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## Stellingen behorende bij het proefschrift

# Interaction with Sound for Participatory Systems and Data Sonification

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1. Sound being a temporal medium, necessitates interactive navigation to make a mapping of the relation between sound and data. *This thesis*
2. Understanding sound-based interaction requires a dialogue model so as to have an abstraction for a subject starting the dialogue, the sequence of interactions that constitute the dialogue and the sound response that is given by the system. *This thesis*
3. Sound design is a language to create the meaningful output of a system to participants. *This thesis*
4. To participants learning is essential to develop a mental model of data structures. Active interaction with a data structure that provides clues by sound allows building a rapid and comprehensive mental model supporting the understanding of the data structure. *This thesis*
5. Visibility is the ingredient that motivates a participant to learn what a system can offer. The consequence of good visibility is active engagement with the system. Auditory feedback generated in the interaction. *This thesis*
6. Human centered design principles ensure that interactive art installations deliver engaging, immersive, and meaningful experiences that resonate with individuals at human level.
7. While more and more sound synthesis techniques are being used in data sonification, a proper scientific approach needs to be elaborated to evaluate learnability and perception of the sound design, including statistical methods to test hypotheses and compare conditions and variables.
8. Stretch yourself beyond your comfort zone, because “you can take the sourest lemon that life has to offer and turn it into something resembling lemonade”. (*Quote from This is us, 2016*)
9. Failure is a natural part of the research process. While navigating in this uncertain world, you will always bounce back stronger after times of failures and difficulties.