Popular science summary of the PhD thesis

PhD student
Jens Cubick

Title of the PhD thesis
Investigating distance perception, externalization and speech intelligibility in complex acoustic environments

PhD school/Department
Electronics, Communication and Space Science /Electrical Engineering

Science summary

* Please give a short popular abstract in either Danish or English (approximately half a page) suited for the publication of the title, main content, results and innovations of the PhD thesis also including prospective utilizations hereof:

Spatial hearing, i.e., the ability to localize sound sources in space is one of the most remarkable capabilities of the human auditory system. It allows us to be aware of events happening in our environment and to react to them even though they might be out of sight. Spatial hearing not only helps us to navigate in complex environments (e.g., traffic situations), but it also facilitates speech communication in situations with more than one talker. This thesis particularly focuses on auditory distance perception and externalization (i.e., the perception of sounds outside the head), and on speech intelligibility in complex environments with multiple sound sources and how it changes when listeners are wearing hearing aids. It was found that both distance perception and externalization were influenced by the room that the experiment was conducted in. It was also found that hearing aids change the spatial perception of the experimental setup and that speech intelligibility in normal-hearing listeners is worse with hearing aids than without. These findings might have implications on sound reproduction and experimental techniques and give insights for designing future hearing aid signal processing strategies.
Please email the abstract to the PhD secretary at the department