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Title:

Identification of multipole sources with neural deconvolution

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Abstract:

When using beamforming to localize sound sources, it is often assumed that the radiation consists of multiple monopoles by using a simplified transfer function between the source and the array. This approximation produces good results in many practical cases, but is a limiting factor for more complex sources. We can improve the results by considering multipole sources such as dipoles, although the orientation of the dipoles must be known a priori. In this paper we extend the neural deconvolution method, which uses neural networks to deconvolve the beamforming map, to account for multipole sources. We show that it is possible to obtain reasonable estimates even without prior knowledge of the dipole orientation by using a multilayer prediction, one for each different multipole component.

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