

making functional MRI easy



Complete Products and Solutions for fMRI





NordicNeuroLab

Advanced Hardware and Software for fMRI

fMRI Hardware

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.

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

NordicNeuroLab InroomViewingDevice was designed to provide an optimal MRI compatible monitor that satisfies the needs of both clinical and advanced scientific applications. It has been certified by Siemens for both fMRI and general use, and fulfils Siemens' requirements of relative change of background noise (increase) less than 1% and no image RF artefacts (for 1.5T and 3T).

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.

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). Regardless of positioning we guarantee no scanner interference on 1.5T and 3T systems.

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. Separate displays for each eye permits both 3D and stereo stimuli.

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.

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.

EarPlug*

The EarPlug is an alternative solution to the headphones for delivery of audio stimuli. This solves the problem of restricted space inside the head coils.

*Market clearance not obtained in USA and EU. For research use only.

Communication Console

Through easy and accessible controls, the Communication Console offers two-way simultaneous patient communication and full flexibility of audio settings. It also allows the recording of oral responses from the subject using a fibre optic microphone, which is available as an option.

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.

fMRI Software

NordicNeuroLab provides solutions for the analysis of advanced neuroimaging for MRI.

This includes:

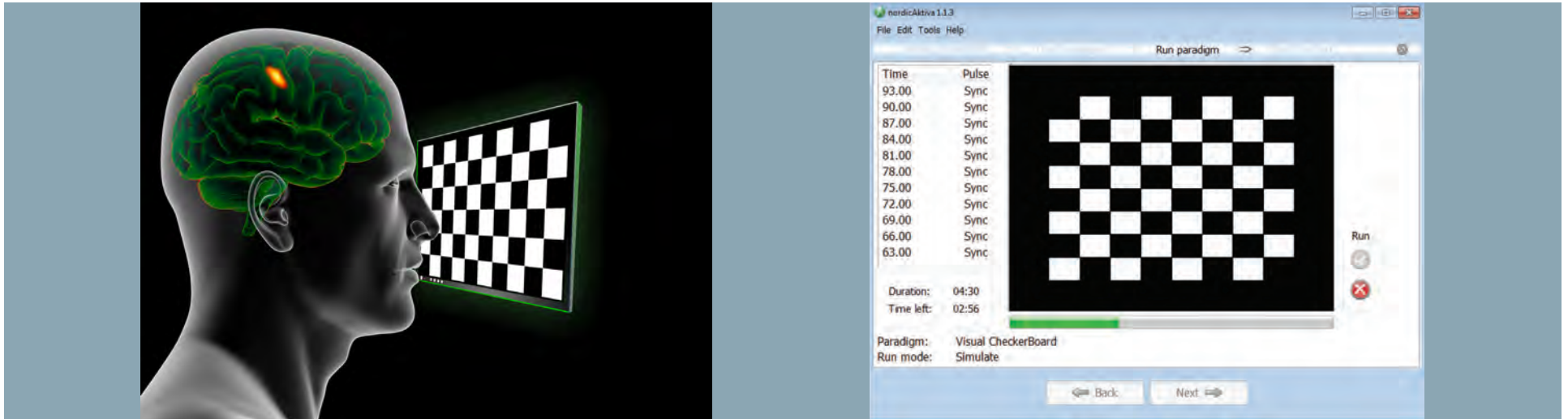
- stimulus presentation software
- fast and easy to use post-processing software for BOLD fMRI, DTI and Perfusion analysis
- research-oriented software for post-processing advanced neuroimaging for MRI

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 at the same time as we can offer research users sophisticated and advanced solutions for neuroimaging.



nordicAktiva

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 the 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.

nordicBrainEx

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.

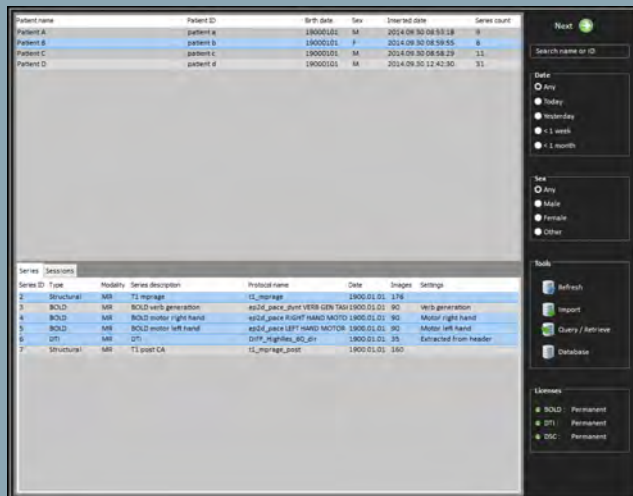
By introducing a clinical Perfusion Module we have taken nordicBrainEx to the next level. Utilize and combine all 3 methods in one application or select modalities based on your specific needs.

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.

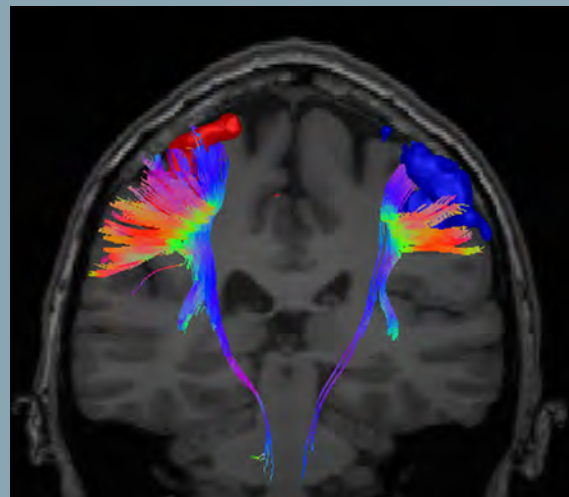
Optimised workflow

More time for your patient

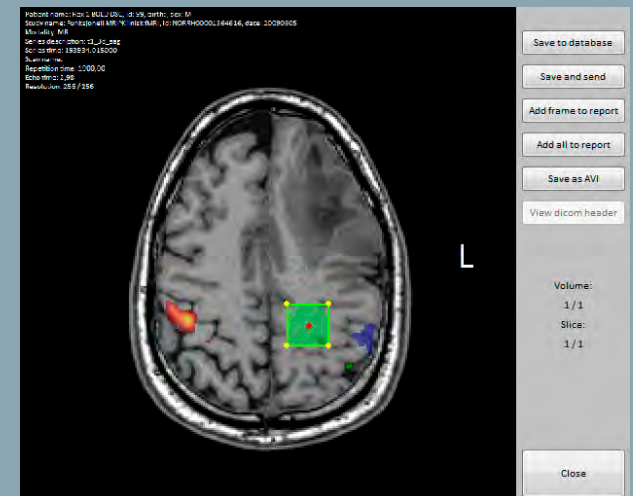
Optimise your workflow in 3 simple steps



Select patient and image series

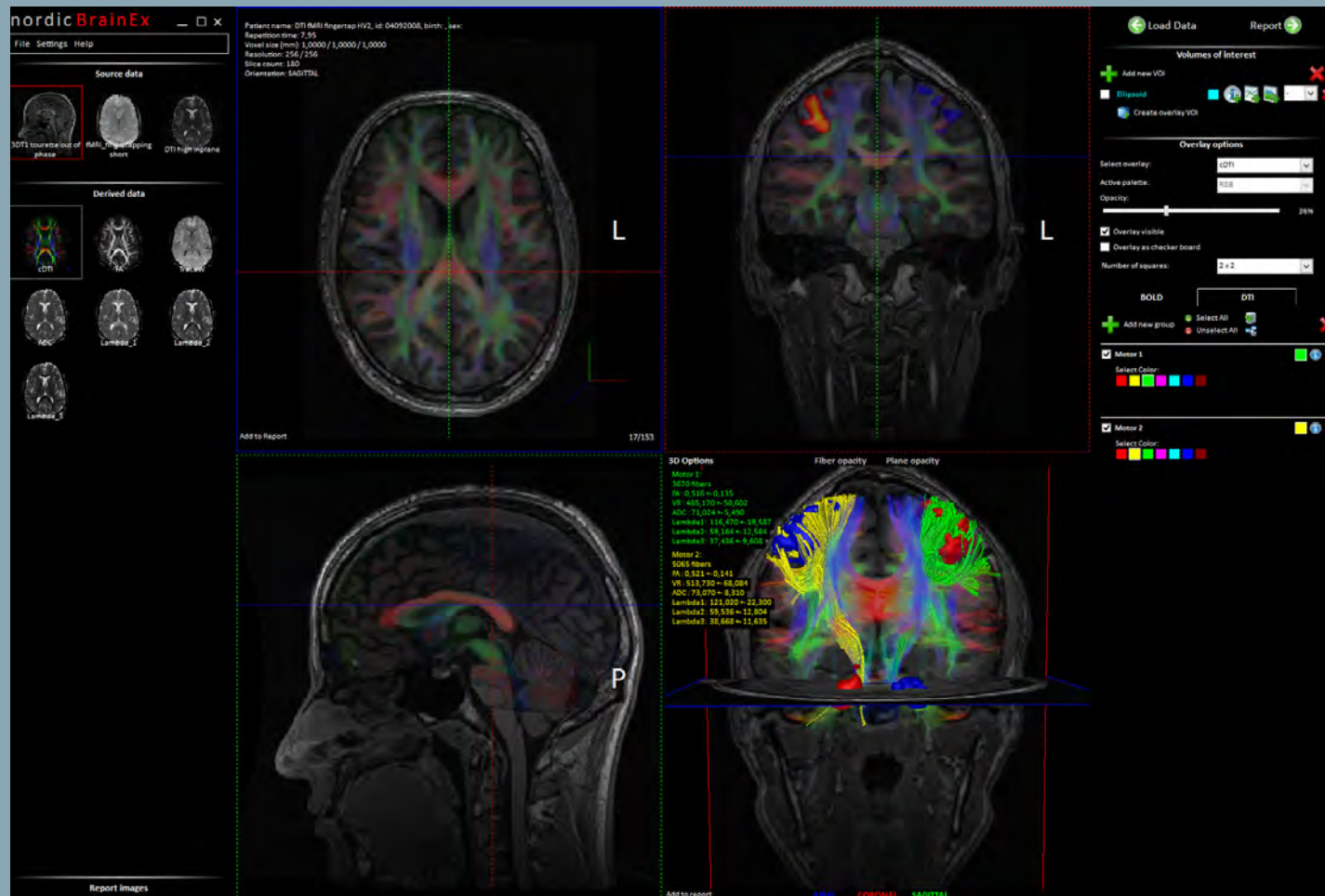


Visualise and interact



Export to PACS / neuronavigation

DTI / Fibertracking Module



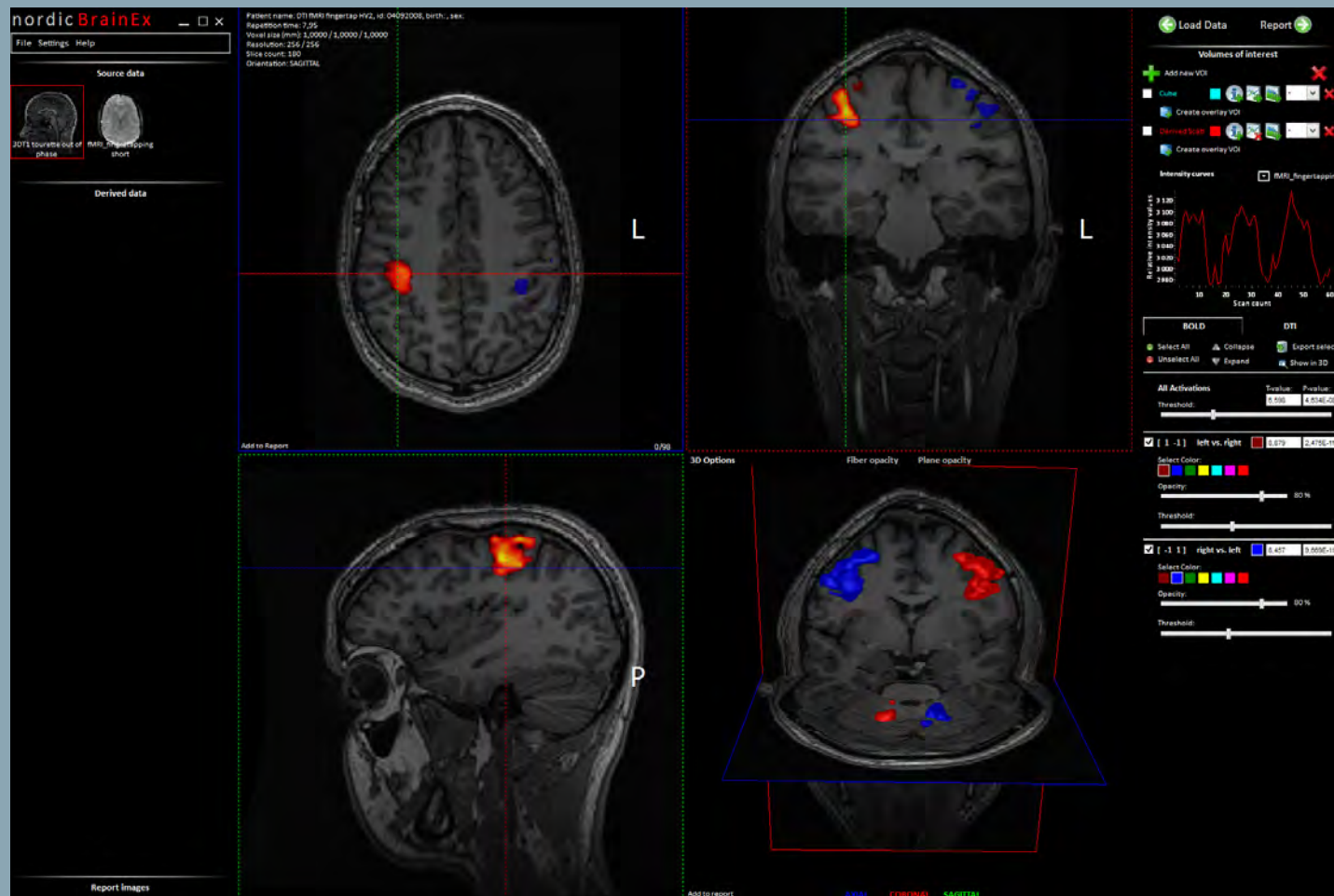
Pre-processing

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 and explore connectivity. Define individual colours. Fibre groups can be presented in 2D/3D and exported to neuronavigation.

BOLD fMRI Module



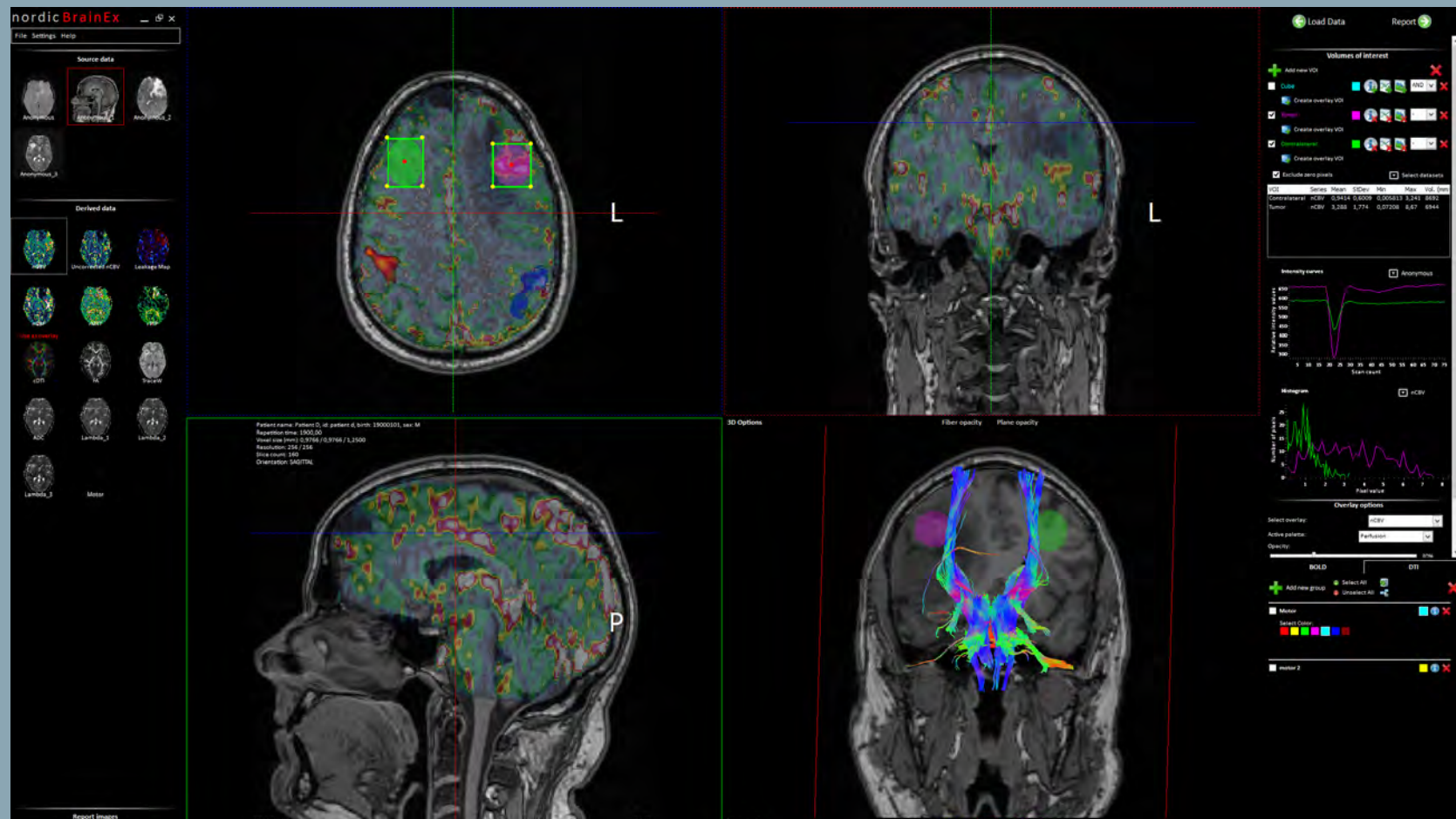
Time-intensity curves

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

BOLD activation tools

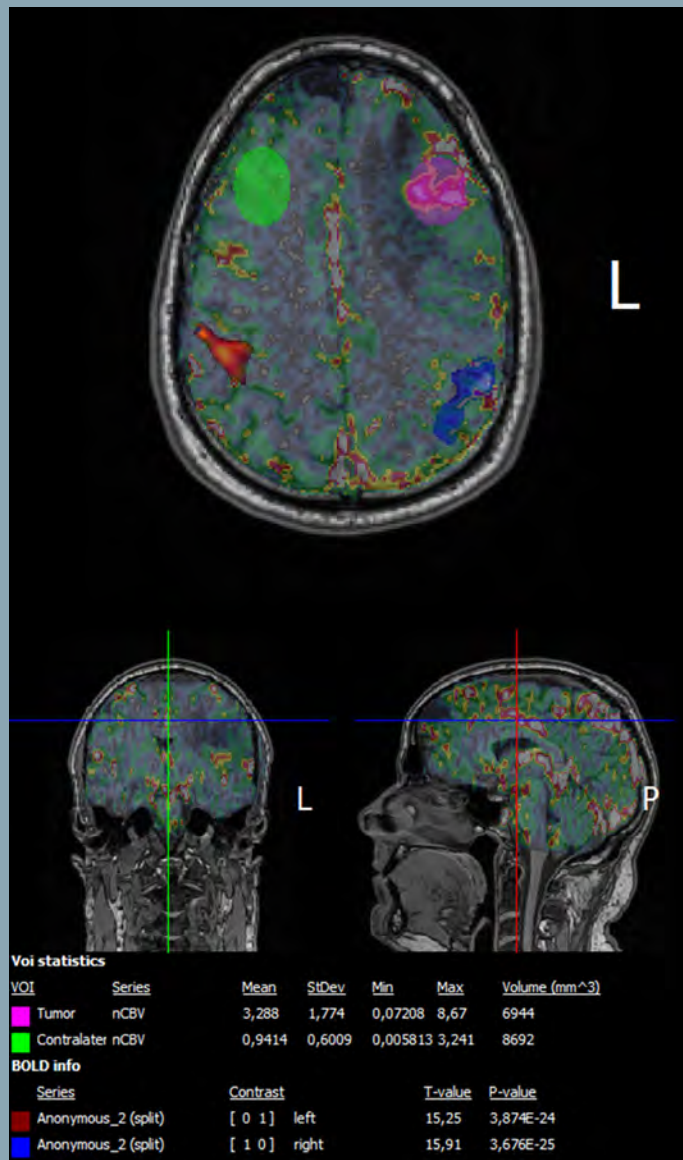
Display a large number of conditions in the same view, both in 2D and 3D. Threshold interactively, select individual colours and adjust opacity. Export BOLD activations to neuronavigation.

Perfusion / DSC Module



Combining results from BOLD fMRI, DSC Perfusion and DTI

Perfusion / DSC Module - VOI



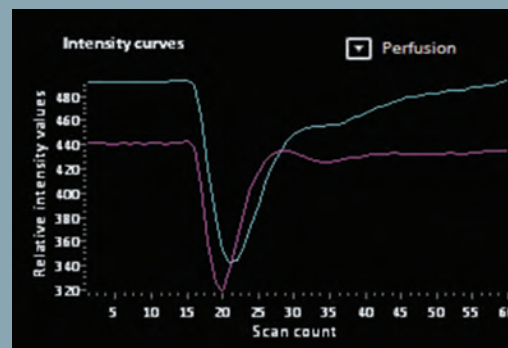
VOI 1 ☒ Create overlay VOI

VOI 2 ☒ Create overlay VOI

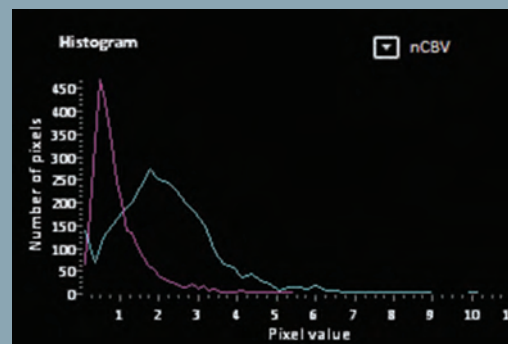
☒ Exclude zero pixels

VOI	Series	Mean	StDev	Min	Max	Vol. (mm ³)
VOI 1	ADC	89,15	20,68	33	243	3,408E4
VOI 1	nCBF	1,477	1,23	0,02749	14,93	3,408E4
VOI 1	nCBV	2,43	1,727	0,01725	16,54	3,408E4
VOI 2	ADC	87,92	25,21	61	220	3,408E4
VOI 2	nCBF	1,227	0,9186	0,004811	6,39	3,408E4
VOI 2	nCBV	0,9798	0,7573	0,002874	10,44	3,408E4

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.



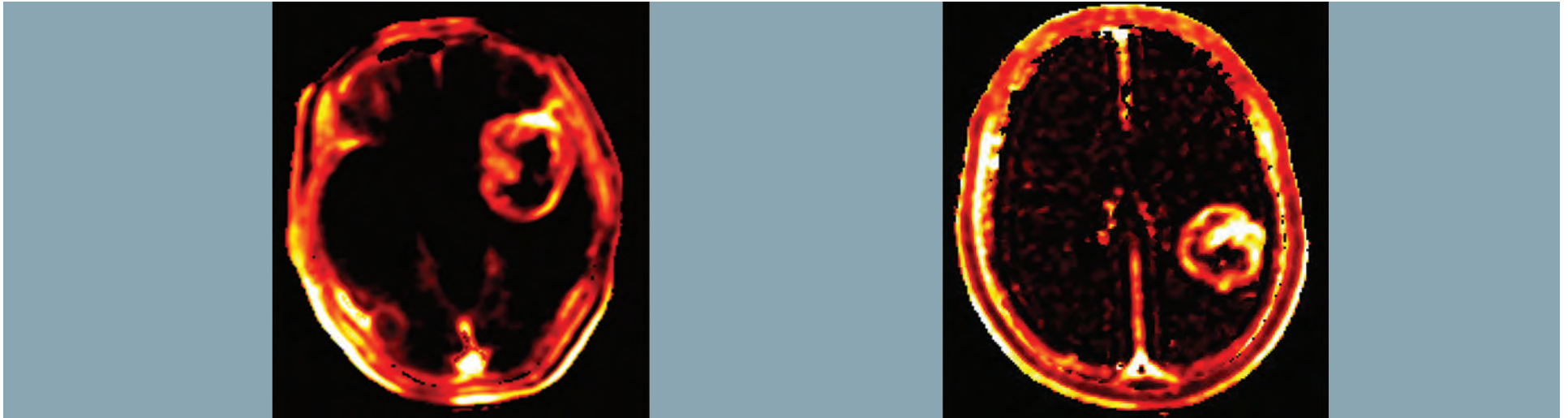
Use the VOI to create time-intensity curves for dynamic data sets. This allows visualisation of the dynamic signal in a BOLD, DTI or DSC data set.



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

Advanced MRI Perfusion software



Software for DCE analysis

Designed for research environment

nordicICE couples a perfusion package and a permeability perfusion analysis package. With these modules a large range of physiologically relevant parameters related to tissue perfusion and capillary permeability can be addressed both qualitatively and semi-quantitatively using state-of-the-art methods.

With nordicICE Perfusion Module the user can generate high-quality perfusion maps for dyna-

mic susceptibility enhanced MRI in seconds. The combination of a user-friendly interface, myriads of options and possibilities, robust algorithms and fast processing times ensures maximum productivity without loss of quality.

Turnkey fMRI Solution

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

Corporate information

About Us

With over a decade 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.

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