1. Record Nr. UNINA9910418322003321

Autore	Bomhardt Ramona <1984->
Titolo	Anthropometric individualization of head-related transfer functions analysis and modeling / / Ramona Bomhardt
Pubbl/distr/stampa	Berlin/Germany, : Logos Verlag Berlin, 2017 Berlin, Germany : , : Logos Verlag Berlin GmbH, , [2017] ©2017
ISBN	9783832545437
Descrizione fisica	1 online resource (143 pages) : digital file(s)
Collana	Aachener Beitrage zur Akustik
Disciplina	621.3828019
Soggetti	Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Based on author's doctoral thesis: Fakultät für Elektrotechnik und Informationstechnik der Rheinischen-Westfälischen Technischen Hochschule Aachen -- title-page recto.
Nota di bibliografia	Includes bibliographical references.
Sommario/riassunto	Human sound localization helps to pay attention to spatially separated speakers using interaural level and time differences as well as angle-dependent monaural spectral cues. In a monophonic teleconference, for instance, it is much more difficult to distinguish between different speakers due to missing binaural cues. Spatial positioning of the speakers by means of binaural reproduction methods using head-related transfer functions (HRTFs) enhances speech comprehension. These HRTFs are influenced by the torso, head and ear geometry as they describe the propagation path of the sound from a source to the ear canal entrance. Through this geometry-dependency, the HRTF is directional and subject-dependent. To enable a sufficient reproduction, individual HRTFs should be used. However, it is tremendously difficult to measure these HRTFs. For this reason this thesis proposes approaches to adapt the HRTFs applying individual anthropometric dimensions of a user. Since localization at low frequencies is mainly influenced by the interaural time difference, two models to adapt this difference are developed and compared with existing models. Furthermore, two approaches to adapt the spectral cues at higher

frequencies are studied, improved and compared. Although the localization performance with individualized HRTFs is slightly worse than with individual HRTFs, it is nevertheless still better than with non-individual HRTFs, taking into account the measurement effort.