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Listener: a pronunciation training system for Brazilian-accented English

International Workshop on Cross-Language Speech Perception, 2014, Braga.

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**International Workshop on
Cross-Language Speech Perception**

**30-31 January 2014
University of Minho
Braga - Portugal**

GENERAL PROGRAM

January 30, 2014

14:00 Registration

14:30 Opening Ceremony

14:45 Plenary Session – Denise C. Kluge: *The role of visual cues in the perception of non-native sounds*

15:45 Session: Ongoing Research (1)

17:05 Coffee break

17:30 Session: L2 Pronunciation Teaching and Miscellanea

19:30 Conference Dinner (not included in the registration fee)

January 31, 2014

09:30 Plenary Session – Ocke-Schwen Bohn: *Cross-language speech perception: What we know, what we'd like to know*

10:30 Session: Non-native Speech (1)

12:00 Lunch

13:30 Session: Ongoing Research (2)

14:50 Session: Non-native Speech (2)

16:20 Coffee break

16:45 Keynote Speaker: Márcia C. Zimmer: *Some psycholinguistic considerations on methodological issues related to speech perception tests*

17:45 Discussion and meeting about possible partnerships

18:15 Closing Ceremony

PROGRAM

Thursday, January 30

| AUDITORIUM (ILCH) | | | | |
|--|--|---|--|--|
| Session | Talks | | | |
| Plenary Session | 14:45 <i>The role of visual cues in the perception of non-native sounds</i> Denise Cristina Kluge | | | |
| Ongoing Research (1) | 15:45 <i>Crosscultural and linguistic effects on perception of European Portuguese emotional speech</i> Ana Nunes | 16:05 <i>Speaker identification in disguised voice and imitation by Brazilian Portuguese listeners</i> Denise Kluge, Maria Lúcia de Gomes Castro | 16:25 <i>Listener: a pronunciation training system for Brazilian-accented English</i> Gustavo A. Mendonça, Sara Candeias, Aldebaro Klautau, Sandra M. Aluísio | 16:45 <i>Perception and production of European Portuguese sounds by Chinese learners</i> Diana Oliveira |
| 17:05-17:30 - Coffee break | | | | |
| L2 Pronunciation Teaching and Miscellanea | 17:30 <i>Verbotonal method in phonetic correction of palatal lateral approximant /ʎ/</i> Arnalda Dobric | 18:00 <i>Children's auditory perceptual performance in the identification of phonic contrasts</i> Larissa Cristina Berti | 18:30 <i>Speech technology products derived from the dialog between linguists and engineers</i> Andréia Schurt Rauber | |

Friday, January 31

| AUDITORIUM (ILCH) | | | | |
|--|---|---|---|--|
| Session | Talks | | | |
| Plenary Session | 9:30 <i>Cross-language speech perception: What we know, what we'd like to know</i> Ocke-Schwen Bohn | | | |
| Nonnative Speech Perception (1) | 10:30 <i>Language-specific processing of speech and non-speech</i> Anita Wagner, Paul Iverson | 11:00 <i>Inhibitory control and L3 phonological processing in Catalan/Spanish bilingual learners of English</i> Joan C. Mora Isabelle Darcy | 11:30 <i>Loanword adaptation is cross-language speech perception</i> Silke Hamann, Paul Boersma | |
| 12:00-13:30 - Lunch | | | | |
| Room 1005 (ILCH) | | | | |
| Ongoing Research (2) | 13:30 <i>Perception and production of L2 English consonants and vowels: A cross training study in progress</i> Angelica Carlet | 13:50 <i>Cross-language categorization of English vowels by European Portuguese perceivers</i> Anabela Rato | 14:10 <i>Assimilation of initial English consonants to Danish</i> Camilla Søballe Horslund, Anne Aarhøj Andersen, Ocke-Schwen Bohn | 14:30 <i>Moving away from repetitions and discriminations</i> Yolanda Joy Calvo Benzies |

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|---|--|--|---|
| Non-native Speech Perception (2) | 14:50 <i>The role of language proficiency in the perception of L2 voicing contrasts</i> Grzegorz Aperliński, Aleksandra Leończyk | 15:20 <i>The perception of Western Andalusian Spanish aspirated stops by General American English listeners</i> Maria Del Saz | 15:50 <i>Perceptual assimilation of English vowels and diphthongs by Chilean Spanish speakers</i> Juli Cebrian |
| 16:20-16:45 Coffee break | | | |
| Plenary Session | 16:45 <i>Some psycholinguistic considerations on methodological issues related to speech perception tests</i> Márcia Cristina Zimmer | | |
| 17:45-18:15 <i>Discussion and meeting about possible partnerships</i> | | | |

Speaker identification in disguised voice and imitation by Brazilian Portuguese listeners

Denise Cristina Kluge (Federal University of Paraná, Brazil)
Maria Lúcia de Gomes Castro (Technical Federal University of Paraná, Brazil)
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This study will present preliminary results in the perception of disguised voice and imitation and it is part of a research project that aims at describing four acoustic correlates of vowel identity in two different voice qualities: normal and disguised. The present study aims at investigating whether a group of ten Brazilian Portuguese listeners can identify/discriminate speakers in normal and disguised voice, as well as in imitation. In order to do so, four discrimination tests and one identification test were designed using the free software TP (Rauber, Rato, Kluge, Santos, 2012). The disguised voice's stimuli were recorded by four men and four women reading a small text that simulated a telephone call in a kidnapping situation. Speakers were asked to read the text first two times at their normal voice, and then two times at a freely chosen form of disguise. The stimuli for the tests regarding imitation were recorded by a professional imitator. Preliminary results from a statistical analysis showed that it was more difficult for the ten listeners to identify than to discriminate the original voice from the imitation. As regards disguised voice, the results showed that it was more difficult for the listeners to discriminate the speaker when lip protrusion was the strategy used to disguise the voice.

Rauber, A. S.; Rato, A.; Kluge, D. C., Santos, G. R. dos (2012). TP – Testes de Percepção/Tarefas de Treinamento Perceptual [Perception Tests/Perceptual Training Tasks], computer program. Available at http://www.worken.com.br/tp_regfree.php

Listener: a pronunciation training system for Brazilian-accented English

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Recent surveys have shown that Brazil is among the countries with the lowest knowledge of the English language. In Education First's *English Proficiency Index* (2012), for instance, Brazil ranked 46th out of 54 countries. In GlobalEnglish (2013), Brazil achieved a similar position, being ranked as 71st of 77 positions. We aim at improving the proficiency on the English language among Brazilians, by building an automatic-speech-recognition-based Pronunciation Training System for Brazilian-accented English. This Pronunciation System, called *Listener*, will be able to provide online feedback regarding the pronunciation of the user. Nine types of mispronunciations were selected to be dealt by the system, according to the study by Zimmer (2004) and those reported in Zimmer *et al.* (2009), which describe the pronunciation of English as a foreign language by undergraduate Brazilian students, classified in four levels of proficiency. We intend to present the *Listener's* prototype. It was implemented and tested, using the *Hidden Markov Model Toolkit* (HTK) (Young & Young, 1994), and applies Hidden Markov Models (HMM) to represent the acoustic features of speech. The HMMs are continuous-density Gaussian mixture tied-state triphones with clustering performed using phonetic decision trees. An excerpt (~2 hours) of the *Corpus Oral de Brasileiros Aprendizes de Inglês* (COBAI) was used to build the acoustic model. The system was tested in an isolated words task, by using forced alignment via Viterbi's algorithm. Pronunciation variants were added to the pronunciation model through symbolic rules. Some preliminary results related to consonant cluster simplification ("study" > [is.tʌdɪ]) and schwa paragoge ("book" > [bʊ.kɪ]) are analyzed and discussed. Results show that the ongoing method is promising and can allow a wide-ranging Computer-Assisted Pronunciation Training (CAPT) System.

EducationFirst. (2012). Retrieved Sept. 2nd, 2013, from English Proficiency Index 2012: <http://www.ef.com.br/epi/downloads>

GlobalEnglish (2012) The Business English Index 2012 Report: Analyzing the Trends of Global Readiness for Effective 21st-Century Communication. Brisbane: GlobalEnglish.

Young, S., Young, S.J. (1994). The HTK Hidden Markov Model Toolkit: Design and Philosophy. In Entropic Cambridge Research Laboratory Ltd, v. 2, 2-44.

Zimmer, M. (2004) A Transferência do Conhecimento Fonético-Fonológico do Português Brasileiro (L1) para o Inglês (L2) na Recodificação Leitora: Uma Abordagem Conexionalista. Dissertação de Doutorado. Porto Alegre: Pontifícia Universidade Católica do Rio Grande do Sul (Portuguese).

Zimmer, M., Silveira, R., & Alves, U. (2009). Pronunciation Instruction for Brazilians: Bringing Theory and Practice Together. Newcastle: Cambridge Scholars.