Advanced Hardware and Software for fMRI
Our hardware portfolio consists of equipment designed for functional magnetic resonance imaging. We offer a complete hardware package for clinical fMRI and a modular solution for research purposes. Our hardware is compatible with MRI scanners from all major vendors and uses standardised interface adapters for audio and visual input.

Our fMRI hardware system is designed, developed and manufactured under certified ISO 13485 and ISO 9001 Quality Management system. Our products intended for clinical use meet regulatory and safety requirements and have respective market clearances.

Our highly competent and experienced specialists can provide guidance, helping customers to choose professional solutions tailor-made to their needs.
InroomViewingDevice
For fMRI, patient comfort and instant feedback

Multipurpose Usage
This brand new, stunning 40” 4K UHD InroomViewingDevice was designed to provide an optimal MRI compatible monitor that satisfies the needs of both clinical and advanced scientific applications.

Optimal Design
With its slim design, high definition display and superior image quality, the InroomViewingDevice is an optimal choice for an easy to use alternative to conventional projectors or goggle based image delivery systems. The innovative, front-facing camera provides an uninterrupted patient surveillance during examination. Thanks to the built-in USB hub, connecting patient communication and interface device is now extremely easy.

Flexible Positioning
The low weight and height adjustable mobile foot stand allows easy positioning of the monitor anywhere in the MRI room. The monitor can also be ceiling mounted (through 3rd party).

Instant Feedback
The monitor facilitates the examination process by allowing the operating personnel to remain inside the examination room during procedures, thus allowing uninterrupted patient care and quick response time, which significantly improves clinical workflow.
**VisualSystem**

High-end visual stimulation for fMRI

**Sophisticated and Flexible**
NordicNeuroLab VisualSystem is a sophisticated and flexible solution for presenting visual stimuli inside the MRI scanner. By rendering sharp images and brilliant colours, high quality graphics or text is easily presented to the patient.

**Unique Design**
The VisualSystem has a unique design which fits most head coils and is easy to mount with coil specific adapters. The adjustable arm allows fast positioning in the preferred angle of view. The built-in diopter correction and fine tuning of pupil distance are easy to regulate and customize to each patient, either adult or child. Because the VisualSystem is placed close to the eyes, there are no external distractions during stimuli presentation and individuals are also less likely to experience discomfort related to the confined space of the MRI scanner.

**EyeTracking Camera**
The EyeTracking Camera provides the necessary hardware to produce video of the subject’s eye in an MRI environment and, thanks to the built-in infrared light source, also works in the dark. A single camera solution is delivered as standard, but a binocular solution can be arranged upon request.

*Market clearance not obtained in USA. For research use only.*
AudioSystem
Audio solution for fMRI

State-of-the-art Properties
The headphones give a superb sound, replicating even minute details with incredible precision, thanks to the state-of-the-art electrostatic transducers. The device significantly reduces scanner noise, allowing undisturbed patient communication during stimuli presentation.

Slim Headphones
In addition to the standard headphones, the slim version, which is approximately 20 mm wide, is now also available. The slim headphones fit perfectly well in a 64-channel headcoil.

Designed for fMRI - Suited for Clinical Use
Designed specifically for fMRI, the superior sound quality and increased noise attenuation provides a more precise audio stimulation to the patient, which yields a more robust BOLD response than traditional pneumatic audio systems. Designed with reliability and durability in mind, the headphones are incredibly robust and suited for daily use in a busy clinical environment.

Communication Console
Through easy and accessible controls, the Communication Console offers one-way patient communication and full flexibility of audio settings. Thanks to its two input channels, it allows to connect a wide variety of audio devices through 3,5 mm mini jack.
ResponseGrip
A unique patient response device

Developed for Clinical and Research Use
The ResponseGrip is an MRI compatible subject response device developed for both clinical and research users. Ergonomically designed for use in either hand and for minimizing patient movement inside the scanner, it is suitable for a wide range of experimental paradigms.

Compatible
The ResponseGrip is compatible with all leading stimulus presentation software packages, and interfaces with a number of third-party hardware devices.

Interface Unit
The ResponseGrip is 100% fibre optic, and connects to the ResponseGrip Interface Unit in the operator room through an available waveguide. The Interface Unit provides real-time feedback of subject responses via LED indicators and optional sound signaling.
SyncBox
Simple solution for accurate control over stimulus presentation

**Accuracy of Timing**
One of the challenges in fMRI is synchronising stimulus presentation with MR image acquisition. The accuracy and verification of timing information is critical to the validity of results. With a flexible and user-friendly menu system, the SyncBox allows the user to select how the trigger pulse from the scanner is transferred to the software presenting the stimuli. Compatible with the leading software packages, the SyncBox provides a simple solution for accurate control over stimulus presentation and easy access to timing information for data analysis.

**Cost Efficient Simulation**
The SyncBox can simulate the trigger signals produced by the scanner during an MRI sequence. This enables the user to develop and test the entire experimental paradigm in the office, minimizing the need for testing in a costly scanning environment.

**Compatible**
The SyncBox is MRI scanner independent and interfaces with a variety of external devices, allowing synchronisation of signals from different hardware sources and providing accurate logging of time stamps.
NordicNeuroLab provides solutions for the analysis of advanced neuroimaging for MRI.

This includes:
- stimulus presentation software
- fast and easy to use post-processing software for BOLD fMRI, DTI and Perfusion analysis
- research-oriented software for post-processing advanced neuroimaging for MRI

Our main focus is to provide clinical users with easy to use tools for optimising workflow and minimising processing time. In this way we improve productivity and offer research users sophisticated and advanced solutions for neuroimaging.
nordic Aktiva
Stimulus presentation and workflow software

Easy stimulus generation and image acquisition
Ready-to-use standard clinical paradigm library

By using nordicAktiva a single technician can handle stimulus generation and image acquisition at the same time. It offers a choice of either using pre-defined paradigms, modifying them based on user preferences, or simply building a tailored library. nordicAktiva also supports video files.

Visual output can be flipped/mirrored vertically and/or horizontally. The user is guided step-by-step through the process of presenting stimuli during image acquisition.

Multi-language
nordicAktiva guides the user, providing detailed patient and operator instructions in multiple languages.

Siemens Numaris (Syngo)
nordicAktiva comes with a plug-in for the Siemens Numaris platform. This way your stimulus presentation can be done directly from your operating console.

info@nordicneurolab.com
nordic BrainEx

Streamlined BOLD fMRI, DTI and Perfusion analysis

BOLD fMRI
Perfusion / DSC
DTI Tractography

Neuroimaging software for fMRI
Designed for the clinical workflow

Our simple and user-friendly interface improves user productivity. Advanced volume of interest tools, combined with 2D / 3D visualisation of BOLD activation areas, DTI tractography and MRI Perfusion maps allow clinicians to perform extensive evaluations of brain tissue surrounding pathological areas.

By introducing a clinical Perfusion Module we have taken nordicBrainEx to the next level. Utilize and combine all 3 methods in one application or select modalities based on your specific needs.

nordicBrainEx is DICOM compatible and capable of analyzing data from all major MRI vendors. All processed data can be saved in a comprehensive report, sent to PACS or exported to neuronavigation systems.

www.nordicneurolab.com info@nordicneurolab.com
Optimised workflow

More time for your patient

Optimise your workflow in 3 simple steps

Select patient and image series  
Visualise and interact  
Export to PACS / neuronavigation
DTI / Fibertracking Module

**Pre-processing**

Motion correction and eddy current corrections are available. Smooth, average and adjust noise levels in order to improve analysis quality.

**Isolate fibre groups**

Use multiple VOI-tools to isolate fibre groups, explore connectivity and customise colour schemes. Fibre groups can be presented in 2D/3D and exported to neuronavigation.
BOLD fMRI Module

Time-intensity curves
Easily perform a quality check of your BOLD activation maps by displaying time-intensity curves of your dynamic data sets.

BOLD activation tools
Display a large number of conditions in the same view, both in 2D and 3D. Threshold interactively, select individual colours and adjust opacity. Export BOLD activations to neuronavigation.
Perfusion / DSC Module

Combining results from BOLD fMRI, DSC Perfusion and DTI
Perfusion / DSC Module - VOI

VOI statistical information can be displayed in a list. This list can be saved to text file and/or exported to PACS together with the images.

Use the VOI to create time-intensity curves for dynamic data sets. This allows visualisation of the dynamic signal in a BOLD, DTI or DSC data set.

The VOI can be used to create histograms of various parametric values. Histograms can then be added to the report or saved as a text file.
nordicICE
Post-processing software for advanced neuro MRI applications

Designated for research environment

nordicICE is a post-processing software for advanced neuro MRI applications. The software package offers analysis abilities for most types of functional MR images including all types of perfusion related MR acquisitions (DSC, DCE and ASL), diffusion weighted images (DWI and DTI), images for relaxation calculations (both T1 and T2) and BOLD images. nordicICE can be used for neuro, as well as for abdomen, prostate, breast and musculoskeletal applications.

Having been in the market for nearly 15 years, NordicNeuroLab has had the chance to learn what needs a researcher has and functionality has continuously been added to fulfill these.

In NordicNeuroLab’s product collection, nordicICE comprises the researcher’s counterpart to nordicBrainEx.

While nordicBrainEx is the clinical tool that focuses on ease of use and efficiency in a clinical setting, nordicICE is targeting the researcher’s needs: handling of many different types of image types including nifti, a wide range of analysis options, image analysis and processing, and finally an advanced tool for batch processing of multiple datasets. This last feature is invaluable for a researcher that possesses maybe hundreds of image sets and wants to experiment with various analysis options.

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Modules and Functionality:

- Arterial Spin Labeling (ASL)
- Perfusion DSC
- Permeability DCE
- Relaxometry (T1 & T2 mapping)
- Diffusion Weighted Imaging (DWI)
- DTI
- BOLD fMRI
- Batch processing

Wide range of general image analysis tools:

- ROI functionality
- Image arithmetics
- Segmentation
- Smoothing

Key Features:

- Research only (no clinical approvals)
- Advanced functionality
- For Neuro, Abdomen, Breast, Prostate, Musculoskeletal
- New methods
- 64-bit application
- DICOM database
Dynamic Contrast Enhanced perfusion module uses advanced kinetic modelling to obtain permeability maps from T1-weighted MRI time-series data. The module implements one-click AIF-estimation with partial volume correction, either from currently selected slice or ROI, or global detection on all slices. Standard population based AIFs can also be used for standardized analysis. The DCE module provides a large range of parametric output maps and several kinetic models are available. In specific, using a statistical test, the optimal model can individually be set for each voxel, allowing for the optimization of the kinetic modelling.
Dynamic Susceptibility Contrast Perfusion (DSC)

Dynamic Susceptibility Contrast perfusion module provides both normalization and deconvolution post processing methods for T2*-weighted neuro-perfusion. The AIF estimation for deconvolution implements one-click estimation from currently selected slice or ROI, automated global detection, and selection of standard population based AIFs. The module offers several advanced leakage correction algorithms.
Arterial Spin Labeling (ASL)

Arterial Spin Labelling perfusion module provides post processing of both pseudo continuous and pulsed ASL data. The module integrates motion correction, M0-correction, and co-registration through a simple drag-and-drop interface. Qualitative and quantitative perfusion analysis can be performed with just a few clicks.
Batch Processing

The entire post processing pipeline from preprocessing to statistical analysis can be automated for an unlimited number of image sets subjects. The batch processing module can use the full functionalities of the relaxation module, DSC, and DCE modules including a dedicated preprocessing section. It is also capable of performing basic operations such as image conversion, image down- and re-sampling, normalization, masking, ROI analysis, and pixel extraction with easy export of data to Excel for further analysis.
NordicNeuroLab turnkey fMRI Solution has been designed to fit within the workflow of the hospital’s daily routine and has been tailored to integrate software and hardware components simply and effectively.

The solution’s main characteristics are:
- quick set-up and adjustment to individual patients
- minimal footprint and easy storage of equipment in MRI room
- minimal user interaction due to optimised workflow and automated data analysis
- standardised stimulus paradigms

As part of the nordic fMRI Solution we offer professional installation, after-sales customer support and application training, provided by our highly educated and experienced specialists.
Turnkey solution for fMRI

Integrated hardware and software solution for clinical fMRI

Paradigm and workflow software
- Intuitive interface and instructions guide the user through the process of presenting stimuli to the patient
- Included library of ready-to-use standard clinical paradigms allows the physician to test perceptual, motor and language functions
- A single technician can handle stimulus generation and image acquisition at the same time

Stimulus delivery hardware
- Fully integrated hardware for audio-visual stimulus presentation and response collection
- Flexible VisualSystem or InroomViewingDevice for visual stimulus presentation
- Ergonomically designed response device
- Compatible with MR scanners and head coils from all major vendors
- Suitable for field strengths up to 3T
- All signal transfers to and from the scanner room via fibre cables

Analysis and report software
- Intuitive interface guides the user through the process of loading and analysing BOLD fMRI, DTI, Perfusion and structural data sets
- 2D/3D visualisation of white matter tracts together with BOLD fMRI activations on various underlays
- Analysed data can be exported to neuro-navigation systems or PACS
- Works with image data acquired on scanners from all major vendors
- Runs on standard PC or laptop

info@nordicneurolab.com
About Us

With over 15 years of experience, NordicNeuroLab provides products and solutions that define the field of functional MR imaging. We understand the growing need for reliable and innovative tools in this emerging field. This is why we make it a priority to collaborate with research and clinical teams from both academic and medical centers, MRI system manufacturers and third party vendors.

From advanced post-processing and visualisation software for BOLD, Diffusion/DTI and Perfusion/DCE imaging to fMRI hardware for audio and visual stimulation, eye tracking and patient response collection, NordicNeuroLab products are used around the world by researchers and clinicians alike. We are dedicated to bringing the most advanced neuro-imaging tools to market while making functional MRI programs easy to implement.

Our Mission Statement

NordicNeuroLab will apply world leading competence and experience to provide professional solutions for functional imaging, enabling improved patient care and clinical efficiency.

Our Corporate Values

• We push for innovation
• We listen to our customers
• We focus on ease of use
• We deliver high quality
• We value safety

Service and Support

NordicNeuroLab takes pride in providing excellent service and support to our customers. Whether you are working with our team directly or through local partners and distributors, we are ready to support you in any way we can. We offer extensive warranty and service agreements, software maintenance solutions and professional installation and training packages based on your individual needs. We also offer online and on-site workshops in order to further improve product understanding and customer satisfaction.

Regulatory Compliances and Certificates

NordicNeuroLab has always emphasized quality and safety in the development and production of our devices. NordicNeuroLab fMRI hardware system is designed, developed and manufactured under certified ISO 13485 and ISO 9001 Quality Management system. As our product portfolio grows, we continue to ensure that all of our products intended for clinical use meet regulatory and safety requirements, have respective market clearances, and are tested for international UL and IEC consensus standards for Device Safety (60601-1) and Electromagnetic Compatibility (EMC) (60601-1-2) for medical equipment.