
The explosive spread of cellular phones enables us to communicate with each other at any time or place. Although cellular phones are convenient, there are still some problems. For example, it is difficult to send intelligible speech under noisy conditions, which is a fatal problem especially when talking privately using small speech in crowds. To improve the quality of small speech under such situations, a new speech communication style is proposed using a nonaudible murmur (NAM) microphone [Nakajima et al., Eurospeech (2003), pp. IV-2601–2604]. The NAM microphone is robust to eternal noise, although body transmission causes quality degradation. In this paper, to improve the sound quality of small body transmitted ordinary speech (SBTOS), which is small speech recorded with a NAM microphone, two conversion methods that reflect a statistical voice conversion method based on Gaussian mixture models (GMMs) [Toda et al. Interspeech (2005), pp. 1957–1960] are conducted. One conversion method is from SBTOS to ordinary speech (SBTOS-to-SP), and the other is from SBTOS to small speech (SBTOS-to-SSP). SBTOS-to-SSP has more consistent correspondence of voiced/unvoiced segments between input and output speech than SBTOS-to-SP. The results of objective and subjective evaluations show that SBTOS-to-SSP outperforms SBTOS-to-SP.