Synthetic speech system puts a dampener on noisy announcements

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Public announcements in noisy places – such as railway stations, airports, or sports venues – could become quieter and clearer in future, thanks to new research.

Scientists have developed software that can alter speech before it is broadcast over speakers, making it more audible amid background noise.

In a bid to improve current synthetic voice technology, researchers studied how speech was perceived by listeners. They carried out tests to pinpoint the components of speech that are most easily heard by people in a noisy place.

Experts at the University of Edinburgh, who carried out the study, say that in loud situations, listeners pay most attention the parts of speech that are easiest to hear, and use those to decipher what is being said.

Researchers developed a mathematical computer program to analyse spoken words and enhance the sounds that help listeners hear what is being said, to make speech better understood overall.

In tests, the manipulated speech was found to be much easier to understand than natural speech. In some cases, the improvement was the equivalent of lowering noise by five decibels. Scientists say that the techniques used in this study could also be used to improve smartphone voices, loudspeaker announcements or sat-nav systems.

Dr Cassia Valentini Botinhao of the University of Edinburgh's School of Informatics, who conducted the study, said: "Noisy environments make it difficult to understand what is being said and simply making speech louder isn't the smartest solution. Our findings could offer an alternative, by making speech more intelligible without turning up the volume."

Provided by University of Edinburgh