

CNS MRI Facility Equipment

Display Computer

Intel Core i7 3770K 3.5GHz PC computer with 16GB Ram, solid state drive, GeForce GTX 660 Graphics, Windows 7 Professional, internet connection, high-quality sound card, and connected to the projector and button response box. Matlab and E-Prime are installed for running fMRI studies.

If you would like to run from your own laptop, connections are available for connecting the visual display and button response to your laptop via a switchbox.

Projector & Screen



NEC LT265 DLP projector. Native resolution is 1024x768.

Website: <http://www.projectorcentral.com/NEC-LT265.htm>

Avotec SV-6011 LCD Projection System



The SV-6011 is a color LCD projection system designed for MR use. The 6011 system accepts an XGA input (1024x768). The projector displays images on a rear projection screen that hangs in the bore.

Website: <http://www.avotecinc.com/visual6011.htm>

Avotec Silent Vision 7021



The SV-7021 is a binocular visual system designed for MR use. The 7021 system accepts dual, independent XGA inputs (1024x768). The SV-7021 system can be combined with the eye monitoring system to enable simultaneous visual presentation and eye tracking for one or two eyes.

Website: <http://www.avotecinc.com/visual7021.htm>

Button Response Pads



fORP fiber-optic button boxes for interactive subject participation. We have 5 different interfaces as pictured – single and double handheld, 5-button stick, joystick (either single or double), and trackball.

Website: <http://www.curdes.com/handhelds.htm>

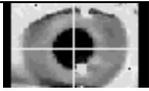
SR-Research EyeLink 1000 Eye-tracking System



The Long Range Mount for the EyeLink 1000 system is optimized for MRI applications. The camera sits in the bore and allows for quick and accurate monocular real-time eye tracking of subjects at a rate of 500Hz.

Website: http://www.sr-research.com/solutions_fmri.html

ISCAN Eye-tracking System



ISCAN eye tracker allows for tracking of the subjects eye while in the scanner. Training is required before using this equipment. Contact Brian Coe <bcoe@biomed.queensu.ca> for training and assistance.

Website: <http://www.iscaninc.com>

Medoc Thermal Stimulator



The Medoc Thermal Stimulator TSA-II utilizes a thermode placed on the patient's skin, which either heats or cools the skin as needed. The patient is asked to respond to these temperature stimuli by pushing a response button or verbally.

Website: <http://www.medoc-web.com/tsa.html>

NNL Sound System



Nordic Neurolab (NNL) Audio System. High-quality stereo headphones, together with a communication console for auditory and speech (using the optical microphone) studies. Frequency response from 8Hz to 35kHz and a noise attenuation of +30dB. These headphones offer 35dB sound protection so subjects don't have to wear earplugs. Not possible to use with the neck coil – use the MR system headphones instead.

Website: <http://www.nordicneurolab.com/products.php?pid=10>

Optical Microphone



Phone-or Optical Microphone with digital and analog outputs. For auditory response or speech fMRI studies.

Website: http://www.magmedix.com/products/comfort/phone_or.html

MR Compatible Eyeglasses



MR compatible interchangeable prescription eyeglass with lens inserts in Rx powers from -6 to +6.

Website: <http://safevision.net/mri.html>

MR Compatible Camera



MR compatible black & white camera with f=2.5mm and f=6mm lenses on a ball-joint. Used to monitor volunteer in the bore and can be used for recording subject hand movements, etc.

Website: <http://www.mrc-systems.de/englisch/development/mriequipment.html>

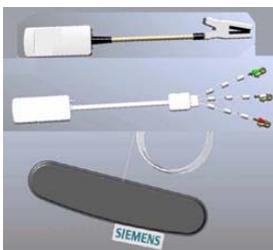
DVD/CD Playing



Sony DVP-N550P DVD player. Interface either through the MR scanner headphones or the NNL headphones.

You can also use the display computer or your own laptop to play music and videos to the subjects while in the scanner using the NNL headphones.

Physiological Monitoring & Recording



Monitoring and recording of peripheral pulse (top), ECG (middle) and respiration (bottom) through Siemens wireless physiological equipment.

Scanner Coils

	12-Channel Head Matrix
	Neck Matrix
	Spine Matrix
	Flexible Body Matrix
	4-Channel Small Flexible Coil

Triggers (Synchronization with imaging)

You will set up a combination of trigger type and cable for your particular triggering need:

Triggers: The standard **(A)** uses a Matlab triggering program to trigger the magnet and equipment, and **(B)** uses the trigger sent from the magnet.

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- A. *Matlab Trigger*:** This is the standard setup and the black BNC cable marked *Matlab Trigger* should be connected to the button response box.
- B. *Magnet Trigger*:** On the button response box disconnect the black BNC cable marked *Matlab Trigger* and plug in the black BNC cable marked *Magnet Trigger*. Plug in the power supply marked *Magnet Trigger* on the power bar to the left of the MR console's monitor. Check that the red light is on for the trigger interface box marked *Magnet Trigger* located on top of the MR console's *Syngo* computer case.

Cabling: There are 2 cabling methods for connecting the trigger to your laptop: **(i)** uses the USB cable from the button response box and **(ii)** uses a parallel port cable.

- i. ***USB Cable Triggering*:** Plug in the USB cable marked *laptop* into the USB port on your laptop. On the beige box marked *USB*, turn the switch from *desktop* to *laptop*. Triggering via this method uses the number 5 as the keyboard input command to trigger and may be used with either the Matlab or Magnet trigger.
- ii. ***Parallel Port Triggering*:** Plug the gray parallel port cable into your laptop. By using this cable you can only use the Matlab trigger.

Centre for Neuroscience Studies MRI Facility
Queen's University
Kingston, Ontario K7L 3N6

<http://www.queensu.ca/neuroscience/MRI-facility.html>