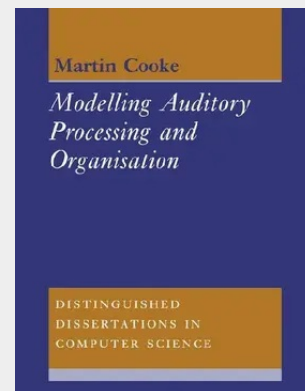


Modelling Auditory Processing and Organisation

We are surrounded by noise; we must be able to separate the signals we want to hear from those we do not. To overcome this 'cocktail party effect' we have developed various strategies; endowing computers with similar abilities would enable the development of devices such as intelligent hearing aids and robust speech recognition systems. This book describes a system which attempts to separate multiple, simultaneous acoustic sources using strategies based on those used by humans. It is both a review of recent work on the modelling of auditory processes, and a presentation of a new model in which acoustic signals are decomposed into elements. These structures are then re-assembled in accordance with rules of auditory organisation which operate to bind together elements that are likely to have arisen from the same source. The model is evaluated by measuring its ability to separate speech from a wide variety of other sounds, including music, phones and other speech.

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