EICEFALA 2015

(Sala de Seminários 1012 da Escola de Engenharia)

Mon Sep 28, 2015

08:00 - 09:00 Welcome and Registration

09:00 - 09:30 Opening

09:30 - 10:30

Talk: Thaïs Cristófaro Silva - A Complex Adaptive System approach to language acquisition and change

Description:

A Complex Adaptive System approach to language acquisition and changeThis talk addresses some theoretical issues related to the study oflanguage acquisition and change within a Complex Adaptive Systemapproach (LARSEN-FREEMAN, 1997, 2007; LARSEN-FREEMAN e CAMERON 2008,BECKNER et al 2009; ELLIS e LARSEN-FREEMAN 2009; BYBEE 2010;MASSIP-BONET 2013). It will be argued that languages reflect interactions of several systems – such as motor, perceptual,physiological, etc – so that any language system will always change.This approach accounts for facts observed in language variation andchange, developmental patterns in first language acquisition and alsoaspects related to 2nd or 3rd language learning.

10:30 - 11:00 coffee break

11:00 - 12:00

Talk: Rafael Laboissière - Human Vocal Tract Growth: A LongitudinalStudy of the Development of Various Anatomical Structures

Description:

Human Vocal Tract Growth: A Longitudinal Study of the Development ofVarious Anatomical Structures The growth of the head and neck and itscomponents, including that of the vocal tract, is not homothetic butappears rather as an anamorphosis. The growth of various structurespresents a phenomenon of heterochrony. Another important issue in vocaltract growth is sexual dimorphism. It was first claimed that sexualdimorphism appears at puberty, but a recent study has suggested thatsome prepubertal differences exist. To study these two phenomena, weused longitudinal radiographic data of sixty-eight typical subjects (966 radiographs, taken from 1 month to 25 years) and twelve fetuses(anatomical sections). In this study, we analyzed the growth curves andgrowth types of the hard and soft palate, the pharyngeal cavity and the estimated length of the whole vocal tract using non-linear mixed-effectmodels, in order to take advantage of our unique longitudinal dataset.Results indicate that most of the structures follow a neural/somaticgrowth type, while the pharyngeal cavity follows a more somatic growthtype. As concerns sexual dimorphism, no prepubertal differences werefound, suggesting that the sexual dimorphism is likely to begin atpuberty. These results have implications for the acoustics of speechproduction during development and should lead to improvements in vocaltract growth modeling.

12:00 - 13:30 lunch

EICEFALA 2015

13:30 - 14:30

Talk: Hani Yehia - Speech Technology Applied to Cognitive Models and Their Neurophysiological Correlates

Description:
Speech Technology Applied to Cognitive Models and TheirNeurophysiological Correlates
Speech, defined as the acousticrepresentation of language, performs a bridging function between lowlevel studies focused on the analysis of signals used in thetransmission and processing of information and high-level studiestargeting the interpretation of the symbols which form the basis ofhuman communication. In this context, this study aims to develop anduse appropriate tools for understanding speech from different points ofview. The first tool shows how to align coordinate systems used torepresent signals of different nature, but with some degree ofdependence or coupling. Its use is exemplified by the analysis of therelation between the geometry of the vocal tract, the movement of theface and speech acoustics. Aligning the coordinate systems, however,has proved insufficient when studying signals whose dependencerelations relative to one another have a delay that fluctuates overtime. To handle this type of event, correlation maps are used not onlyto measure the degree of coupling between signals, but also thefluctuation in delay over time. This technique is used to analyze therelations between acoustic and motion aspects during musical performances of clarinetists. Sound and movement signals are relativelyeasy to measure. Further analysis of speech requires neurophysiologicalinformation whose measurement is a challenge. Techniques, such as functional magnetic resonance imaging, allow high spatial resolutionmeasurements, of the order of millimeters, but very low temporalresolution, of the order of minutes. In turn, techniques for measuring electrical activity in the brain, such as surfaceelectroencephalography, have a high temporal resolution, of the orderof milliseconds, but very poor spatial resolution, since there aremultiple internal distributions of activity in the brain able togenerate the same pattern of surface electrical activity. A combinationof these two techniques is used to analyze, in a pioneering manner,neural plasticity measurements during the process of learning. Finally,attention should be devoted to the analysis of the relationship between objectively measurable physical quantities and their perceptualcorrelates. As an example, image processing techniques are used tomeasure the harmonic-to-noise ratio of dysphonic voices and,subsequently, to study its relationship with the perception of voicebreathiness. The tools described above done can be seen as some of thepieces of a large puzzle able to represent human speech, both asphysically measurable signals and as symbols on which humancommunication is based.

14:30 - 16:00 Oral Session 1: Brazilian Portuguese Phonetics and Phonology

Description:
14:30 - -14:50 - The rhotics of Brazilian Portuguese as a ComplexAdaptive System - Iiris Rennicke 14:50- - 15:10 - The finalunstressed /e/ produced by speakers from Curitiba, Brazil - MateusRenan Dubiela, Adelaide Hercília Pescatori Silva 15:10- - 15:30 -Emergency of consonants in Brazilian Portuguese spoken by natives ofAraguaína / Tocantins - - Alessandra Mara de Assis 15:30- - 15:50 -Laterals in intervocalic position in Brazilian Portuguese, an acousticstudy - Maria Júlia Fonseca Furtado, Adelaide Hercília Pescatori Silva

16:00 - 16:30 coffee break

16:30 - 17:30 Oral Session 2: L2 Phonetics and Phonology

Description:
16:30- - 16:50 - The production of sonorant codas in Portuguese-Englishcontact: The roles of orthography, phonological context, andproficiency - Rosane Silveira, Alison Roberto Gonçalves 16:50- - 17:10 -Age and the acquisition of English plosives: a dynamic analysis of VOTand epenthesis -- Ronaldo Lima Jr 17:10- - 17:30 - Vowel dispersion andvariability in Brazilian Portuguese and British English: a case study - Adriana S. Marusso

17:30 - 19:00 Welcome Reception

EICEFALA 2015

Tue Sep 29, 2015

09:00 - 10:30 Mini-Course: Felipe Campelo - Design and Analysis of Experiments

Description:
Design and Analysis of Experiments This tutorial introduces the maincomponents needed for performing statistically and methodologicallysound experiments, and discusses some advanced concepts involved in thedesign of experimental studies and the derivation of well-supportedconclusions. The tutorial also provides practical advice for avoidingthe most common pitfalls in experimental research.

10:30 - 11:00 coffee break

11:00 - 12:00
Talk: Hélène Loevenbruck - Ambient language frequency effects on obstruent acquisition in preschool Drehu- and French-acquiring children

Description:
Ambient language frequency effects on obstruent acquisition inpreschool Drehu- and French-acquiring children Influential approachesin language development explain the course of phonological acquisitionas reflecting universal constraints, with some consonants or someconsonant-vowel sequences assumed to be mastered earlier than others.Differences in order of acquisition are commonly ascribed to universalconstraints on production or perception, reflecting biologicalspecificities. Recent studies suggest, however, that language-specificpatterns are also observed. To disentangle universal fromlanguage-specific constraints, the present study examines Drehu andFrench acquisition data on obstruents (/t/, /d/, /k/, /g/, /s/, /tʃ/),followed by vowels /i, a, u/ in children aged 3-5 years. Results showthat the relative accuracy of obstruents in [i, a, u] contexts in Drehuand French reflect a modulatory influence of language-specific phonotactics on the perceptual and biomechanical constraints claimed togovern the production of consonant and consonant-vowel combinations.

12:00 - 13:30 lunch

13:30 - 14:30 Mini-Course: Maurílio Vieira - Electroglottography

Description:
Electroglottography Electroglottograpy is a non-invasive technique usedto investigate the larynx during phonation. The EGG signal has beenused to analyze vocal fold phenomena in the spoken, sung, and dysphonicvoice. The electroglottographic (EGG) signal is mostly correlated withvariations in the vocal fold contact area, suffering little influencefrom vocal tract resonances. It is appropriate for reliable measurements of parameters such as fundamental frequency, jitter, andglottal cycle shape (contact quotient, speed index, etc.). In thiscourse, the principles, applications, and limitations of the techniquewill be discussed using examples from simultaneous recordings ofacoustic and EGG signals.

14:30 - 16:00 Oral Session 3: Language acquisition in L1 and L2

Description:
14:30 - -14:50 -- Speech perception in foreign language contexts:discussing the tenets of PAM-L2 -- Reiner Vinicius Perozzo UbiratãKickhöfel Alves 14:50- - 15:10 - Contributions of phonetics and phonology to the English teaching as a foreing language - NelianeRaquel Macedo Aquino, Carine Haupt 15: 10 - -15:30 - Word as theorganizing principle: evidence for self-organization in earlyphonological development -- Maria de Fatima Baia, Marian Oliveira, VeraPacheco 15:30 - -15:50 - A dynamic approach to child languageacquisition - -Daniela Oliveira Guimarães

16:00 - 16:30 coffee break

16:30 - 18:00 Poster Session

Description:
1) Brazilian Portuguese (BP) dialectal variation and the realization ofEnglish as a Foreign Language (EFL) voiceless alveolar stop /t/ -Clerton Luiz Felix Barboza 2) The stress and pseudowords: an approachof types -- Aline de Lima Benevides 3) The emergency of syllabicpatterns in Brazilian Portuguese -- Katiene Rozy Santos Nascimento,Wilson J. A. Carvalho 4) The role of lexicon in L2 phonologicaladaptations - Fábio Silva Lacerda Bastos, Maria de Fátima de AlmeidaBaia

Wed Sep 30, 2015

09:00 - 10:30

Mini-Course: Adriano Vilela - Using correlation maps to analyze spoken communication: measuring the coupling between motion and acousticsduring speech

Description:
Using correlation maps to analyze spoken communication: measuring thecoupling between motion and acoustics during speech This mini-coursepresents a methodology for assessing the coupling between differentmodalities of speech (acoustic, visual) during spoken communication.The techniques presented can be equally applied to both intra- andinter-speaker scenarios. The course focuses on two main points: i) theuse of the FlowAnalyzer software to measure motion from video and ii)the use of CMA (Correlation Map Analysis) as a means of assessing thetime-varying coupling between two domains of interest. We first showhow to use FlowAnalyzer to extract motion signals from pre-recordedvideo sequences. We demonstrate the utility of the tool by showing howit allows the experimenter to rely only on ordinary video cameras tomeasure motion in a completely non-invasive way during speechproduction experiments. We then show how to use the CMA technique toquantify the time-varying coupling between the visual and acousticcomponents of speech. In our demonstration, the visual domain will berepresented by the motion signals produced by FlowAnalyzer, whereas theacoustic domain will be represented by some parameterization of theacoustic waveform, such as the root mean square (RMS) value or LineSpectrum Pair (LSP) coefficients. We finish by discussing possibledirections for future development of the tools and techniques presented.

10:30 - 11:00 coffee break

EICEFALA 2015

11:00 - 12:00

Talk: Anne Vilain - Vowel production in French children wearingcochlear implants

Description:
Vowel production in French children wearing cochlear implants While itis true that cochlear implants (CI) restore access to a large part ofthe audio information for profoundly deaf individuals, their spokenlanguage development remains delayed compared to their peers withnormal hearing. However, speech production in CI children has beenlittle studied. There are only a few studies on vowel production, andthey provide contradictory results. Some find smaller vowel spaces inCI than normal hearing (NH) children, while others find the opposite.These conflicting results are partly due to differences in data normalisation procedures. The aim of this study is first to assessseveral normalisation procedures and then to use the most appropriateone to compare vowel production in CI and NH children. NH andprelingually deaf CI French children aged 5 to 10 years were recordedduring a word repetition task. The corpus includes French oral vowelsin word-initial position: [i e ɛ a ɔ o u y ø œ]. Data analyses showthat accuracy scores are systematically lower in CI than in NH. F1 andF2 ranges are significantly smaller for CI children than NH. Our findings suggest that CI children exploit a narrower acoustic spacethan NH peers. They also seem to produce more intra-category variationand less inter-category distances than NH children. Our future studies will aim at relating these results with the duration of auditoryexperience, and with the speech perception abilities of the CI children.

12:00 - 13:30 lunch

13:30 - 14:30

Talk: Adelaide H. P. Silva - The status of rhotics in the light of newdata from Brazilian Portuguese

Description:
This study addresses an issue concerning rhotics: how can we claim thatsounds with so many distinct phonetic characteristics constitute aclass? We argue that the sounds termed “rhotics” do not constitute aclass in the traditional sense, and that some “rhotics” in BrazilianPortuguese (BP) are not even a sound, like a consonant, but a change invoice quality. And this question entails another one: considering the variability that lays beyond the production of “rhotics” in BP, how canwe account for the fact that changes in voice quality alternate withconsonants and can be distinctive as well? The last question relatesspecifically to the case of the so-called “voiceless glottalfricative”. We conducted an experiment that investigated the productionof “rhotics” in syllable codas in the middle of the word as well asword-finally. The subjects of the experiment were two women born in SãoLuís (Northeastern Brazil). People from this region are said to produce[h] as a rhotic in internal and final codas, differently from peoplefrom other Brazilian regions, such as São Paulo and the states in theSouth. However, an acoustic analysis revealed that there is no [h].Instead, the vowel in the syllable nucleus changes its voice quality intime – from modal to breathy –, so that its formant structure remainsthe same, but noise is added to the production, as indicated byharmonics-to-noise ratio. The finding that “voiceless glottalfricative” is not a consonant properly, but a change in the voice quality of vowels, is in accordance with other studies, such as the oneby Koenig (2000), and reinforces the questions posited.

14:30 - 16:00 Oral Session 4 - Speech technology

Description:
14:30- - 14:50 - Combining dynamic time warping and Itakura-Saitodistortion - Leonardo Araujo, João Sansão, Hani Yehia 14:50- - 15:10 -Evaluation of breathiness acoustic correlates in samples compressed byOpus codec - João P. H. Sansão, Leonardo C. de Araújo, Hani C. Yehia,Maurílio N. Vieira 15: 10- - 15:30 - Vocal roughness classification usingnon-linear analysis tools - João P. H. Sansão, Leonardo C. de Araújo,Hani C. Yehia, Maurílio N. Vieira 15:30 - -15:50 - DimensionalityReduction and Support Vector Machine Parameter Adjustments applied tospeech impairments - Leandro Pires, Maurílio Vieira, Hani Yehia.

EICEFALA 2015

16:00 - 16:30 coffee break

16:30 - 18:00 Oral Session 5 - Laboratory Phonology

Description:
16:20- - 16:40 - Gesture and velocity in voiced and devoiced vowels: EMAevidence from Brazilian Portuguese - Francisco Meneses, Denise Pozzani,Nicole Wong, Zainab Hermes, Torrey Loucks, Ryan Shosted 16:40 - -17:00-Articulatory characterization of oral/nasal vowel contrast inBrazilian Portuguese (São Paulo state): Evidence from EMA Ryan Shosted- Francisco Meneses, Denise Pozzani, Nicole Wong, Zainab Hermes, TorreyLoucks 17:00 - -17:20 - Intelligibility of the Spanish multiple vibrant:perception of speeches curitibanos apprentices of Spanish as a secondlanguage -- Eduardo Augusto Mello 17:20- - 18:00 -

18:00 - 18:30 Closing