

# Master in Psychology Cognitive Neuroscience

**Giancarlo Valente**

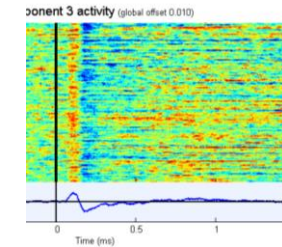
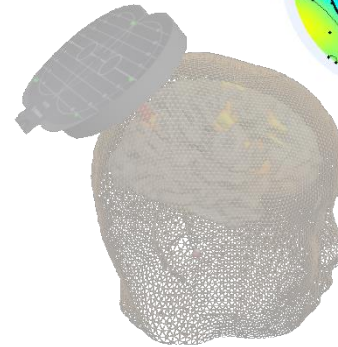
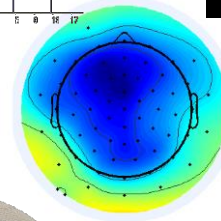
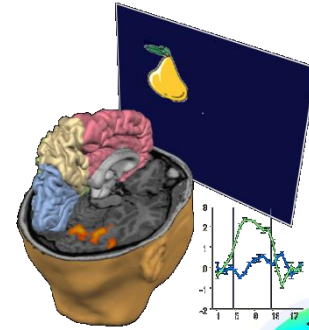
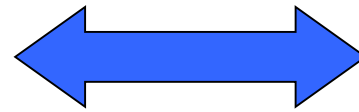
Specialisation Coordinator



# Overview

- What is *Cognitive Neuroscience (CN)*?
- What will you learn in this master?
- *Career perspectives*
- Master CN vs. *Research Master CN*

# Cognitive Neuroscience

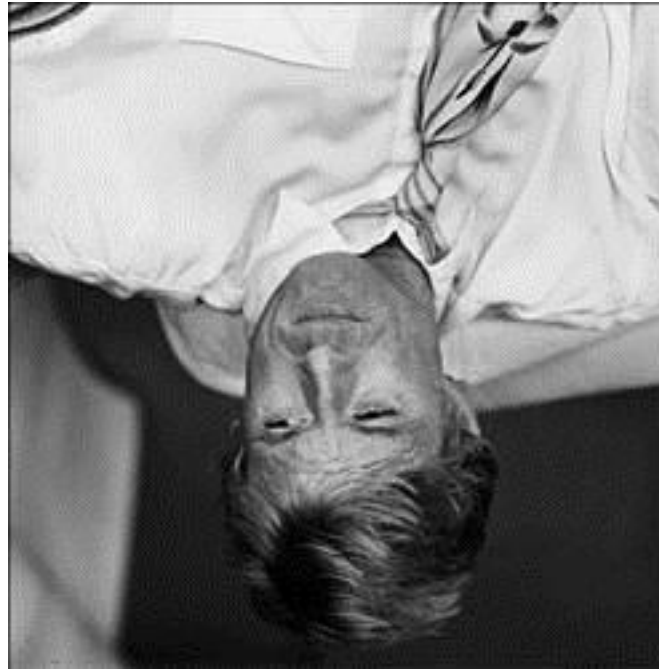


**Interdisciplinary field: psychology, biology, bioengineering, mathematics, physics, computer science ...**

## What is *Cognitive Neuroscience*?

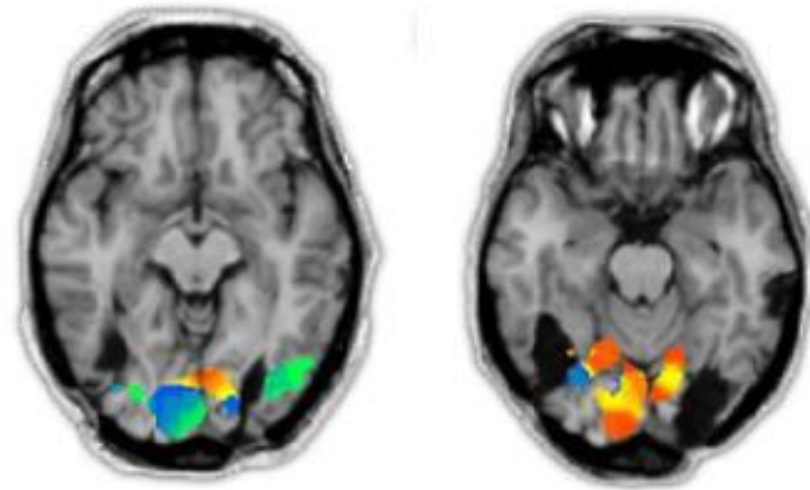
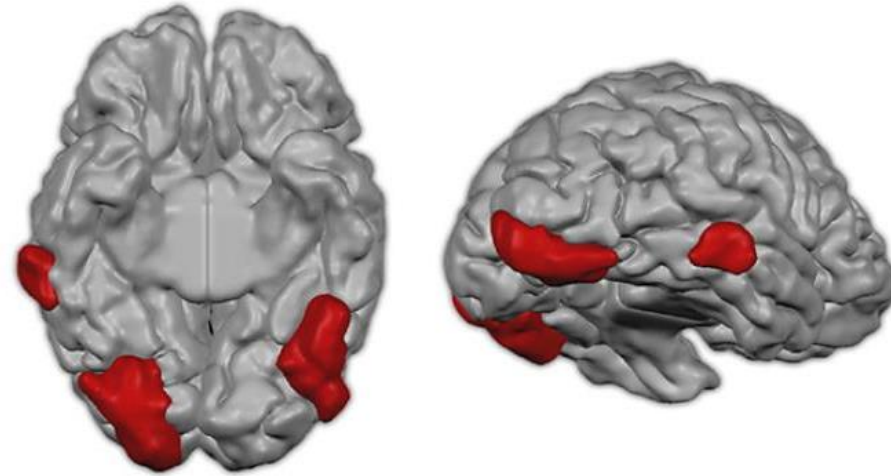
- primary object of study: normal brain function
  - but CN also involves studies in patients with problems in particular functions
- no direct diagnostics
- but neuroscience methods become more and more important in clinical settings

## How can we learn about normal brain function from patients?



## How can we learn about normal brain function from patients?





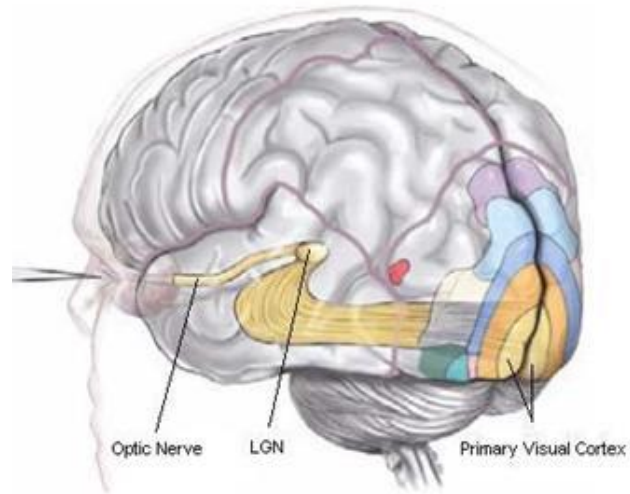
# What will you learn in this Master?

CN Master core courses



# 1. Visual Perception and Attention

## Peter De Weerd



"Still-life vase with 12 flowers" (van Gogh)

### Methods of interest

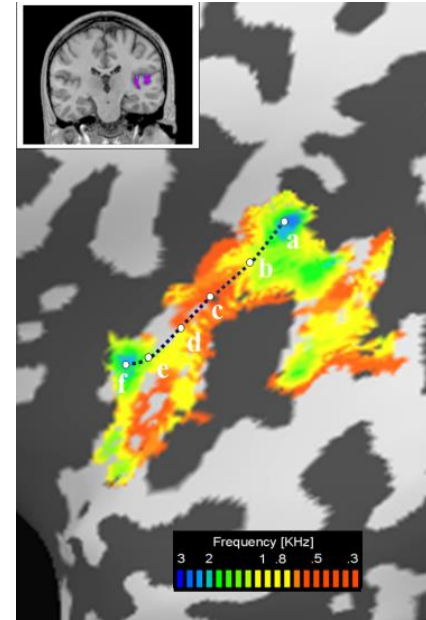
- single-cell recording
- fMRI
- EEG/ERP
- psychophysics

### Processes of interest

- basic visual processing
- selection mechanisms
- modulation of perception by attention
- conscious experience and behavior

## 2. Auditory and higher order language processing

### Bernadette Jansma

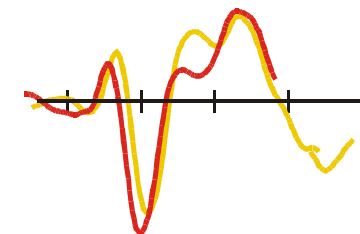


#### Processes of interest

- basic auditory processing
- auditory attention
- How do we understand speech?
- How do we generate speech?
- multisensory integration

#### Methods of interest

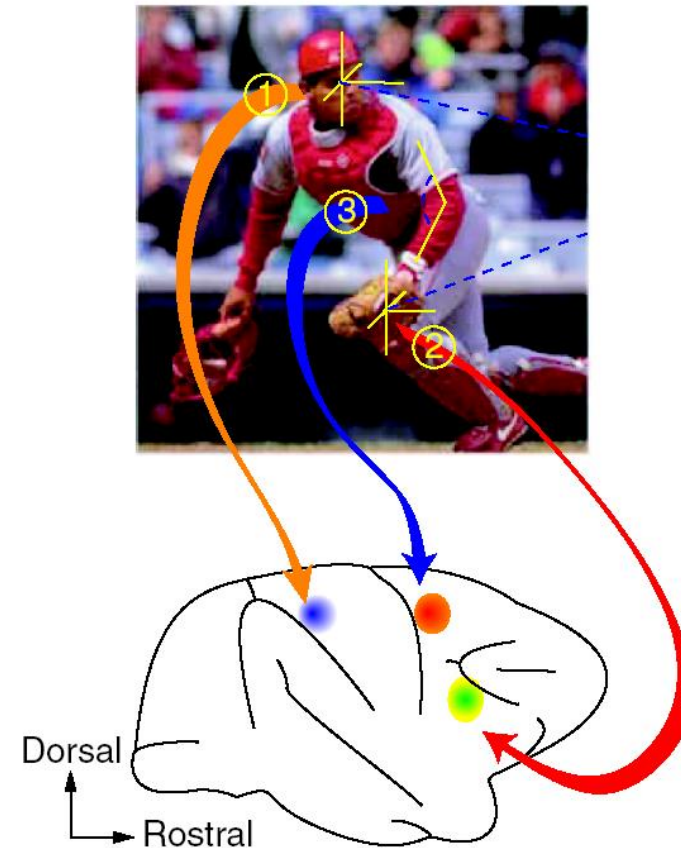
- EEG/ERP
- single cell recording
- fMRI



### 3. Sensory and motor systems Amanda Kaas & Joel Reithler

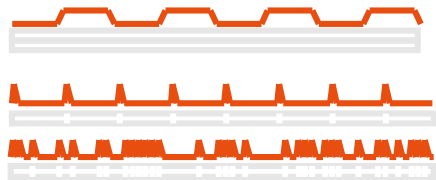
How does the brain execute motor actions based on ongoing perceptions?

- representation of actions
- visual guidance of movement
- action planning and learning

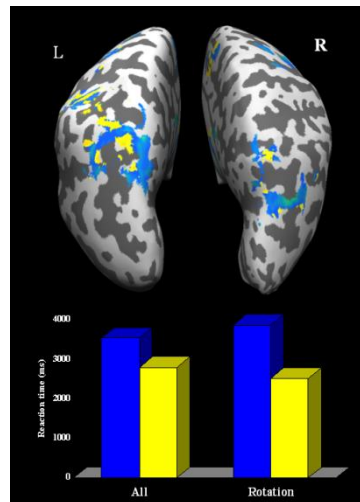


# 4. Brain imaging methods: fMRI

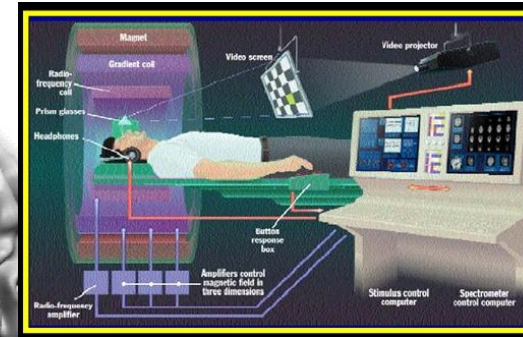
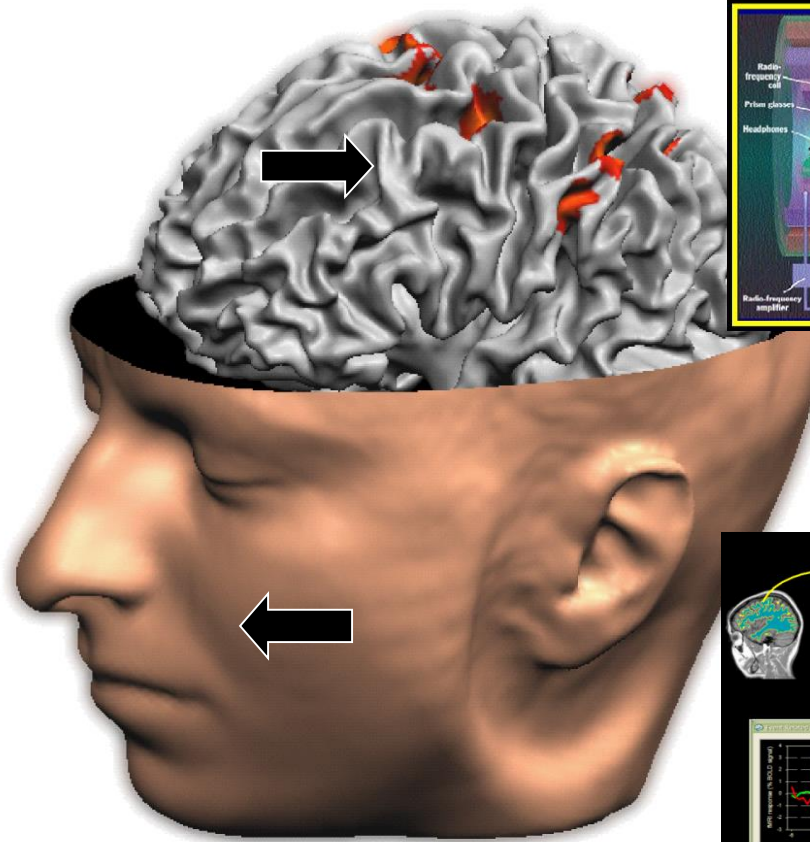
## Elia Formisano



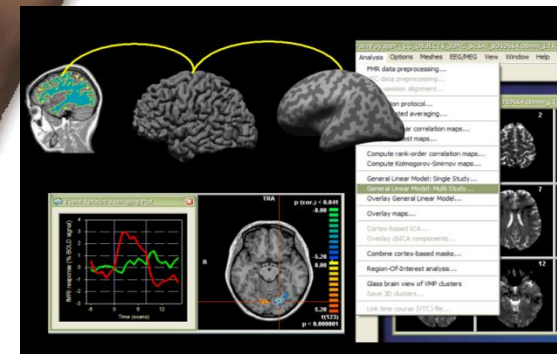
Experimental design



Results & Interpretation



Data acquisition



Data analysis

**What will you learn in this master?**

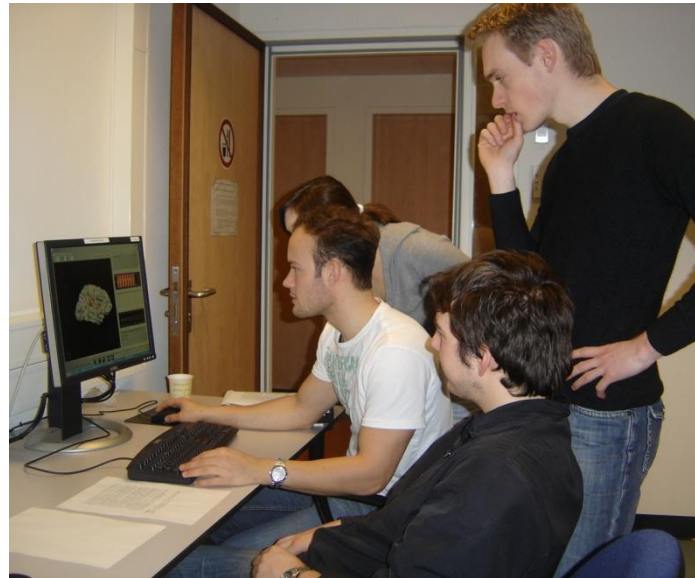
CN Master Practical courses



## Two practical courses



**EEG/ERP**  
Fren Smulders

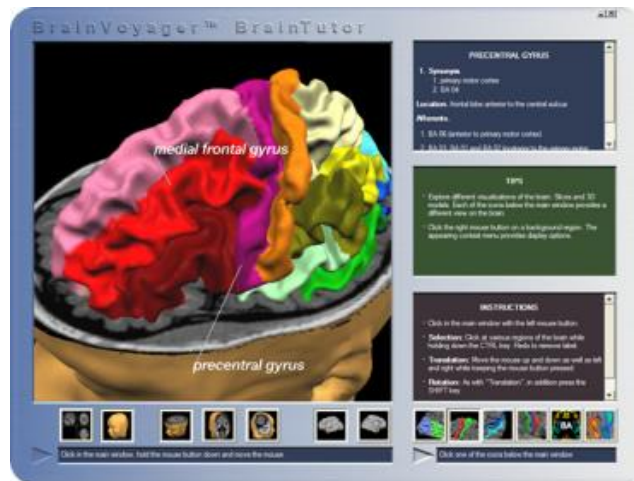


**fMRI**  
Elia Formisano



# Two practical courses

- plan, set-up and perform EEG/fMRI experiments
- analyse obtained data with specific software
- interpret results and write reports



# Examples internships Master CN

Barbara van Doorn, Columbia University, New York, USA:  
[Visual modulation of early auditory brain responses](#)

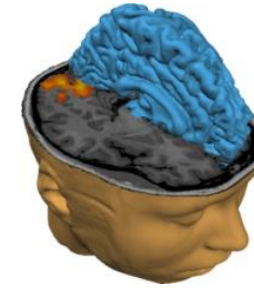
Esther Silbernagel, FPN:  
[Measuring attentional biases to health messages using EEG](#)

Astrid Frankfort, FPN:  
[Food reward processing in overweight and healthy weight participants](#)

Jessica Bath, Universitätsklinikum Aachen, Germany:  
[Gender differences in cognitive performance & white matter integrity: a DTI study](#)

Lukas Schilberg, Harvard Medical School, USA:  
[Noninvasive brain stimulation \(TMS\) in fundamental and clinical research](#)

Dietmar Hestermann, Dalhousie University, Canada:  
[Cognitive function, learning and memory in mice models of Alzheimer's disease](#)



Go  
the  
mile  
extra



# Career perspectives

- *fundamental brain research* in academic settings
- using neuroimaging techniques in *applied/clinical research* settings
- teaching and other jobs that require a university degree and/or knowledge about brain & neuroimaging

# CN Master or CN Research Master?

## Master CN

- one-year programme → gain fundamental knowledge in perception and behaviour
- central methods: EEG & fMRI
- double degree possible (one year here, one abroad)
- might be sufficient for PhD abroad (US, Canada)

## *Research* Master CN

- two year programme → more in-depth knowledge with respect to content and methodology
- optimal preparation for subsequent PhD programme

## More information, Questions?

website FPN – Cognitive Neuroscience

CN coordinator: Giancarlo Valente

[giancarlo.valente@maastrichtuniversity.nl](mailto:giancarlo.valente@maastrichtuniversity.nl)

# Admission Requirements

Bachelor's degree		Remarks
Dutch University Bachelor Psychology	Admissible	
Non-Dutch University Bachelor Psychology	Check by Board of Admissions	
All other University Bachelors*	Check by Board of Admissions	
University of Applied Science (HBO)	Not admissible	The Faculty does not offer any pre-master programmes

\* *Additional requirements*

- *Courses in Statistics (min. 18 ECTS);*
- *Knowledge of Psychology (min. 4 courses);*
- *The Bachelor's degree must be substantially relevant to the Master's specialisation of your choice;*
- *You are requested to write a one-page motivation letter which specifies why you want to follow the master's programme of Psychology and the specialisation of your choice.*

*For more information visit the stand 'Application & Admission' at the information market*



# CN Master

