

## The Prosodic Transplantation Technique for the Autonomous Learning of L2 Italian

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### Abstract

L2 speech is often characterized by deviations from standard pronunciation leading native speakers to rate non native speakers as foreigners and to develop discriminatory attitudes against them [1]. Foreign accent reduction would therefore facilitate communication in the modern multilingual societies. Several studies on L2 acquisition and on speech synthesis have emphasized the role of suprasegmental features in the perception of L2 speech.

Foreign accent is also a current issue in the areas of speech technology for language learning [2]. During the last decades, many studies have investigated the relationship between the student/teacher voice similarity and pronunciation improvement. Results from a study by [3] have shown that the better the match between the learners' and native speaker's voices in terms of F0 and articulation rate, the more positive the impact on pronunciation training. Therefore, it would be beneficial for L2 students to be able to listen to their own voices producing native accented utterances [4].

The prosodic transplantation technique, a recently developed speech technology [5], allows to reach this teaching/learning goal. Through this technique, the suprasegmental features of the native voice (intonation, intensity, speech rate, F0 and duration of pauses) are cloned and transferred to the voice of the L2 learner, without compromising the perception of the speaker's identity.

We present here how this prosodic transplantation technique works in the case of the acquisition of L2 Italian. The procedure firstly involves the definition of a set of target speech acts and the collection of the corresponding utterances produced by native speakers. Then, it involves these following steps:

1. the learners choose the target utterance and can listen to it as many times as they need;
2. they record their own voice imitating the native model;
3. the system transplants the prosodic intonational patterns of the native speaker on the learners' voice;
4. the learners then listen to their own voice with native prosody, and the auto-imitation process starts.

Preliminary studies on the application of this unconventional and innovative technique in the field of L2 pronunciation [6] indicate the effectiveness of the voice transplantation technology in achieving a native-like prosodic competence. This procedure can be easily adapted to other languages.

### References

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