

MR Simulator

Preparing patients for MRI

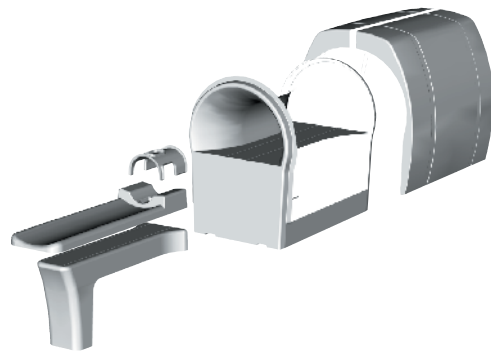
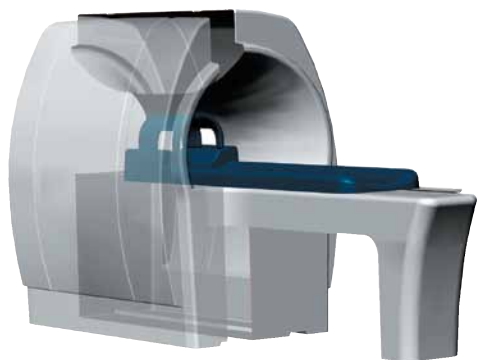


The full-scale MR Simulator is a cost-effective solution for preparing subjects and patients for MRI or fMRI studies. Familiarization is essential for reducing stress and discomfort commonly experienced inside the MR scanner.

The MR Simulator helps reduce the incidence of premature session terminations due to discomfort and increases the quality and efficiency of MR acquisition and fMRI exams.

The MR Simulator can also be used to collect behavioral data in a compellingly realistic MR setting. New personnel and participants can be trained more effectively in an inexpensive, safe and controlled environment.

The MR Simulator comes with head coil, mattress, and a built-in speaker system for the simulation of MR scanner noise. HeadTracker can be purchased separately for accurate monitoring of patient's head position while inside the MR Simulator.



HeadTracker



The NNL HeadTracker is a novel system for monitoring the position and rotation of the patient's head and can be used to lessen the influence of this motion. NNL has designed a system capable of tracking the position of the head with high

spatial and temporal resolution, which is intended to be used for training sessions in the MR Simulator.

Using a camera with infrared illumination fixated to the head coil during scans, a video-feed of the patient's head is captured by a computer. A target device with three reflectors is fixated on the patient's head, giving a set of points visible in the image acquired by the camera.

A tailor-made software solution uses the video feed from the camera and a model of the target device to calculate the position and rotation of the patient's head. This is achieved using lens correction algorithms, image segmentation, back projection and linear algebra to extract the position information from the captured images. The software presents both the current and historic position and rotation for the user in the control room. Activity can be saved with timestamps and the user can define conditions (e.g. threshold movement) that will trigger events, such as control of media playback, alerts, or pausing of a running paradigm until the patient is once more at rest.

FEATURES

MR Simulator

- built-in diopter correction
- full-scale MR simulator
- built-in speakers for simulation of MR scanner noise
- horizontally sliding patient table
- quick assembly without special tools
- different color options and sizes available

HeadTracker

- 3D head position tracking
- calculates position and rotation
- sub-millimeter accuracy

TECHNICAL SPECIFICATIONS

MR Simulator

- default dimensions full scale:
1.25 x 1.75 x 3.75m (W x H x D)
(fits through 120cm door)
- weight: approx. 150kg

HeadTracker

- camera resolution: 640 x 480
- FPS (Frames Per Second): Max 100
- field of view: Depending of lens used
- standard lens 6mm - 60 Degree
- lens mount: 12 x 0.5 mm