

From Behavior to Brain

Citation for published version (APA):

Heynckes, M. (2022). *From Behavior to Brain: The contribution of rhythm to auditory perception*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20220623mh>

Document status and date:

Published: 01/01/2022

DOI:

[10.26481/dis.20220623mh](https://doi.org/10.26481/dis.20220623mh)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

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Propositions of the doctoral dissertation

From Behavior to Brain

The contribution of rhythm to auditory perception

1. Many studies in the field of rhythmic processing and entrainment use presentation rates around 2 Hz, because they work. We showed that the largest sensitivity during temporal shift detection occurred around this presentation rate.
2. Top-down attention through task instruction modulated the benefit of presented acoustic rhythms compared to temporal cues.
3. BOLD responses in superficial layers of primary auditory cortex were increased when comparing detected to undetected temporally shifted targets, forming a feedback signature of acoustic perception.
4. Detection of a temporally shifted target did not engage frequency-specific processes in PAC.
5. Auditory perception arises from an interplay of feedforward and feedback information. Layer-dependent fMRI can be used to investigate this interplay at the spatial mesoscale.
6. Neuroscience needs behavior.
7. Investigations at the spatial mesoscale in conjunction with psychophysics hold the potential to intermediate between empirical findings and theories from the macro and microscale, fostering insights and bridging theories in science.
8. When it comes to collecting, analyzing and sharing data you can do almost anything but you cannot do everything, especially at 7T, right now.
9. The path between fundamental research and application is bidirectional.
10. Progress is impossible without change; and those who cannot change their minds cannot change anything. - George Bernard Shaw

June 2022

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