Modified analysis and synthesis filter bank for speech separation

The human auditory system is an acoustic and cognitive wonder, which has the ability to easily separate a composed speech from the acoustic mixture. This has lot of requirements in the field of multimedia. Hence, until recently, researchers are trying to build computer models of high level functions of the auditory system. Computational Auditory Scene Analysis (CASA) has been introduced recently to separate the target speech from the acoustic mixture based on the principles of human auditory system.

CASA based speech separation systems decompose the speech into various sub-bands using analysis filter bank and later combines all sub bands using synthesis filter bank. Most of the current speech separation systems use the analysis and synthesis filter bank pair proposed by Weintraub. In this model, the binary mask will be computed before synthesis and applied on a later stage. This increases the computational complexity of the segregation process.

This project aims to reduce the computational complexity of the existing system by applying the binary mask before the re-synthesis process and producing the segregated speech with good quality and intelligibility.

Signature of the students Signature of the internal guide