ARTS

ANONYMOUS REAL-TIME SPEECH

INTELLIGENCE VALUE

The purpose of the ARTS Program is to develop novel systems that will modify spontaneous speech in real-time to protect an individual's privacy against threats like speaker identification tools and forensic speech analysis.

The ARTS program was formulated with the goal of developing new speech modification technologies that will alter an individual's speech in real time, so that the modified speech can't be attributed to the actual speaker. We inhabit a world where most modern electronics have microphones that are always listening for speech signals, and consequently our speech is recorded nearly everywhere. These recordings can be exploited by privacy threats such as biometric recognition, background profiling, and emotional screening. There are many reasons why people might wish to speak anonymously - some people do it to protect their privacy, while others do it to avoid censorship or retaliation – and the ARTS program aims to help by developing a new privacy enhancing capability.

The ARTS program is a 36-month effort to research and develop novel technologies that can work with spontaneous speech. The program will initially focus on the English language before transitioning to Spanish and other commonly spoken languages. The program goal is to protect against speaker identification tools, human listeners, and machine learning assessments, with additional goals for latency, understandability, and naturalness.

PRIME PERFORMERS

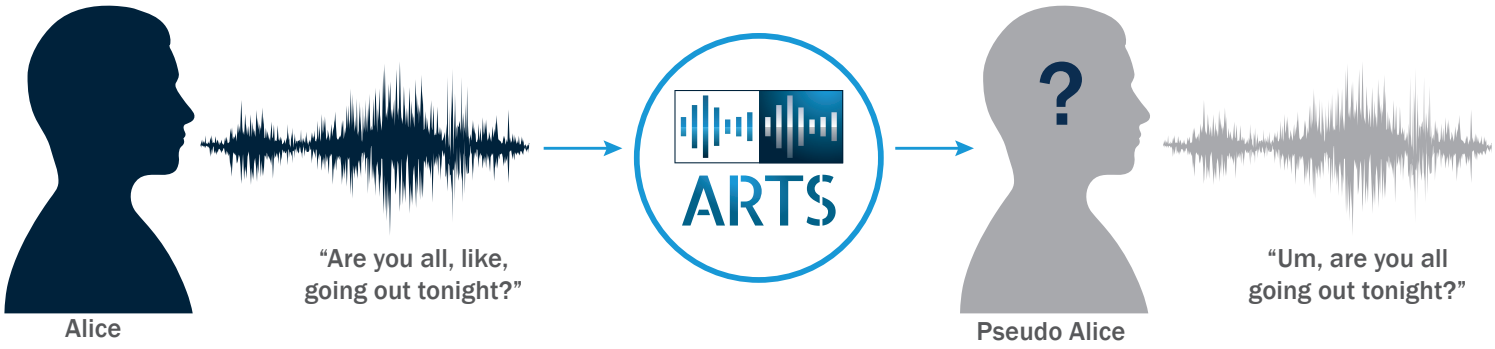
- SRI International
- Honeywell
- Johns Hopkins University
- Galois

TESTING AND EVALUATION PARTNERS

- National Institute of Standards & Technology (NIST)
- Sandia National Laboratory
- Lawrence Livermore National Laboratory

KEYWORDS

- Speech and signal processing
- Speech synthesis
- Speech and speaker recognition
- Forensic speech science
- Natural language processing
- Linguistics
- Phonetics



Shown is a user, Alice, speaking spontaneously into the ARTS system, producing anonymous output speech that resembles a new, non-existent person, Pseudo Alice

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