

THROUGH THE LOOKING GLASS: FROM MUSICAL LISTENING TO ACOUSTICS

Michèle Castellengo

Institut Jean le Rond d’Alembert
Paris, France
michele.castellengo@upmc.fr

ABSTRACT

Psychoacoustics, which gives us keys to understanding how the auditory system analyzes sound, benefits today from an increasing number of studies using fMRI techniques to visualize high-level cognitive processes in the brain (such as music and speech). However, the formal nature of these studies whose aim is producing objective results, generalizable as valid for any listener, imposes the use of sound stimuli whose parameters are rigorously defined. The resulting stimuli fail to account for the diversity and complexity of listening by musicians when presented with the real music sounds. With the use of sound examples given throughout the presentation, we propose to reconsider the notions of pitch and intensity, classically considered parameters, as well as timbre with all its complexity, integrating them into a global approach of human perception. Grounded in both Gestalt theory and prototypic categorization, this approach makes use of musicians expertise and gives each individual the tools to interpret their listening, potentially explaining individual differences. In conjunction with temporo-spectral analysis and synthesis, this approach offers a new means for musicians to study the complex acoustics of instrumental and vocal sounds.