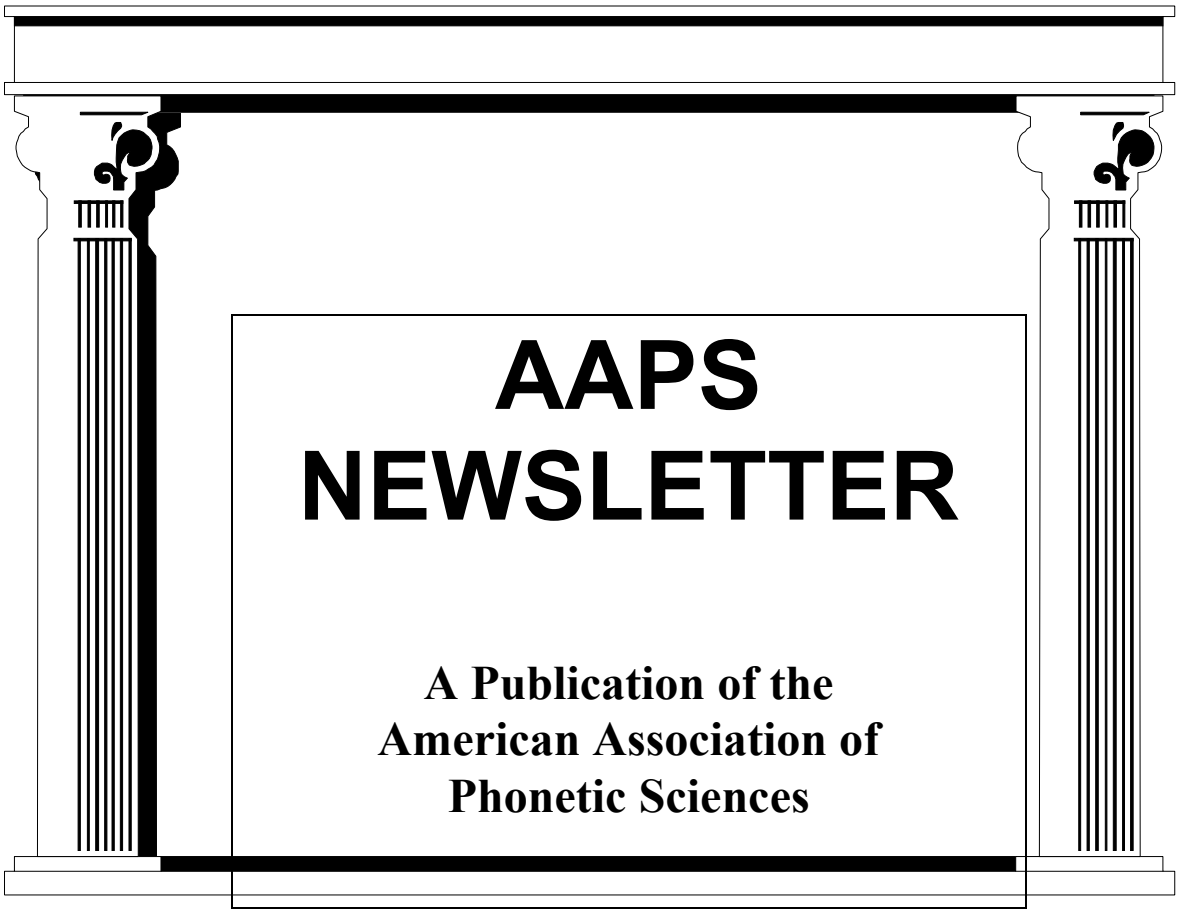

AAPS NEWSLETTER

A Publication of the American Association of Phonetic Sciences

SPECIAL TOPICS IN THIS ISSUE

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American Association of Phonetic Sciences
1998-99

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AAPS Presents: Student Research in the Phonetic Sciences

Invited Session at the 1999 ASHA Convention

San Francisco Ca, November 18-21, 1999

The American Association of Phonetic Sciences is sponsoring this session featuring the research work of students in the phonetic sciences. Four papers will be presented from students from the University of Memphis and the University of Florida. Two established investigators and members of AAPS, Jenny Hoit and Tom Murry, will discuss the papers and offer comments about the research presented.
The papers and student presenters are:

Temporal Duration in Repeated Words of Fluent and Non-Fluent Aphasic Speakers
Richard A. Dressler, University of Memphis

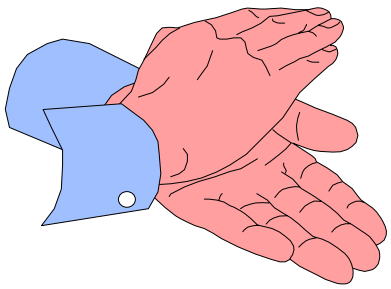
Consistency Of Voice Produced By Patients With Adductor Spasmodic Dysphonia Both Within And Across Sessions , Ann Marie Cimino, University of Floria

The Dynamic Analysis of Southern Vowels, Mary Berni, University of Memphis

Speech Motor Learning In Persons With Developmental Dyslexia, Jaumeiko J Coleman Brown, University of Florida

This session will be held on **Saturday, November 20, 1999** from **4:00 until 5:30 pm** in **Room 120** of the **Convention center**. We hope that all members of AAPS will attend this session.

AAPS wished to extend its thanks for the extensive and enthusiastic support of Julie Masterson, Co-Chair of the convention and Gene Bruder, Chair of the Speech Science Subcommittee of the Convention Program committee. Since this was an invited program, two of the students were given a waiver of the convention registration fee.



Presidents Farewell

My first draft of this "Farewell" message started out upbeat, chipper, and full of optimism for the future . It began with what was to be a report on the substantial increase in AAPS student membership. All I needed were the numbers. Perhaps I could report a 100% or maybe even a 200% increase. That would have felt so good!!
But then I talked to Sam Brown.
There is no good news to report. There has been no increase in student membership. Currently, there are only 6 students in AAPS . . . and 3 of those are from my laboratory. What does this mean? As Sam says, "I firmly believe that the present generation of speech and hearing professionals, and related fields, have no interest in AAPS." He is probably right. Sam has been at the center of AAPS since its inception 25 years ago. Today, Sam is AAPS. If Sam retired, AAPS would disappear. Poof.

Would we miss AAPS if it disappeared? I don't know. Maybe not. In Sam's words, "I can only presume that the association does not offer our professional colleagues any reason to join, nor prompt those current members to participate. I have thought about this for a long time, and I have no solutions."

At the beginning of my presidency, I asked for help in increasing our student membership. It hasn't worked. Without "fresh" members, AAPS will not survive. It can only dwindle as its present members leave, one by one (except, of course, when Sam leaves, then poof).
What should we do? If we do nothing, AAPS will die. Maybe that's okay.

Maybe AAPS has served its purpose.
Think about it.
This is our call.

In closing, I would like to thank the American Association of Phonetic Sciences for the honor of serving as its president.

Regards,

Jenny Hoit

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Annual AAPS Business Meeting

The annual business meeting of the American Association of Phonetic Sciences will be held in Room 120 of the Convention Center immediately following the conclusion of the Student paper program. The meeting will start at 5:30 pm and will end about 6:30 pm in plenty of time for the open houses that are to be held that night. As Jenny Hoit stated in her Farewell Letter, the major topic for discussion will be the Future of AAPS. So if you are around the convention center at that time, please stop in.

AAPS Dues Call

AAPS Dues for 1999 are now due. Please check your records and if you have not yet paid your dues for 1999, please send your check as soon as possible. Dues are $15.00 for members and $5.00 for students. Mail to

W..S. Brown, Jr., Executive Secretary-AAPS
IASCP,P.O. Box 117425
University of Florida
Gainesville, FL 32611

Call for Materials

All AAPS members are invited and urged to submit materials for the newsletter. Possible areas for material submission include Abstracts/Research Notes, Association news, personal news etc. We would like very much to publish abstracts of manuscripts that are in press or appear in proceedings of national or international meetings as some of these presented papers fail to find their way into print. Abstracts of theses and dissertations are also sought. Bibliographies of specific topics are encouraged.

Other topics include a listing of new books in phonetics, notices of upcoming meetings, conventions and conferences. Please provide details about dates, times, places etc. Letters to the Editor are encouraged about any issue in phonetic sciences or about the organization. Please notify me about your website. I would like to feature new websites in the newsletter. I also have a special interest in new software for the analysis of acoustic or physiological variables analyzed in speech.

Materials should be submitted to the editor either by regular mail or by e-mail (preferred). Send to

Raymond H. Colton, Editor AAPS Newsletter
Rm 156 WK 766 Irving Ave.
Syracuse, NY 13210

[Eds note: I attended a nice computer workshop presented by one of our members, Rick McGuire at ASHA last year. I found it very interesting and thought AAPS members might like to hear about "virtual instruments" and their potential role in the study of phonetics. Thanks, Rick for sharing this material with us.]

The Use of Virtual Instruments in the Instruction of Speech Science

Richard A. McGuire, Professor
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The basic tools used in the acoustic analysis of speech have been incorporated into a number of computer-based analysis programs (e.g., CSL, CSRE, C-Speech, Dr. Speech Science, Signalyze, and SoundScope). These programs not only provide displays analogous to the traditional speech analysis tools (i.e., oscilloscope and spectrograph), but also have a variety of expanded analysis options which give the researcher/clinician the power to efficiently analyze a myriad of speech features. These advances in analysis options offers expanded challenges and increased opportunities in the area of speech science instruction.

History

In 1989, the Department of Communicative Disorders at the University of Northern Iowa (UNI) was fortunate to have secured a National Science Foundation Instrumentation and Laboratory Improvement (ILI) grant to enhance undergraduate speech science instruction. The genesis of this grant was to provide students "hands-on" experiences related to the acoustic analysis of speech. This grant provided the funding to establish a departmental computer lab to be used for speech science instruction. We believed that the MacSpeech Lab acoustic analysis program was the most "user friendly" program available at that time and adopted it as our primary tool used for this instruction.

In 1994, our department was able to use the previous five years of computer-assisted instruction to marshal support from the university to update and expand our departmental computer lab. We increased the number of stations in our lab to 15 Macintosh computer stations and upgraded our instructional software from MacSpeech to SoundScope. There was considerable debate at that time related to what analysis program would best meet our instructional needs, as there had been significant advancements in such programs over the five years since our decision to use MacSpeech Lab. The major factor in our decision to retain G.W. Instruments' programs was the flexibility afforded us through the virtual instrument feature in SoundScope.

Our previous experience in computer-assisted speech science instruction was undergraduate students' tendency to be intimidated by the complexities of the MacSpeech Lab program. That is, many became so overwhelmed or preoccupied by the complexities of the analysis program features and options, that students lost sight of the features of speech that were intended to be the focus of our instruction. The intent from the onset of our "new" approach to speech science instruction was to simplify the analysis tools to a

point that allowed the student to focus in on the features (analysis display and data) of speech. We found we were able to accomplish this by authoring and employing custom virtual instruments in SoundScope.

SoundScope Virtual Instruments

SoundScope is a powerful and flexible tool for the acoustic analysis of sound, including speech. SoundScope is actually a "front-end" that is applied to G.W. Instruments' SuperScope, a multichannel data acquisition and analysis software program. SoundScope, as well as SuperScope, allows the user to author virtual instruments to customize the look and function of the analyses to be performed. The authoring strategy of this program is a menu driven hypertext-programming environment, which enables individuals with no formal programming experience to effectively and efficiently change the "look and feel" as well as the function of this data analysis program. This authoring feature in SoundScope enables users to develop custom virtual instruments that can simplify and/or automate analysis functions based on the users needs.

After a considerable learning period involving numerous contacts with G.W. Instruments personnel, we were able to develop virtual instruments using SoundScope that we felt would be desirable in our speech science instruction. In almost every case, our intent was to simplify the analysis instrument to enable students to focus on the speech features (displays and data) that were generated, rather than on the procedures of the analysis tool. To this end, we developed 10 virtual instruments that are used in 10 different instructional lab sessions beginning with a simple virtual oscilloscope, and ending with a complex speech analysis virtual instrument that incorporates multiple analyses and displays (i.e., LPC, FFT, and Spectrogram).

Speech Science Instruction at UNI

Undergraduate speech science instruction at UNI involves a combination of courses including Anatomy and Physiology of the Speech Mechanism, Phonetics, Hearing Science, and Acoustic Phonetics. Although SoundScope is used primarily in the Acoustic Phonetics course, it is employed on a limited basis in Hearing Science. Further, the departmental computer lab is used in the instruction of each of these classes as well as several other courses in our curriculum.

The use of SoundScope and more specifically, virtual instruments, is the foundation on which the Acoustic Phonetics course is built. This is a four-credit course that meets 3 hours each week in a multimedia-equipped classroom and one hour weekly in the computer lab. The classroom aspect of the class is a traditional lecture style environment with the ability to project/demonstrate SoundScope and the specific virtual instrument designed to address the topic at hand. This allows for abstract concepts and analysis procedures to be demonstrated in class.

This course is divided into 13 instructional units by topic, each involving classroom lectures with 10 of these including a "hand-on" analysis experience in the computer lab. Each of the lab experiences results in the acquisition of data, both quantitative and descriptive, and the development of a laboratory report. The laboratory report requires

the student to address (1) the purpose of the activity; (2) the methods used in acquiring and analyzing speech samples; (3) the results of the analyses completed; (4) a discussion of the analyses as it related to the assigned course readings and lectures; and (5) comments on the laboratory assignment, experience, and virtual instrument. The 10 instructional units that include a laboratory experience are: Unit 1 Oscillograms; Unit 2 Waveform Editing; Unit 3 Vocal Frequency; Unit 4 Perturbation; Unit 5 Spectrography: The Basics; Unit 6 Spectral Analysis – Spectrograms, FFTs, & LPCs; Unit 7 Vowels and Diphthongs; Unit 8 Sonorants; Unit 9 Fricatives; Unit 10 Plosives and Affricates. The other three instructional units in this course are an initial introduction unit, and units on speech perception and clinical applications of acoustic analyses, which follow the 10 "hands-on" units. It is apparent that not all instructional units fit the course title of acoustic phonetics; however, the components related to voice measures fit the analysis aspects of this course as well as our curriculum.

As previously mentioned, the primary strength of this course is the use of virtual instruments to simplify the tools used in instruction. Initially, the instrument used in the Acoustic Phonetics course contains only one analysis display (oscilloscope) and the functions related to acquiring and analyzing the signal are controlled with a few simple buttons. As the course progresses, there is a cumulative building of the complexity found in each instrument. Yet, even as the complexities of the analyses increase, the virtual instruments continue to allow simple "mouse clicks" on buttons to execute the necessary functions. Near the end of the course, the virtual instruments look similar to the standard SoundScope analysis instrument with the inclusion of the function buttons. By the last Unit, the students in the course are ready for and expected to depend on the standard SoundScope menu items, reinforced with exposure to other analysis programs, such as Dr. Speech Science, Signalyze, and VisiPitch, that are available to them in our department.

Student response to this "hand-on" computer-assisted approach to speech science has been overwhelmingly positive. A course that had traditionally been viewed as an "unnecessary requirement" for students has become a course that many students come to enjoy. It is heart warming to have an open house on family weekend and watch our students proudly display their mastery of speech analysis to their family. Other evidence of the success of this approach, outside of traditional outcome assessments, comes from the increased number of students who have chosen graduate research projects involving acoustic analysis, and from colleagues from other institutions who have discovered our students' abilities in this area as graduate students in their programs.

[Eds Note: Sound Scope is a product of GW Instruments and runs on a Mac. The URL of GW Instruments is http://www.gwinst.com/web-pages/SoS.html.. On the following page, I have included a brief description of Sound Scope courtesy of GW Instruments Website.].

What is SoundScope?

SoundScope is a third generation speech and sound analysis product line that represents a breakthrough in ease-of-use and advanced features. Record a sound, perform analysis, extract key values, and compute statistics all with a few clicks of the mouse. Scroll through data, adjust the scale or display range, and even change the parameters for sound analysis computations. SoundScope offers unprecedented flexibility that you can begin using today.

What can you do with SoundScope?

1. Record, view, analyze, play, store & print sound waveforms.
2. See spectrograms in full color.
3. View fundamental frequency (Fo), jitter (pitch pertubation), shimmer (amplitude pertubation), frequency spectra (FFT), linear predictive coding (LPC), and much more.
4. Compute statistics such as percent voiced, percent unvoiced and percent silence.
5. Design your own instrument screen, no programming required.
6. Customize menus and displays.
7. Cut, Copy & Paste between SoundScope and other applications.
8. Record and playback up to maximum CPU memory (e.g. record for 100 seconds at 22k Samples/sec with 4.5 MB of free memory).

Enter notes and observations into the integrated text editor.

Rick has also written a 38 page manual entitled "SoundScope Instruments for Teaching and Learning Speech Science". Although it is available from GW Instruments website as a pdf file, Rick informs me that it contains some errors and he has a correct version available directly from him. Topics (Labs) described include (1) Oscillograms, (2) Waveform editing, (3) Vocal frequency, (4) Perturbation, (5) Spectrography: The Basics, (6) Spectral Analysis: Spectrograms, FFTs & LPCs, (7) Vowels and Dipthongs, (8) Sonorants, (9) Fricatives and (10) Plosives and Affricates.

Also available at the GW Instruments Website is another manual entitled "Sound Scope: A Manual of Clinical Applications" by Rebecca Leonard and Tito Poza. Topics discussed in this pdf file are (1) Rate-Range Calculator (No-it is not a program to compute your mortgage rate or interest but one that can assist the clinician in assessing syllable repetition tasks. (2) Pitch analysis, (3) Stimulus generator (designed to facilitate stages of therapy in which generalization or "carry-over" activities are critical., and (4) Speech Reconstructor (I'll let you read about this tantalizing topic yourself).

Well, enough of this selling job about Sound Scope. I think these manuals are excellent and represent projects that can be used for the teaching of materials in phonetics as well as using the instruments in everyday clinical practice. If anyone else has used this or other programs for phonetics teaching, research or clinical use, please drop me a line and tell your fellow AAPS members about it.

Gram 5.1, A Free Spectrogram Program

There is a fine spectrogram program, available for free on the internet at http://www.monumental.com/rshorne/gram.html. This is a great program and the price is right. The program was written by R.S. Horne. Here is a description of the program that appears at the website.

Spectrogram version 5.1 is a freeware dual channel audio spectrum analyzer for Windows 95/98/NT which can provide either a scrolling time-frequency display or a spectrum analyzer scope display in real time for any sound source connected to your sound card. Spectrogram allows unlimited recording and playback of the sounds from the audio spectrum display and can provide very high resolution spectrum analysis of wave files with a wide choice of frequency bands and frequency resolution and either linear or logarithmic frequency scales. Spectrum data logging capability is also provided. Version 5.1 replaces all earlier versions and provides improved audio quality, print-window capability, spectrum averaging for noise reduction and detection of weak signals, and more flexible scanning and recording capabilities. Spectrogram is ideal for any purpose related to sound spectrum analysis including

Analysis and identification of biological sounds
Analysis and identification of human speech
Analysis of vocal and instrumental music
Evaluation and tuning of musical instruments
Evaluation and calibration of home audio systems
Ham Radio audio reception and tuning

Gram is the basis of a program developed by Garyth Nair to teaching singing and singing technique. The program is discussed at his website and in his book entitled "Voice-Tradition and Technology: A State-of-the-Art Studio" published by Singular Publishing Group. (http://www.users.drew.edu/~gnair/index.htm) The book features a CD containing Gram (not the latest version) plus many other samples demonstrating the techniques in the book. Check this book out for interesting and novel use of technique originally developed for the study of phonetics.

AAPS Ballot 1999

The Nominating Committee recommends the following names for Officers of the Association

President: Mary Louise Edwards, Syracuse University

Write in: _____

Vice-President: James Mahshie, Gallaudet University

Write in: _____

Councilor: Lorraine Ramig, University of Colorado

Write in: _____

Nominating Committee:

Nancy Pearl Solomon, University of Minnesota

Write in: _____

Respectively Submitted
Rick McGuire, Chair, Nominating Committee
Ruth Huntley Bahr
Carol Ferrand

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W.S. Brown, Jr,
Executive Secretary, AAPS
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Gainesville, Fl 32604