

Processing of natural sounds and scenes in the human brain

Citation for published version (APA):

Staeren, N. (2014). *Processing of natural sounds and scenes in the human brain*. Datawyse / Universitaire Pers Maastricht.

Document status and date:

Published: 01/01/2014

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

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- The final published version features the final layout of the paper including the volume, issue and page numbers.

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Propositions of the thesis

Processing of natural sounds and scenes in the human brain

Noël Staeren

1. Finding the neural representation of an auditory category requires - as a first step - its precise definition.
2. Auditory object formation seems to happen at an “earlier” stage in the auditory system than in the visual system.
3. Distributed modeling of brain activation is essential for better understanding the representation of auditory objects and auditory categories.
4. The complexity of sound localization can be compared to identifying where an object has been thrown in a pool based on the vibrational input collected from one or two sensors on the water surface.
5. Compared to the visual system, sounds are not intrinsically spatial. Although sounds have pitch, timbre, and loudness, they lack the “intrinsic spatial characteristics” of images (Strawson 1959).
6. Recordings that preserve monaural and binaural spatial cues are crucial for studying real-life auditory scene perception.
7. Music is a harmonic combination of frequencies that activate the auditory cortical networks also used for sound localization, communication and scene segregation.
8. Music can be employed as a highly controlled natural sound stimulus for sound segregation research.

Maastricht, maart 2014