

Towards a large audiological data base for Common Audiological Functional Parameters (CAFPAs)

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For the purpose of combining audiological expert knowledge and providing it to the ENT community in a condensed, illustrative way, the Common Audiological Functional Parameters (CAFPAs) were introduced.

The CAFPAAs are designed as abstract parameters that summarize and integrate audiological knowledge from different measurement procedures, covering the most relevant functional aspects of a patient's hearing abilities. They act as "bottleneck features" and aim to be interpretable by humans as well as machines. From the CAFPAAs, the type of hearing impairment and potential treatment recommendations could be concluded independently of the used measurements.

In a survey, ENT specialists were asked to indicate expected outcomes of audiological measurements and CAFPAAs for given diagnostic and treatment cases, thereby providing condensed expert knowledge about many patients. The results show that the CAFPA concept is promising in terms of discriminating the different diagnostic and treatment cases, but more data is required to apply machine learning methods for automatic classification.

Therefore, in a second survey, ENT specialists are asked to perform diagnostics in the "typical" direction, i.e., they are asked to label an existing patient database from the Hörzentrum Oldenburg with respect to CAFPAAs, audiological findings, and treatment recommendations. First results show that consistent data can be collected by the survey. When applied to different clinical databases, the survey should also work, since the displayed audiological measures could just be replaced. The survey would provide data with the same structure for CAFPAAs, audiological findings and recommendations for rehabilitation – an important requirement towards collecting large amounts of data and integrating it into an audiological supporting tool.