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World Voice Day: EU-funded projects capturing, sketching and simulating our voice



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- [News](#) [1]

On the occasion of the World Voice Day, find out more about three EU-funded projects making the most of new technologies to save and use the human voice.

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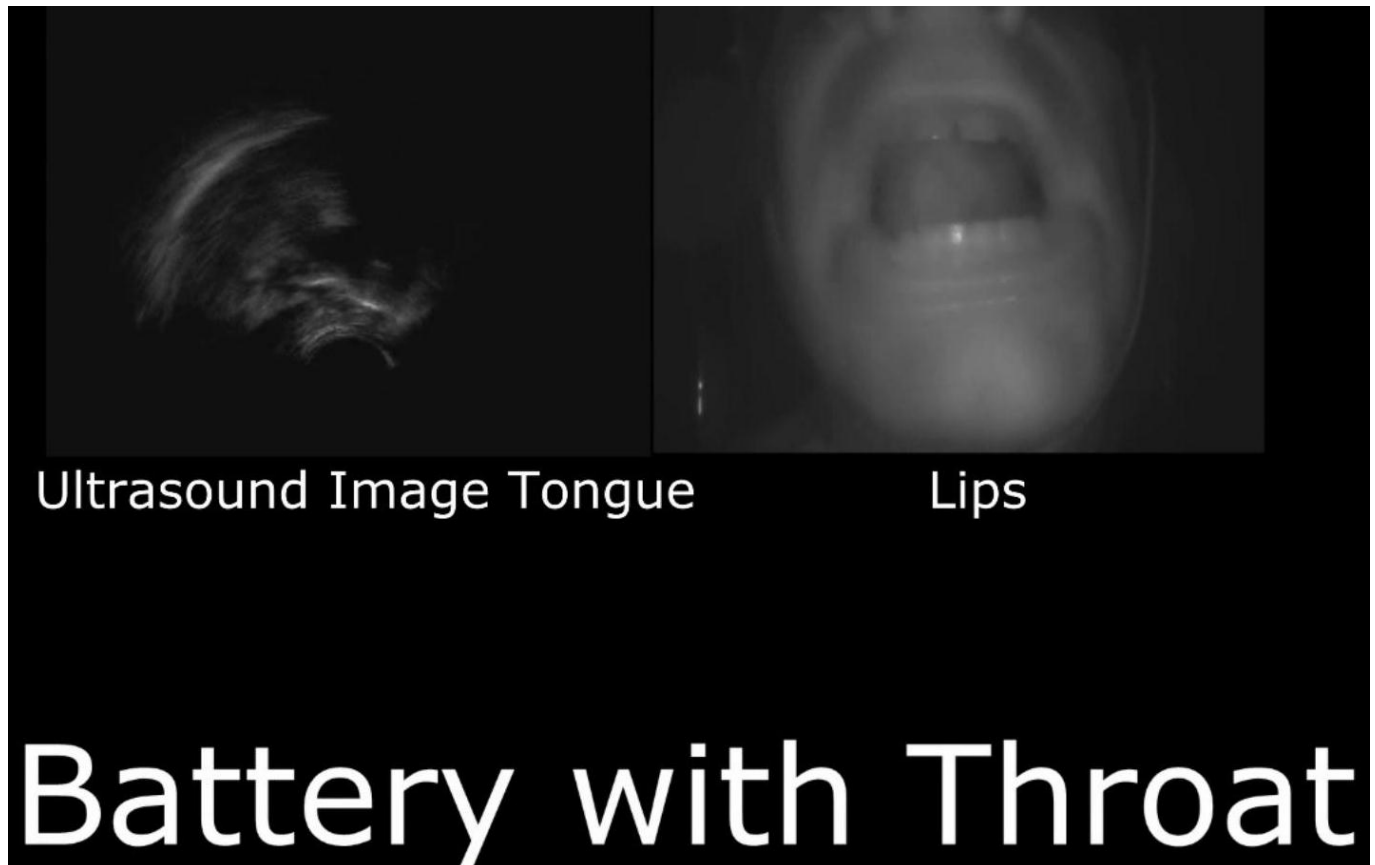
Are you in Venice or in Stockholm today? Don't miss these events: [presentation of the SkAT-VG project \(Sketching Audio Technologies using Vocalizations and Gestures\)](#) [2] & [Music and speech sounds symposium](#) [3].

Capturing the voice - and other intangible treasures

Cultural expression is not limited to monuments or collections of objects. It also includes fragile intangible live expressions, which involve knowledge and skills. Such expressions include music, dance, singing, theatre, human skills and craftsmanship.

The main objective of the [i-Treasures](#) [4] project is to develop an open and extendible platform to provide access to Intangible Cultural Heritage (ICH) resources. It will enable knowledge exchange between researchers and contribute to the transmission of rare know-how. The project aims to go beyond the digitisation of cultural content. Its main contribution is the creation of new knowledge by proposing novel methodologies and new technologies for the analysis and modelling of ICH. i-Treasures is expected to break new ground in education and knowledge transfer of ICH.

Watch this video on capturing the human beat box with a multi-sensor helmet:



[5]

Designing sounds by using voice and gestures

For a long time, sound in industrial design has been mainly seen as unwanted noises, a sort of side effect of the design process. This is not true anymore. For instance, the automotive industry is already investing a lot of energy to carefully design every sound produced by a car (engine noise, alarms, etc.). But the tools for fast sound prototyping are still missing and industrial sound design is still a daunting process. The [SkAT-VG](#) [6] [@SkATVG](#) [7] project aims at facilitating the constructive use of sound by developing sketching tools that can be used to include sound even in the early stage of the design process. If visual sketching is mainly done by hand and pencil, sonic sketching is naturally done by voice and gesture. However, it is challenging to transform them into manipulable sound models, and only a collaborative effort between phoneticians, psycho-acousticians, computer scientists and designers can address this goal.

[SkAT-VG](#) [6] will determine significant advances in Europe in the design practices for a variety of products, such as vehicles, everyday products (sonic aesthetics), environments (soundscapes), human-machine interfaces, films and multimedia shows (sound effects), games (sound-mediated sense of agency), etc.

 [8]

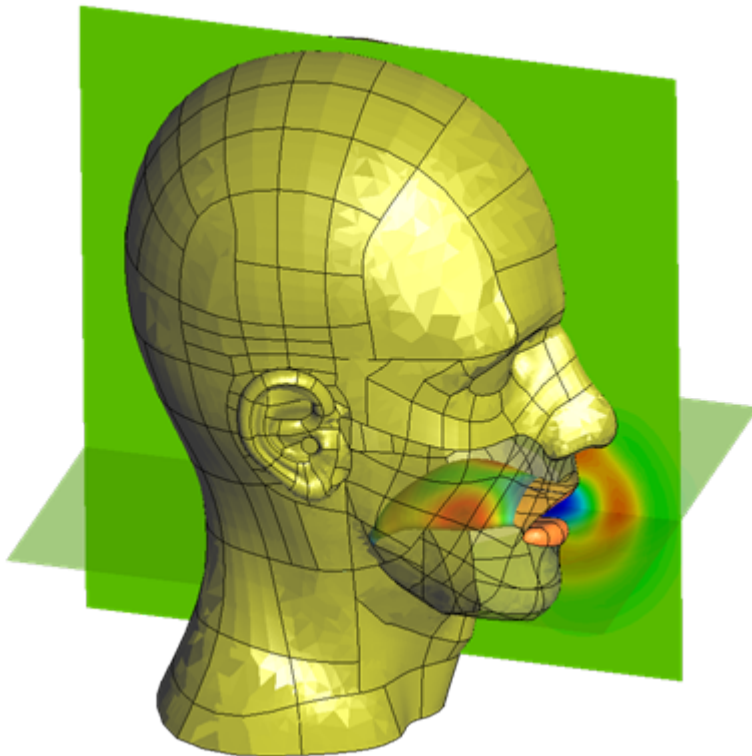
Towards a detailed simulation of the human voice

The physics of the vocal apparatus are surprisingly complex, and also hidden from normal view. After decades of research, speech technologists are still looking for ways to make artificial voices sound more natural. For clinicians needing to understand how voice problems arise, and how they should be

diagnosed and treated, an accurate, dynamic visualisation of the biomechanics would lead quickly to significant progress. A detailed simulation of the human voice is needed both for basic science and for numerous applications.

The [EUNISON](#) [9] - [@eunison](#) [10] - project seeks to build a new voice simulator. From given inputs, representing topology or muscle activations or phonemes, it will render the 3-D physics of the voice, including of course its acoustic output. This will give important insights into how the voice works, and how it fails. Many applications can be foreseen; the new system could be made to speak in any language, or sing in any style. The model will be operable online, as a reference and a platform for further studies. The long-term prospects include more natural speech synthesis, improved clinical procedures, greater public awareness of voice, better voice pedagogy and new forms of cultural expression.

Watch different tests and simulations on the [EUNISON YouTube channel](#) [11] (below: simulating sound radiation outside the mouth - Directionality outside - Resonance inside).



[12]

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