

fMRI of Human Olfaction

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Overview

- 1 Introduction
- 2 Literature Review
- 3 Applications
- 4 Materials and Methods

Objectives

The Main Objective: a study of human olfaction and olfactory dysfunction detection (judicial use)

Side Objectives:

- 1 decoding *surprise* in an olfactory oddball task
- 2 studying the effect of *stimulus length* on brain signals

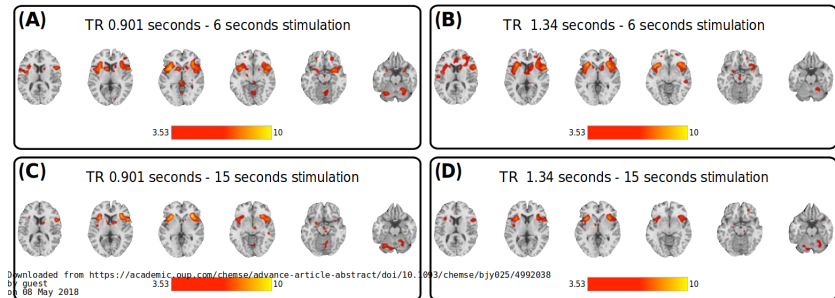
Above methods are used to classify normal and dysfunctional olfaction

Literature Review

- 1 Poellinger et al. (2001), Activation and Habituation in Olfaction, NeuroImage.

Literature Review

- Olfactory fMRI: Implications of Stimulation Length and Repetition Time
Georgiopoulos et al. (2018), **Chemical Senses**.
 - 22 healthy participants.
 - Two stimulation lengths and two repetition times.
 - plotting the event related time course of brain activation in the four olfactory regions of interest.



Literature Review

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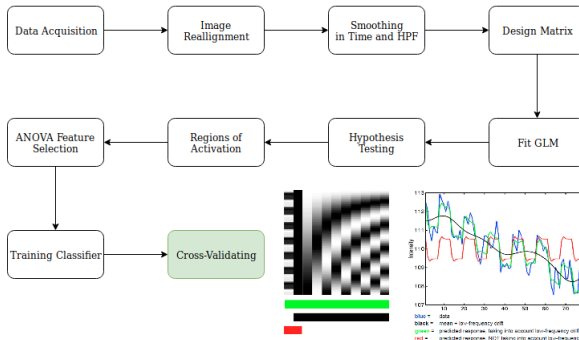
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fMRI Data Analysis with SPM



$$y = X * \beta + \epsilon$$

y : vector of observed data
 X : design matrix
 β : vector of parameters to be estimated
 ϵ : error term



Stages of Data Analysis

Multiple Columns

Heading

- 1 Statement
- 2 Explanation
- 3 Example

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Theorem (Mass–energy equivalence)

$$E = mc^2$$

The End