

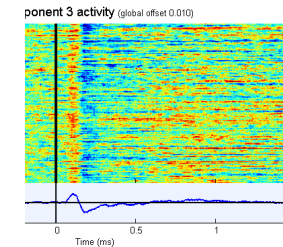
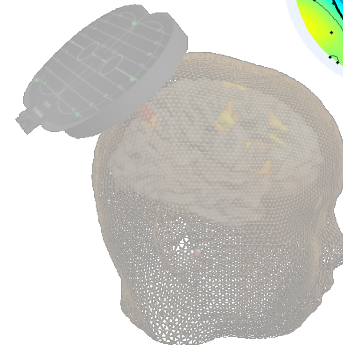
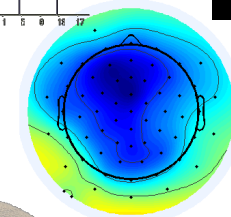
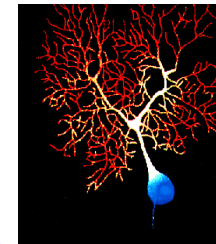
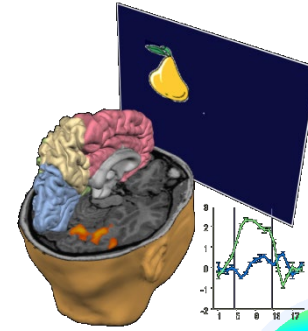
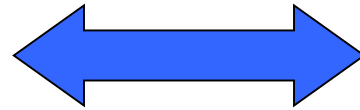
Research Master in Cognitive and Clinical Neuroscience

Cognitive Neuroscience Specialisation

Giancarlo Valente



Cognitive Neuroscience



Interdisciplinary field: psychology, biology, bioengineering, mathematics, physics, computer science ...

Cognitive Neuroscience

Go
the **extra**
mile

I. Theory

Perception

Cognition

Behaviour

II. Neuroimaging

Methods

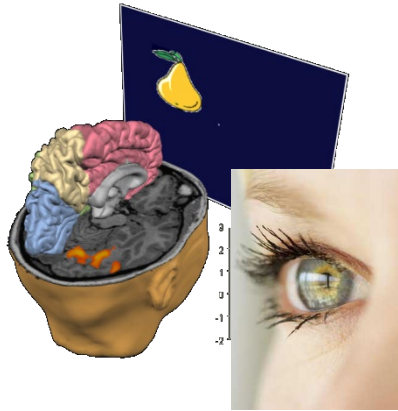
Applications

III. Skills

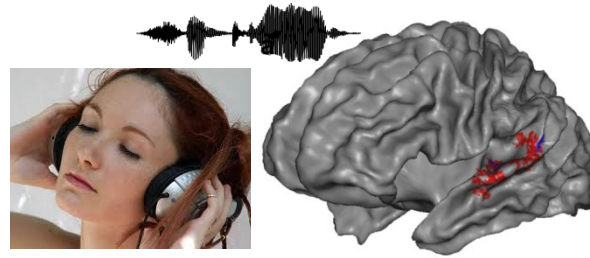
Academic

Research

I. Perception, cognition & behaviour



1. Visual Perception & Attention



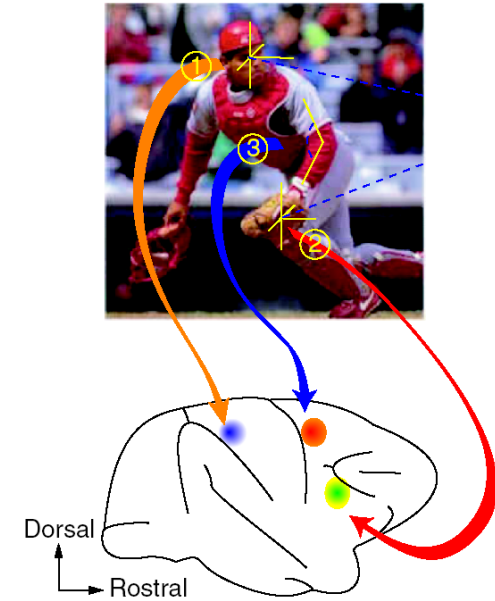
2. Audition, Language & Cross-modal integration



4. Memory & Learning



5. Translational Neuroscience



3. Integration of Sensory & Motor Systems

II. Methods & applications of neuroimaging techniques



1. functional MRI (2x)
2. MRI/DTI
3. EEG/MEG
4. TMS

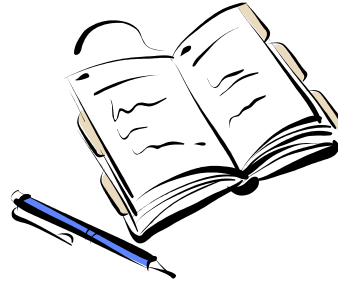


Theoretical core courses
↕
Hands-on skills trainings



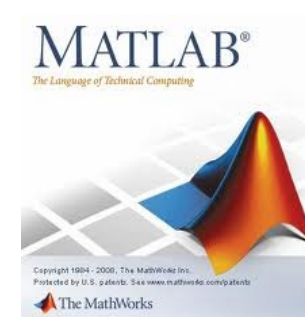
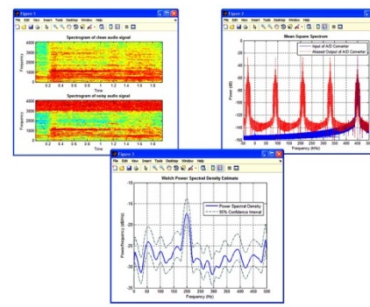
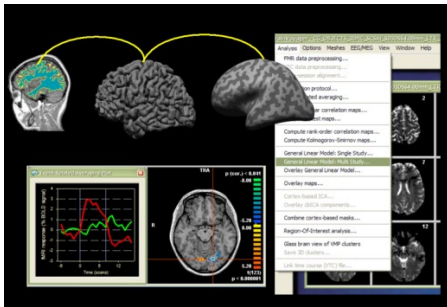
III. Academic and research skills

All RM tracks



Presentation and writing skills, statistics

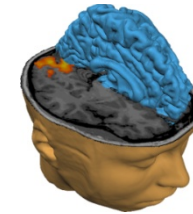
Cognitive Neuroscience



Extensive training in experimental design, EEG/fMRI signal analysis, basic maths

Own research possibilities

- *Research Electives and Grant Writing*
- **Research Internship** (~8 months)
 - excellent possibilities within CN group
 - and in one of many excellent laboratories within our large network of national and international collaborations (*for examples see website*).



Examples Internships CN

Matteo Bastiani, FPN:

Development of high resolution fiber tracking (DTI) methods

Jan Zimmerman, University of Minnesota, USA:

Direction selective neural columns in human V5 measured at 7T fMRI

Kiki vd Heijden, FPN:

Spatial audition in virtual reality & fMRI

Danique Jeurissen, Harvard Medical School, Boston, USA:

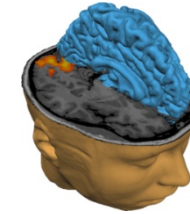
Brain connectivity network underlying moral judgment

Isabelle Habes, University of Cardiff, UK:

Treating depression using fMRI neurofeedback

Annette Giani, University of Würzburg, Germany:

Treating Tinnitus with TMS



Career perspectives

Optimal preparation for:

- **fundamental brain research** in academic setting
- using neuroimaging techniques in **applied/clinical research** settings (see CN perspectives I)
- **biomedical industry**, *e.g.*, Scannexus
(see CN perspectives II)

CN perspectives I: Clinical applications

TMS induced brain plasticity

- **guiding brain recovery after stroke**
- **treatment of depression**



Alexander Sack

Cortical mechanisms of auditory scene analysis

- **intelligent hearing aids**



Elia Formisano

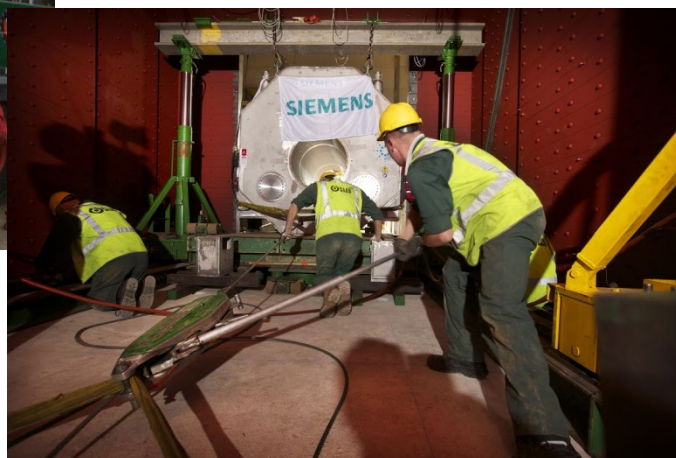
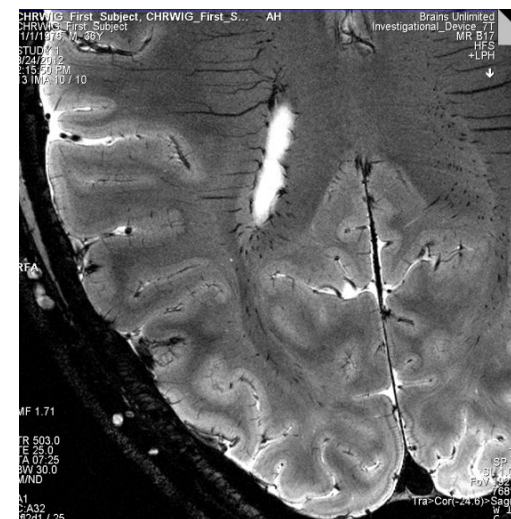
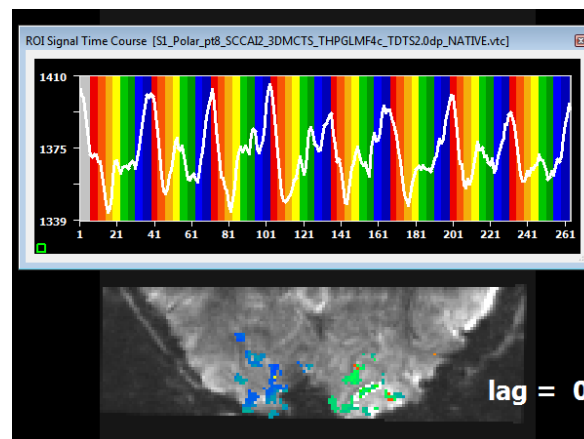
Real-time fMRI & Neurofeedback

- **treatment of depression, Parkinson**
- **motor-independent communication with locked-in patients**



Rainer Goebel

CN perspectives II: Ultra high-field MRI



CN staff @ Maastricht Brain Imaging Center

Go
the **extra**
mile



More information, questions?

- CN alumni & current students
- CN coordinator: Giancarlo Valente
giancarlo.valente@maastrichtuniversity.nl

