

## GETTING STARTED WITH NEUROIMAGING ANALYSIS

Friday, July 14, 2023 | 8 a.m. – noon  
Hilton (Orange Rooms 1-2) — Amsterdam, Netherlands  
All times are in Central European Time  
In-person attendance only  
*Laptops are required*

### Overview

The workshop will provide practical information and an enhanced understanding on how to work with and analyze medical imaging data from various magnetic resonance imaging (MRI) modalities, as well as positron emission tomography (PET) data.

The workshop will consist of hands-on interactive sessions. The first session will focus on understanding of the basic structure of imaging data, how to traverse images, data extraction, and how voxels relate to world coordinates. We will then go through the basic processing steps involving structural MRI data, demonstrating simple workflows including tissue segmentation, and registration. The second half will consist of two independent working sessions, where facilitators will present interactive tutorials around different forms of neuroimaging analysis (structural MRI, fMRI, DTI or PET data), and the participants will then work on the tutorials of their choice, with assistance from the facilitators. The objective of the workshop is to ensure participants gain an understanding of how to start processing and analyzing various imaging modalities used in dementia research.

### Organizing Committee

- David Cash, UCL Queen Square Institute of Neurology, United Kingdom
- Tobey Betthausen, University of Wisconsin, United States
- Alexa Pichet Binette, Lund University, Sweden
- Ludovica Griffanti, University of Oxford, United Kingdom
- Luigi Lorenzini, Amsterdam UMC, Netherlands

### Target Audience

This hands-on workshop can serve as a beginner or refresher course for established investigators, clinicians, and trainees involved in the use of imaging techniques in the study of Alzheimer's disease, related disorders and normal aging. Participants from any career stage are encouraged to join, including undergraduate students, graduate students, post-doctoral researchers and assistant professors engaged in clinical practice, research or teaching.

Registrants will need to bring their own laptop to do the exercises (tablets or smartphones will not be sufficient). They will be provided with some reading and links to the Basics of Neuroimaging series of AAIC webinars that will be released in advance to review before the workshop. At the workshop, they will be provided access to a virtual machine that will have all of the needed software.

You can find more information on the Basics of Neuroimaging Series below:

- [Data Structures and Format \(slides\)](#)
- [Structural MRI \(slides\)](#)
- [Positron Emission Tomography \(slides\)](#)
- [Diffusion MRI \(slides\)](#)
- [Functional MRI \(slides\)](#)

## Learning Objectives

- Distinguish the different elements of imaging data structure and their function.
- Execute standard processing methods on various MRI and PET data.
- Review results from image processing techniques to assess whether they are successful.

## Registration

Pre-conferences are offered for in-person attendance only. Preconferences require a separate registration fee in addition to AAIC full conference registration, or they may be purchased as stand-alone events.

## Agenda

Time	Session Details	Speakers
8-8:10 a.m.	<b>Introduction</b>	David Cash and Tobey Betthausen
8:10-8:40 a.m.	<b>Imaging Data: Structure and Visualisation</b>	Ludovica Griffanti
8:40-9:10 a.m.	<b>Structural T1 Imaging</b>	David Cash
9:10-9:20 a.m.	<b>Break</b>	
9:20-9:50 a.m.	<b>Introduction to Advanced Imaging Analysis Sections (PET, DT, fMRI)</b>	Tobey Betthausen, Alexa Pichet Binette, Luigi Lorenzini

9:50-10:40 a.m.	<b>Independent Working Session 1</b>	Facilitated by all organizers
10:40-10:50 a.m.	<b>Break</b>	
10:50-11:40 a.m.	<b>Independent Working Session 2</b>	Facilitated by all organizers
11:40 a.m. – noon	<b>Wrap-up and Feedback</b>	David Cash and Tobey Betthausen