%   BUCNI using psychtoolbox.
% - This task starts when the trigger signal is detected (lower case t).
% - The task consists of 10 trials. In each trial a number is presented at
%   the center of the screen and participants need to press the equivalent
%   key press.
% - This is the list of expected ASCII codes for key presses and trigger
(lower case t)
```

\$%!&' (!)*+,!' -'

```
elseif keyIsDown == 0 %That means that no button has been pressed
    ButtonPressDetected = 0;
else
    ButtonPressDetected = 1;
end
end
Screen('Flip',win); %Refresh screen for following trial

% Save response structure
Responses = struct('Trial_specific_kbcode',
[Responses.Trial_specific_kbcode; responseKey], 'Trial_specific_kbnumber',
[Responses.Trial_specific_kbnumber; responseNumber]); % Create Response
structure variable

end

sca; % close all screens and Psychtoolbox at the end of the experiment
```

3D printed response box Right only

Response box display. Button presses will appear on the response led display in correspondence of the finger pressed. Please note that as no 3D left response

3D right response box

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Trigger

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The trigger input is sent to your presentation computer (either your testing laptop or Cogent PC) via blue USB cable labelled 'SEQ. TRIGGER'.

You can simulate the trigger using your own computer keyboard.

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