

# **Perceptual evaluation for Synthesized Dysarthric Speech**

Dysarthric speech generation in low resource setting

# Background

Dysarthria is a motor speech disorder caused by neurological conditions such as Parkinson's disease and ALS, which makes their speech less intelligible.

Here are some dysarthric speech samples from different languages:

|        | EN  | IT  | ES  | TA   |
|--------|---|---|---|--|
| Mild   | <br>"multiflora" | <br>"preferiti"      | <br>"flecha" | <br>"செங்கமலம்" |
| Severe | <br>"hallelujah" | <br>"chiudi rubrica" | <br>"clavo"  | <br>"நுரையீரல்" |

# Background

The main perceptual characteristics of dysarthric speech include:

- **Breathy or Harsh Voice Quality** – Weak or strained vocal production.
- **Imprecise Articulation** – Slurred or distorted speech sounds.
- **Hypernasality** – Excessive nasal resonance affecting sound clarity.
- **Slow Rate of Speech** – Prolonged phonemes and syllables.
- **Reduced Pitch and Loudness Control** – Inability to adjust pitch and volume effectively.
- **Reduced Prosody** – Limited rhythm, stress, and intonation variation.
- **Inappropriate Pauses** – Disruptions in natural speech flow.
- **Reduced Intelligibility** – Difficulty in being understood due to weak articulation.

# Background

The performance of automatic speech recognition (ASR) for dysarthric speech is limited by the scarcity of annotated data, particularly for non-English languages. Therefore, we investigate potential methods to augment non-English healthy speech into dysarthric-like speech.

Apart from objective metrics, we would like to know these augmented speech sound to native speakers!

Jump to: [Italian](#), [Spanish](#), [Tamil](#) (ordered alphabetically)

Google form for evaluation scores: [here](#)

(Italian / Spanish / Tamil)

# Section 1: Authentic speech

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## Section 2: Synthetic speech (1-20)

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## Section 2: Synthetic speech (21-40)

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(Google Form Samples)

# Perceptual Evaluation of Generated Dysarthric Speech

**Thank you for participating in this evaluation! We truly appreciate your time and effort.**

This perceptual evaluation consists of two sections:

1. **Evaluation of Authentic Speech (20 audios):** In this section, you will evaluate the extent to which each speech sample exhibits characteristics of dysarthria, using a scale from 1 (healthy) to 4 (dysarthria).
2. **Evaluation of Generated Speech (40 audios):** In this section, you will listen to speech generated using various methods. You will perform two tasks:
  - First, you will do the same task as the first section.
  - Second, you will determine whether the speech sounds like your native language.

For any questions or concerns, please feel free to contact:

\* Indicates required question

Email \*

## Evaluation of Authentic Speech

You will be listening to a subset of the dysarthric speech corpus, which includes both healthy speech and speech with varying degrees of dysarthria. Please evaluate each speech sample and select the extent to which it exhibits characteristics of dysarthria.

(Audio 1-1) Q1. To what extent does this audio sound like dysarthria? \*

|    | Definitely<br>Healthy | Likely Healthy        | Likely Dysarthria     | Definitely<br>Dysarthria |
|----|-----------------------|-----------------------|-----------------------|--------------------------|
| Q1 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>    |

(Audio 1-2) Q1. To what extent does this audio sound like dysarthria? \*

|    | Definitely<br>Healthy | Likely Healthy        | Likely Dysarthria     | Definitely<br>Dysarthria |
|----|-----------------------|-----------------------|-----------------------|--------------------------|
| Q1 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>    |

## Evaluation of Generated Speech

Now, you will listen to speech generated using various methods. For each audio sample, you will perform two tasks:

1. Assess the extent to which the speech sounds dysarthria-like, similar as the first section.
2. Determine whether the speech is recognizable as your language.

(Audio 2-1) Q1. To what extent does this audio sound like dysarthria? \*

|    | Definitely<br>Healthy | Likely Healthy        | Likely Dysarthria     | Definitely<br>Dysarthria |
|----|-----------------------|-----------------------|-----------------------|--------------------------|
| Q1 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>    |

(Audio 2-1) Q2. How much does this audio sound like your language? \*

|    | Not at all            | Somewhat<br>different | Somewhat<br>similar   | Definitely            |
|----|-----------------------|-----------------------|-----------------------|-----------------------|
| Q2 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |