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Mathematical Challenges of Blind Source Separation

Mathematical Challenges of Blind Source Separation Blind source separation is to recover multiple source signals in an unknown environment, which the human ears (and brain) perform regularly at cocktail parties. I shall give an overview of existing approaches of blind source separation of sounds based on statistical independence of source signals. Statistical methods alone appear to be limited in realistic settings where sound mixtures are of convolution type. Additional ideas are sought for further progress. I shall discuss the mathematical structure of mixing, dimensional reduction, among other issues.