

Customizable and Advanced Software for tomographic reconstruction (CASToR) training for beginners

MAY 27,28 2021

ONLINE VIRTUAL SESSION

COURSE OVERVIEW

The purpose of this training session is to give the participants the basics of CASToR, an open-source software platform for 4D iterative reconstruction in emission (PET and SPECT) and transmission (CT) tomography, providing generic programming, flexibility, and modularity

WHO IS THE COURSE FOR?

Lab researchers, PhD. students, engineers, medical physicists working in hospitals, laboratories or companies in the biomedical imaging field

TARGETED SKILLS

- Identify the general features of the CASToR software platform and the scope of its applications
- Manage all the concepts involved in iterative tomographic reconstruction
- Run the CASToR reconstruction platform for different imaging modalities: PET, SPECT and CT systems definition and their integration to the platform
- Run CASToR for various penalized optimization algorithms
- Run CASToR for dynamic PET reconstructions
- Run CASToR to reconstruct images from both GATE Monte Carlo simulated and real datasets

ENTRY REQUIREMENTS

Attendees must have a general knowledge in both tomographic image reconstruction algorithms and nuclear/X-ray imaging (from radiation detection to biomedical applications)

A Linux virtual machine including the software platform will be used during the training and provided before

COURSE CONTENT

- Key points of the CASToR architecture: data types, scanner geometries, input datafile format, system matrix and projectors and iterative optimization algorithms
- How to make new contributions to CASToR
- Focus on dynamic PET reconstruction: whole-body and respiratory/cardiac gated acquisitions, multi-frame acquisitions, tracer kinetic modelling, involuntary patient motion
- Practical considerations regarding CASToR installation, parallel execution and various utilities for data processing, generation or conversion



Image: © CASToR-project

Duration: 2 days - 13 hours

Group limited to 20

Contact: Albertine Dubois

albertine.dubois@cea.fr

Course code: 11C

Registration fees: 180 €

(Financial support from France Life Imaging)



PRESENTATIONS
& DEBATES



PRACTICAL
WORK



SIMULATOR

Please contact us for more information on this course.

WHY TAKE THIS COURSE?

- ✓ Combination of detailed lectures and CASToR software demos on real datasets
- ✓ Lectures partly provided by the two designers and main contributors to CASToR: Thibaut Merlin and Simon Stute
- ✓ Possibility for more advanced users to ask specific questions and to be advised in generating new features