Gradient Flow Convolutive Blind Source Separation

Experiments have shown that the performance of instantaneous gradient flow beamforming by Cauwenberghs et al. is reduced significantly in reverberant conditions. By expanding the gradient flow principle to convolutive mixtures, separation in a reverberant environment is possible. By use of a circular four microphone array with a radius of 5 mm, and applying convolutive gradient flow instead of just applying instantaneous gradient flow, experimental results show an improvement of up to around 14 dB can be achieved for simulated impulse responses and up to around 10 dB for a hearing aid application with real impulse responses.