

NewsRelease

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Cognitive and perceptual constraints on rhythmic action to be studied in NSF grant

NEW HAVEN — Dr. Bruno Repp, a Senior Scientist at Haskins Laboratories, has received an award of \$161,515 from the National Science Foundation to study cognitive and perceptual constraints on rhythmic action.

Humans readily move in time with regular sounds such as a drumbeat. This skill, known as sensorimotor synchronization, underlies activities such as dancing, marching, and especially music performance, all of which require precise temporal coordination of actions with rhythmic sequences of sounds. The standard task used to investigate synchronization is finger tapping in time with a rhythmic sequence of stimuli. There is still much to be learned: How does synchronization work when the sequences approach the complexity of music? Why is synchronization with simple visual sequences much harder than with auditory ones? Are individual differences in synchronization accuracy related to individual differences in other sensorimotor skills, such as reading fluency?

With support from the National Science Foundation, Dr. Repp will investigate these and related questions. Some studies will reveal how the error correction processes that are necessary for the maintenance of synchrony depend on attention and rhythmic structure. In other experiments, the synchronization task will serve as a window into the perceptual organization of musical rhythms. Further studies will investigate whether spatial and dynamic visual information can alleviate the peculiar difficulty of synchronization with simple visual stimuli. Finally, together with Dr. Claudio Carello of the Center for the Ecological Study of Perception and Action (CESPA) at the University of Connecticut, Dr. Repp will explore a possible connection between synchronization skill and reading fluency in college students. This research will test hypotheses that are relevant to cognitive neuroscience, the understanding of modality differences, and dynamic models of coordination. It also will lead to a better appreciation of the special skills involved in music performance, and it may provide clues to specific impairments of sequencing and timing.

Haskins Laboratories was founded in 1935 by the late Dr. Caryl P. Haskins. This independent research institute has been in New Haven, Connecticut since 1970 when it formalized affiliations with Yale University and the University of Connecticut. The Laboratories' primary research focus is on the science of the spoken and written word.

Haskins Laboratories
THE SCIENCE OF THE SPOKEN AND WRITTEN WORD

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