

Mycroft.eus: Basque-speaking open source smart speaker based on Mycroft AI

What is Mycroft.eus?

- Smart speaker
- Basque-speaking
- Based on open source Mycroft AI
- Using Elhuyar's Basque ASR and TTS (and improving them)
- More ethical and socially involved
 - + Privacy friendly
 - + Non-gendered
 - + Local skills
- Improvement of the state of the art of Basque ASR and TTS

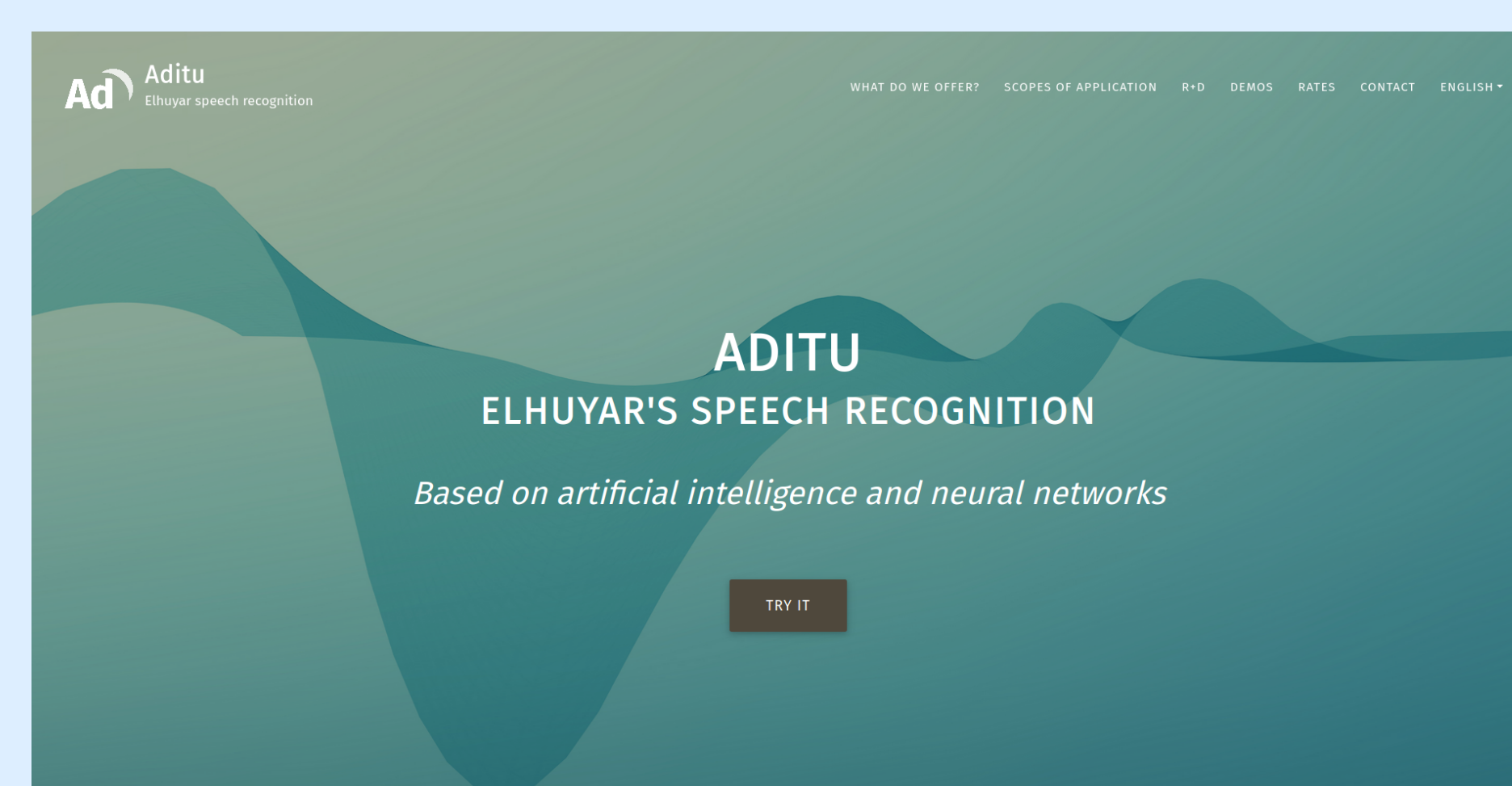


Elhuyar's ASR and TTS

ASR

Improvement and domain adaptation of Elhuyar's ASR

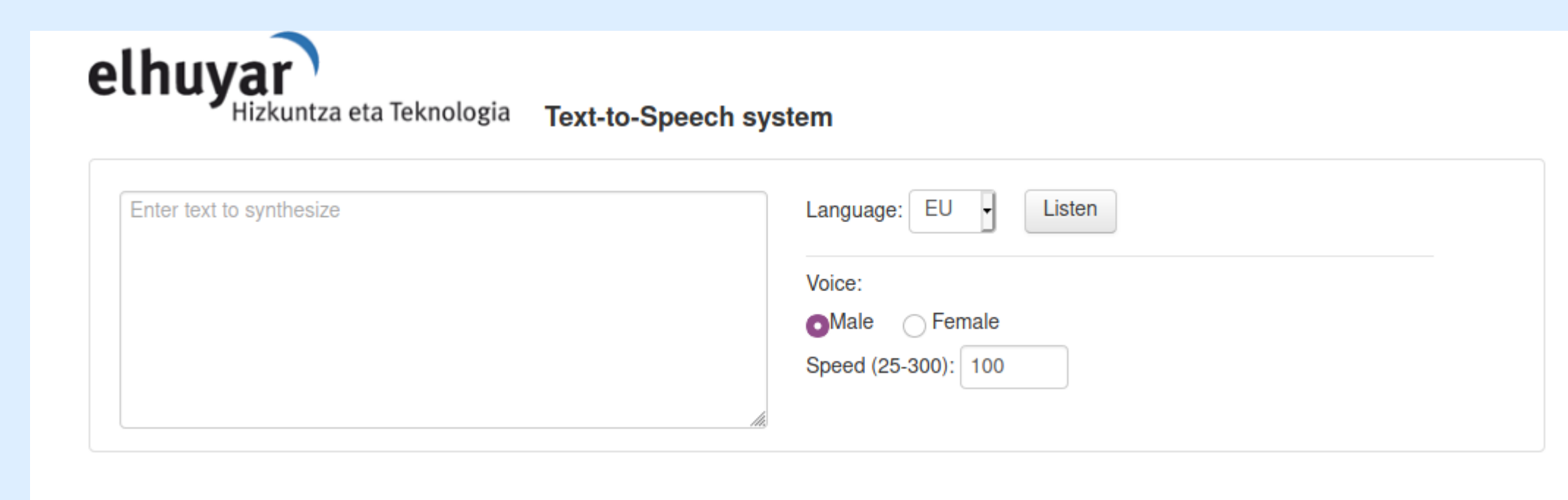
- Improve Elhuyar's ASR's precision for:
 - + low quality audio
 - + noisy environments
 - ...
- Domain adaptation of ASR
 - + Grammar-based ASR using Mycroft's skills' sentences



TTS

Improvements to Elhuyar's TTS

- Development of a Deep Neural Network based Basque TTS
- Development of a gender-neutral voice for the assistant
 - + Unesco's report I'd blush if I could (chapter The rise of gendered AI and its troubling repercussions)



Mycroft development

- Add Elhuyar's ASR to Mycroft's ASR engines
 - HTTP Post interface to Elhuyar's Live ASR API
 - Add calls to Elhuyar's Live ASR API to Mycroft
- Add Elhuyar's TTS to Mycroft's TTS engines
 - Add calls to Elhuyar's TTS API to Mycroft
- Localize Mycroft to Basque
- Wake word modification
- Translate basic skills' sentences
- Development of local skills
 - Local news from local media
 - Local shopping
 - Local music
 - Basque dictionary querying
 - ...

Current state

- Elhuyar's ASR added to Mycroft
- Elhuyar's TTS added to Mycroft
- Basic localization of Mycroft
- One skill translated to Basque (date and time)
- Started improving Elhuyar's ASR
- Started developing new neural TTS
- Tests on low-cost hardware
 - + Raspberry Pi + Audio kit

Contribution to ELG

- Documentation on process of creation of a smart speaker for a language
- Mycroft AI working for Basque
- Elhuyar's ASR service
- Elhuyar's TTS service

Working prototype (date/time skill) of Basque smart speaker

```
pl@picraft: ~
Log Output:
----- mycroft-core 20.8.0 -----
Establishing Mycroft Messagebus connection...
Connected to Messagebus!
16:14:57.904 | INFO | 671 | __main__:handle_wakeword:67 | Wakeword Detected: hey mycroft
~/home/pi/mycroft-core/mycroft/res/snd/start_listening.wav: Signed 16 bit Little Endian, Rate 48000 Hz, Stereo
16:14:58.359 | INFO | 671 | __main__:handle_record_begin:37 | Begin Recording...
16:15:00.192 | INFO | 671 | __main__:handle_record_end:45 | End Recording...
16:15:01.028 | INFO | 671 | __main__:handle_utterance:72 | Utterance: ['zer egun da gaur.']
16:15:01.598 | WARNING | 665 | lingua_franca.format:nice_date:429 | full code eu-eu
16:15:10.316 | INFO | 671 | __main__:handle_wakeword:67 | Wakeword Detected: hey mycroft
~/home/pi/mycroft-core/mycroft/res/snd/start_listening.wav: Signed 16 bit Little Endian, Rate 48000 Hz, Stereo
16:15:10.779 | INFO | 671 | __main__:handle_record_begin:37 | Begin Recording...
16:15:12.007 | INFO | 671 | __main__:handle_record_end:45 | End Recording...
16:15:13.374 | INFO | 671 | __main__:handle_utterance:72 | Utterance: ['zer ordu da.']
^--- NEWEST ---^

History =====
zer egun da gaur.
>> Gaur asteazkena, 2020ko azaroaren lau da
zer ordu da.
>> 16:15

Input (':' for command, Ctrl+C to quit) =====
>
```

