



**NordicImagingLab**

## Software Release Notes for nordicICE v2.3

Date: 1 July, 2008

Approved by: Anders Strand Vestbø

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*NOTE: The most current documentation for released products is available on <http://www.nordicimaginglab.com>. The online documentation may contain updated information on modifications made and issues reported after this document was issued.*

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### Introduction

*nordicICE v2.3 is the new version of NordicImagingLab's main software framework dedicated to the clinical user of functional MR imaging methodologies (BOLD, DTI, Perfusion). The software is module based, meaning that it can be configured with one or more of the following analysis modules\*:*

- [nordicICE Diffusion/DTI Module](#)
- [nordicICE BOLD Module](#)
- [nordicICE Perfusion Module](#)
- [nordicICE Penguin Stroke Perfusion Module](#)
- *nordicICE Permeability/Dynamic Contrast Enhanced (DCE) Imaging Module (NEW)*

*It is an easy-to-use Windows-based application that can be readily integrated into the clinical workflow in any hospital or institution. At the same time, nordicICE offers the research oriented user the possibility to take advantage of the myriad of possibilities offered by this versatile, high-performance application.*

*nordicICE v2.3 runs on Windows 2000, XP or Vista platforms.*

*\*Note that for the U.S., these analysis modules do not have FDA 510(k) clearance at this time and until such clearance has been obtained, Federal Law limits this product to investigational use.*

### Overview

#### **nordicICE Diffusion Module**

The nordicICE Diffusion Module allows you to easily and effectively generate diffusion maps from MR diffusion imaging studies from all major MR vendors. Furthermore it also includes the novel feature of reconstructing axonal tracts (Fiber Tracking) in the central nervous system. The new and improved 3D viewing interface offers unique features for exploring white matter connectivity using various Region of Interest tools. The white matter fiber structures can be readily exported to Neuronavigation systems.

## **nordicICE BOLD Module**

The nordicICE BOLD Module considerably simplifies the analysis of BOLD fMRI data, thus making it ideally suitable for clinical users. Easy to use due to the intuitive and user-friendly interface, fMRI exam protocols can effortlessly be integrated into the everyday clinical workflow. Fast, reliable, and standardized BOLD analysis can be performed with minimal user interaction. Resulting activation maps can be readily exported to Neuronavigation systems.

## **Integrated BOLD and DTI analysis**

One of the main new features in nordicICE v2.3 is the BOLD and DTI Wizard dedicated to simplify and optimize the workflow of analyzing and combining Diffusion Tensor Imaging and BOLD fMRI data. This wizard provides an intuitive and easy-to-use step-by-step interface that guides the user through the process of loading, analysis and visualization of the data. The new integrated Multi-Planar Reconstruction and 3D visualization interface offers unique tools for combining functional activation maps and white matter fiber tracts on a structural image volume. The resulting datasets (both fiber structures and activation maps) can be readily exported to various Neuronavigation systems.

## **Automated co-registration**

nordicICE v2.3 enables automated co-registration between different modalities such as functional and structural datasets. In addition, dedicated algorithms can be used to correct for motion in dynamic image series (such as BOLD and DTI) as well as artifacts induced by eddy-currents commonly observed in diffusion weighted images.

## **nordicICE Perfusion Module**

With the nordicICE Perfusion Module you can create high-quality perfusion maps from dynamic contrast enhanced MR and CT images in seconds, ensuring maximum productivity without loss of quality. The module can be used to obtain qualitative as well as (semi-) quantitative perfusion maps based on the dynamic (first-pass) effect of a contrast agent (CA). Being optimized for tumor perfusion analysis it encompasses advanced processing methods like vessel segmentation and contrast agent leakage correction (including calculation of “leakage” (Ktrans) maps).

## **Permeability / Dynamic Contrast Enhanced (DCE) image analysis**

The new optional Dynamic Contrast Enhanced (DCE) analysis module can be used to obtain qualitative as well as (semi-) quantitative maps of several parameters related to vascular permeability and intra- extra-vascular volumes based on the dynamic effect of a contrast enhancing agent (CA). Analysis can be performed using a variety of different techniques.

## **nordicICE Penguin Stroke Module**

The nordicICE Penguin Stroke Perfusion Module has been developed in Professor Leif Østergaard's laboratory, Centre of Functionally Integrated Neuroscience at AARHUS UNIVERSITY, Denmark. This module offers automatic perfusion analysis in an intuitive and simple graphical environment. It has been developed in close collaboration with clinicians to ensure optimal ease-of-use, especially in

acute settings. By bringing together recent advances in automatic input function search strategies and deconvolution techniques, this module offers very fast and robust perfusion analysis.

## **Supplementary Notes**

The software can be downloaded and installed from the company website:

<http://www.nordicimaginglab.com>

## **Contact**

For questions or problems please contact support:

support@nordicimaginglab.com



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