

September 2004

Volume 30 & 31

AAPS Newsletter

American Association of Phonetic Sciences

Letter from the President- Rick McGuire

An ongoing theme of the American Association of Phonetic Sciences (AAPS) meetings and newsletters over at least the past five years has been how to increase the visibility and purpose of our association. Although some meaningful strides have been made in this area, visibility and purpose remain considerable challenges. Participation by AAPS members has diminished based on the inactivity of our list-serve, a paucity of submissions to our Newsletter, and attendance at our annual meetings. We appear to be at a "crossroads" where one might ask, "Is there a need for the American Association of Phonetic Sciences?"

The question of the need and purpose for an association to promote and support phonetic science in America was discussed lively during the formative years of what has become the AAPS. The working group of Sam Brown, Harry Hollien, Leigh Lisker, Bob McGlone, John Michel, and Tom Shipp in their efforts to establish this association wrote a set of by-laws, initiated a newsletter, and held the first meeting in 1973 confirming the need and articulating a clear purpose for the AAPS. This purpose is to encourage research in phonetic sciences, to promote cooperative research among scholars and scientists interested in this area and to provide a forum for the exchange and development of information and ideas about phonetic sciences. It seems to me, the need for our association is greater today than it was in 1973 if only to promote a greater presence of science in professions that have become increasingly myopic in their clinical focus.

(Continued on Page 5)

Annual Business Meeting- 2003

Thursday, November 13, 2003

Meeting called to order at 5:20 pm.

President Mashie asked for any corrections of the minutes of last year and there being none the minutes of the previous meeting were accepted.

President Mashie reported that this was not a very active year. AAPS negotiated with the Speech Science Subcommittee to produce a student paper session but we received only two papers. We had asked that both be included in a single session but through a mixup at ASHA this was not done. The two papers were presented in separate sessions. Jim also reported that although a few ideas were generated last year, little has been done to implement them.

The Executive Secretary report was read and accepted.

The Nominating Committee reported on their recommendations for offices.

They are Ruth Huntley Bahr, Vice President, Nancy Solomon, Councilor and Karen Nezelek, Nominating committee. All nominations were accepted.

(Continued on Page 6)

Special Interest Articles:

- Letter from Rick McGuire, AAPS President.
- SONY announces a new PCM minidisk recorder
- Software available for speech analysis

Individual Highlights:

Treasury Report	2
2003 Meeting	1
AAPS at ASHA	7

Business Meeting At ASHA Philadelphia, Pa

Thursday
Nov 18, 2004

Marriott, Rm 405

12:00-1:30 pm

Low-Cost Software for Teaching Acoustic Analysis of Speech

Richard A. McGuire, Ph.D.

Teaching acoustic science, more specifically acoustic analysis of speech, involves abstract elements that may be more effectively taught through “hands-on” exploratory learning activities. Although many academic departments have sophisticated data acquisition hardware and software that are routinely used for this type of instruction (e.g., Computerized Speech Lab (CSL) - <http://www.kayelemetrics.com>, Dr. Speech 4 - http://www.drspeech.com/List_New.html, and Computerized Speech Research Environment (CSRE) - <http://www.avaaz.com/researchresources/csre.htm>), few have multiple stations enabling unlimited access to support undergraduate and graduate student learning. That is, the cost of these commercial acoustic acquisition and analysis systems prohibits most academic institutions from having multiple workstations to support student learning in speech science and/or acoustic phonetics courses.

With this availability of computers, the desirability and utility of low-cost software that can be incorporated into “hands-on” experiential acoustic phonetic instruction, as well as other research and clinical activities, is great. Although most departments lack the number of acoustic acquisition and analysis stations to provide unlimited student access, many have access to computer laboratories to support student learning. Additionally, many students attending college today have their own computer. In an informal survey of undergraduate and graduate students at a CAA accredited program, 93% owned their own computer with 47% of these being a laptop model. Through the acquisition of low-cost or no-cost software, all computers in university computer labs as well as those owned by individual students can contain sophisticated software to provide a plethora of “hands-on” exploratory learning experiences associated with the acoustic analysis of speech. Additionally, once the acoustic acquisition, analysis, and interpretation of speech are learned, the wide availability of this software provides the students with the opportunity to apply their competencies in this arena to their clinical experiences. With adequate modeling and support, this application of speech analysis to clinical practice may lead to increased technology transfer into our professions.

There are a number of low-cost or no-cost software packages for the acoustic analysis of speech available from a variety of commercial and non-commercial sources for both the Windows (WIN 95/98/NT/2K/XP) and Macintosh (Power PC) platforms. There is also a wide range of acquisition and analysis options available across these software programs resulting in varied levels of usability, utility, and effectiveness for teaching, research, and clinical purposes. The intent of this article is to provide an overview of five of the most useful and popular acoustic analysis software packages that are either free or available for a cost of less than \$30. Additional criteria for inclusion of software in this overview were the availability and ease of acquisition (download) of the software, usefulness for the acoustic analysis of speech instruction, and the availability of documentation and support of the program. This commentary is based on the personal experiences and preferences of the author and is not intended to be a systematic evaluation or comparison of the computer programs presented. Further, the focus of this review is limited to analysis programs available for a Windows platform.

Speech Filing System

The Speech Filing System (SFS) is a free software suite that is available from the University College London at <http://www.phon.ucl.ac.uk/resource/software.html>. In its entirety, SFS is a powerful tool that is updated and improved on a regular basis. This software enables users to perform a variety of involved speech signal processing, synthesis, and recognition activities. This complex suite of software involves over a dozen individual programs that are useful for speech instruction and research. Some of these programs can be integrated with each other to provide extremely powerful tools for speech research. The use of the full SFS software suite can be challenging for those with little computing experience, although use of the basis speech capture and analysis program Waveforms Annotations Spectrograms and Pitch (WASP) of this suite is manageable for the novice user. Based on the speech analysis focus of this paper, only the WASP program of SFS suite is presented here.

Low-Cost Software for Teaching Acoustic Analysis of Speech

(Continued from Page 3)

WASP is a simple and easy to use program for the recording, display, and analysis of speech on personal computers. With WASP one can record and replay speech signals, save them and reload them from disk, edit annotations, and display spectrograms and fundamental frequency tracks. It takes up very little disk space and is ideal for introducing students to computer-based acoustic analysis.

WaveSurfer

WaveSurfer is a free software program for sound (speech) visualization and manipulation developed at the Centre for Speech Technology (CTT) at KTH (the Royal Institute of Technology) in Stockholm, Sweden. WaveSurfer is available from <http://www.speech.kth.se/wavesurfer/>. This software can be used to visualize and analyze sound in several ways including the display of waveform, spectrogram, and pitch tracking displays. Additionally, several properties of these displays can be adjusted, such as, a spectrum window and a zoom waveform window, which are useful for more detailed inspection and adjustment of the speech signal.

WaveSurfer has a simple and logical user interface that provides analysis options in an intuitive manner. In its basic configuration, is embraced by novice users, yet is suitable for more advance users through the addition of program plug-ins and additional open source programming. Like WASP, it is an effective program to introduce students to computer-based speech analysis due to its utility and ease of use.

SIL Speech Tools

Speech Tools is a low-cost (\$19.95) suite of speech analysis software that has been developed by SIL International (formerly known as the Summer Institute of Linguistics) and is available from <http://www.sil.org/computing/speechtools/>. Although all of the individual programs in Speech Tools (Speech Analyzer, Speech Manager, and IPA Help) may be useful in acoustic phonetic instruction, only Speech Analyzer is presented here.

Like WASP and WaveSurfer, Speech Analyzer is relatively easy to use, yet it has more display, playback, and analysis functions. More specifically, Speech Analyzer enables users to vary playback speed, view speech input as a waveform, pitch plot, spectrogram (grey scale and color), spectrum, and various F1 vs. F2 displays. The pitch tracker can easily be restrained within a particular frequency range which is a desirable feature due to the varying pitch ranges based on age and gender. Students tend to embrace this analysis program as it gives them a wider range of analysis options while remaining easy to use.

TF32

TF32 is a commercially available time-frequency analysis software program that supersedes CSpeechSP for DOS. Although TF32 is a moderately priced software program, a free demo version is available from <http://userpages.chorus.net/cspeech/>. This demo version offers full program functionality with the exception of recording and saving waveforms. The TF32 demo program opens and loads a variety of sound file formats (captured elsewhere) and plays back these waveforms. Additionally, it displays multiple waveform channels, pitch plots, RMS/dB trace, LPC inverse filter, sound spectrogram with editable LPC formant track overlay, time-slice spectrum (Fourier, LPC, moments), and voice perturbation measures of jitter, shimmer, and periodicity SNR.

PRAAT

PRAAT (Dutch for “talk”) is a very popular free computer-based phonetic science environment that has been developed at the Institute of Phonetic Sciences at the University of Amsterdam and is available from <http://www.fon.hum.uva.nl/praat/>. This program is widely used

and supported with PRAAT developers and enthusiasts contributing extra program routines to this ever-growing phonetic science program/environment. Although PRAAT is used for complex kinds of analysis by advanced level phonetic science researchers who are adept at computer programming (“script” writing), its relatively basic functions, such as, waveforms, spectrograms, and pitch tracking are routinely used for speech analysis instruction. PRAAT is highly flexible and is very useful tool for novice users and experienced researchers alike.

The main speech analysis features of PRAAT include waveform, spectral (including FFTs and spectrograms), formant, intensity, pitch, and voice (including jitter, shimmer, and additive noise) analyses. As with the TF32 program, mastery of these features gives students speech analysis competencies that can easily transferred from initial learning activities and experiences to sophisticated research and clinical applications using the same software program. Conversely, unlike TF32, if students embrace PRAAT, they can continue to grow in their mastery of this program and always have free access to the most current full version of this effective speech analysis tool.

Although PRAAT's basic speech analysis functions are ideal for the acoustic phonetic instruction, the complexity of this program, specifically the documentation, can be daunting to some students. Although the learning curve of PRAAT is “steeper” than the other analysis programs previously mentioned, the investment of time and effort to master those features of PRAAT enables long-term use of this program. That is, with ongoing free access to this frequently updated program, students have the opportunity to apply their speech analysis knowledge and skills to their future research and/or clinical practice using this software.

Although there are other available free or low-cost speech analysis software programs (e.g. PCquirer (a demo version available from <http://sciconrd.com/multi.htm>), Sound Software Spectrograph (a free spectrogram display program is available from <http://www.sonicspot.com/soundsoftwarespectrograph/soundsoftwarespectrograph.html>), WinSpec32 (a feature limited shareware version available from <http://www.sonicspot.com/winspec/winspec.html>), Spectrogram (a demo available from <http://www.visualizationsoftware.com/gram/gramdl.html>), and Wave Tools (a shareware version is available from <http://www.sonicspot.com/wavetools/wavetools.html>)), their cost, limited features, utility, and/or the author's lack of awareness prevents them from being included in this paper.

As stated earlier, this commentary is based on the personal experiences and preferences of the author and is not intended to be a systematic evaluation or comparison of the programs presented. Although these programs have been effectively employed in the instruction of speech analysis, the quality of capture, resolution of displays and analyses, and quality of measurements vary across the software programs and the computers (sound cards and microphones) employed. Additionally, instructors and students must understand that the signal acquisition (microphone and analog-to-digital conversion) and analysis algorithms/routines that are adequate for instruction may not be suitable for analysis and measurement of speech in some research and/or clinical assessments. That is, most sound cards that are bundled with current computers coupled with a modestly priced microphone provide effective capture for most instruction purposes. Admittedly, the utility of any of these programs for sophisticated analysis and measurement is directly related to the quality of microphones and sound cards used to capture the speech signal. It is important, when incorporating these software applications into instruction, that faculty teach the responsible use of these programs. Students must understand the need to be critical in the application of computer-based speech analysis in their research and clinical practice. They must be trained to consider routinely the limitations of the specific hardware and software they are using as well as the reliability and validity of their speech analyses/ measurements.

Letter from the President

(Continued from Page 1)

This year's annual AAPS meeting will be held at noon on Thursday, November 18th in Philadelphia. I hope that this new time, as compared to our traditional evening meetings, will facilitate greater participation. Given the current state of our association, I ask each member not only to attend this meeting, but to come prepared with ideas for how we might "breathe new life" into our organization. Some suggestions that I offer to this end are:

1. To have a half-day AAPS conference either on the Wednesday prior to the start of or the Sunday following the annual ASHA convention focusing on both professional and student phonetic science research/topics. This suggestion is based on the difficulty of scheduling AAPS initiatives/events within the context of the ASHA convention and the "masking" that occurs in the visibility of AAPS events by the volume of activities that are packed into what is now a three day convention.
2. To (re)establish a meaningful web presence that is consistent with the scope and purpose of our association. This site may include an on-line conference similar to the annual International Stuttering Online Conference, which can be found on the Stuttering Home Page at <http://www.stutteringhomepage.com>.
3. To survey AAPS members to determine how our association may better serve our needs and interests and to identify new initiatives that reflect the current opportunities and challenges in the Phonetic Sciences.
4. To consider a broadening of our association's focus and to develop recruitment initiatives to encourage and welcome a broader set of professionals and students into the AAPS.

Mary Louise Edwards, in her *Letter from the President* in the March 2000 AAPS Newsletter, provided several ideas to increase the visibility and membership of our association along with the suggestion that we broaden our purpose to incorporate all branches of phonetics and also to expand our focus beyond phonetic research to include phonetic science pedagogy. In this letter, Mary Louise provided a definition of phonetics which was "...broad enough to include the varied sub-disciplines, such as articulatory phonetics, perceptual phonetics, acoustic phonetics, and experimental phonetics, as well as specific applications of phonetic principles, as in clinical phonetics." By (re)defining ourselves to appeal to a wider audience, we should be able to increase interest and membership in our association. I whole-heartedly agree with Mary Louise and suggest that the AAPS survey academic programs to assess the current state of phonetic science and related pedagogy in these programs. By knowing who is teaching phonetic science courses and what is specifically is being taught, we may be able to identify initiatives that would support current activities and foster new ideas and approaches in phonetic science research and instruction. Additionally, this survey would include an invitation for all interested faculty and students to join AAPS.

I hope that each of you, whether you attend our annual meeting or not, will offer suggestions to help invigorate our association. In addition, the effective implementation of these suggestions will involve active participation by a wide variety of our membership. I challenge each of you to demonstrate your interest in and support of the American Association of Phonetic Science by your actions.

Please feel free to contact me with any suggestions or comments about the issues I have raised here. I look forward to your input.

I hope to see you at the AAPS meeting in Philadelphia.

Regards,



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Annual Business Meeting- 2003

(Continued from Page 1)

Editor's Report

The membership expressed the desire to have a newsletter published even if it was only the list of members. The editor agreed to produce an issue sometime in late Winter or Spring.

Old Business:

Mary Louise Edwards asked when the call for student papers went out. Jim Mashie replied that it was about 3 weeks before the ASHA deadline. ASHA received the papers and sent them to us for review. But we did not put the session together. The idea that we open the session up to undergraduate students was discussed and endorsed. Karen Nezelek asked if we could make it a poster session and also asked if pre-dissertation research projects could be included. Jim Mashie remarked that ASHA provided about 30 student travel awards this year and one of our students received one. He anticipates that these will be available in the future. The consensus of this discussion was that we continue with the student paper session but with an arrangement that we will receive the papers and review them and submit them as a package. Rick McGuire will inquire to determine if ASHA is receptive to this idea.

Jim Mashie then turned the gavel over to Rick McGuire, the incoming President. Rick presented some of his ideas about the future of this organization. He remarked that too many people do not see themselves as phonetic scientists and we should do a better job about defining who we are. In order to increase our membership, we need to increase our value. Rick thinks that we are at a critical point in the history of the association and would like to survey the membership to determine their wants and needs from the association. He suggested that the association (1) encourage the membership to submit papers to ASHA that focus on pedagogical issues in the phonetic sciences., (2) to become more proactive in what we do, (3) redefine who and what we are, (4) survey the training programs to determine their needs in the phonetic sciences and (5) capitalize on the interest the public has in some aspects of the phonetic sciences (e.g. voice prints) to publicize what we do.

New Business

The proposal by the Executive Secretary to raise dues in the association to \$25 was discussed by the membership. Many voiced the opinion that since we have not really done much for the membership in recent years, it doesn't seem right to ask for a dues increase at this time. Perhaps when specific proposals for programs are forthcoming, a dues increase might be necessary. The proposal was voted down by the members present.

Rick McGuire presented the idea of surveying the membership about when they think the organization should be and seek ideas about future direction and projects. He will arrange for such survey to be produced and sent to us for review before being sent to all members for their input. He plans to send the survey out in the Spring, analyze the results during the summer and produce a report at the annual meeting in November.

Rick presented the idea that one focus of the organization could be pedagogical. That is we could solicit ideas about how to teach the various courses in the field or ideas about aspects of teaching in the phonetic sciences. He wants to solicit and encourage submissions to next year's ASHA convention program for proposals that deal with these issues.

Ray Colton presented the idea of a model Speech Science course or Acoustic Phonetics course. The idea is to solicit comments from the membership as to what should be in such a course and develop a syllabus encompassing these ideas.

Rick McGuire suggested that we should consider what competencies we expect our students to have after taking such a course. Mary Louise Edwards brought up the idea that many incoming graduate students have very rusty skills in phonetics. What strategies do programs use to refresh and update the student's skills and how might we best implement such a program. One suggestion was to create a modular computer based program that students could complete on their own. These ideas could be incorporated into an ASHA program next year.

AAPS AT ASHA

Three posters related to Acoustic Phonetic Instruction submitted by AAPS members are scheduled on Friday, November 19, from 8:30-10:00 am in the Pennsylvania Convention Center Hall D. The posters (which can be found listed on page 144 in The ASHA leader) are as follows:

(1314) Poster 102: Using Virtual Instruments in Speech Science Instruction, Richard McGuire, St. Louis (MO);

(1320) Poster 108: Learning (and loving) Speech Science: Student Acoustic Analysis Projects, Kathleen Siren, Loyola College in Maryland;

(1321) Poster 108: Beyond Phonetic Transcription, Mary Louise Edwards, Syracuse, NY.

If you are planning on attending the convention, please stop by these posters and introduce yourself as a fellow AAPS member.

A SONY Portable MiniDisc Recorder

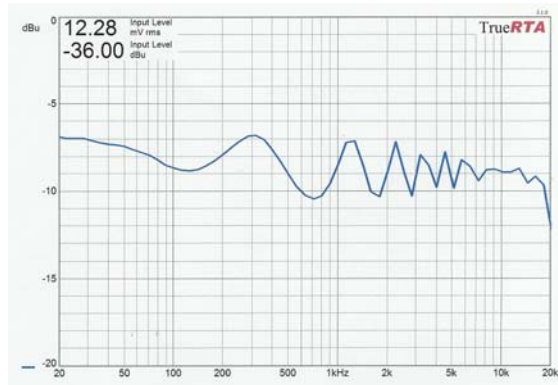
Ray Colton

The mini disc has grown in popularity because it features the capability of recording up to 80 minutes on a small disc with the same convenience of random access of a CD. SONY is the leader in this area with its recorders that features the ATRAC system. This recording system permits the recording of almost CD quality sound on the small disc. However, it is a lossy system in that parts of the audio spectrum thought to have little effect on audio perception are discarded. For researchers, this is deficiency that prohibits the use of a mini disc recorder for research purposes. However, that may have changed with SONY's introduction of the MZ-NHF800 mini disc recorder this summer.

The MZ-NHF800 features the ability to bypass the ATRAC recording algorithm and record audio in a linear PCM mode. This means that the full audio spectrum is recorder permitting the recorder to be used for research. In the PCM mode, the recorder will record about 28 minutes of audio when using a standard 80 minute disc. SONY also has introduced a higher capacity disk, 1 gByte, that permits recording lengths of about 94 minutes. SONY lists a frequency response from 20 to 20,000 Hz (± 3 dB) device.

I have tested the frequency response of the unit I received late this summer using the TrueRTA program that uses a frequency sweep tone to test frequency response of audio systems. My result is shown in the accompanying graph. SONY's specs are verified. The response is good from 20 – 20,000 Hz within the 3 dB margin although there is some variation from about 200 to about 6 kHz within that 3 dB window.

It may be possible to use this recorder for research on speech acoustics. Further testing is in progress to determine if we can use the recorder for voice recordings from which we can extract such measurements as jitter and shimmer as well as spectra. The cost was \$269 from Sound Professionals (www.soundprofessionals.com). TrueRTA is available from <http://www.trueaudio.com> and ranges in costs from about \$40 to about \$100 depending on the options you wish to include.



**American
Association of
Phonetic Sciences**

President

Richard McGuire
2003-05

Vice-President

Ruth Huntley Bahr
2003-05

Executive Secretary

W.S. Brown
1977-2006

Councilors

Richard Morris
2002-05
Nancy Solomon
2002-05

Editor-in-Chief

Raymond H. Colton
1996-2004

We're on the Web!

See us at:

<http://aslp.gallaudet.edu/aaps/>

Treasury Report

January 1, 2003 – December 31, 2003

Cash on Hand, December 31, 2002	\$ 1773.91
Assets	
2003 Membership Receipts	
28 members @ \$15.00	\$420.00
2 students @ \$5.00	\$10.00
2002 Dues (Late Payments)	
3 members @ \$15.00	\$45.00
2004 Prepaid Members	
18 members @ \$15.00	\$270.00
2005 Prepaid Members	
6 members @ \$15.00	\$90.00
2006 Pre Paid Member	
1 member @ \$15.00	\$15.00
Total Assets	\$2,623.91
Liabilities	
CHECKS:	
# 372 Department of State (2002 Annual Corp. Dues)	\$61.25
# 373 US Postmaster (P. O. Box Rental 2003)	\$76.00
#374 US Postmaster (Stamps and General Mailing)	\$37.00
#375 USPostmaster (Stamps and General Mailing)	\$37.00
# 376 US Postmaster (P. O. Box Rental 2004)	\$76.00
Total Liabilities	\$ 287.25
Balance, December 31, 2003	\$ 2336.66

AAPS 2004 DUES ANNOUNCEMENT

Call for Association dues for the year 2004 is now in effect. Rate for members are as follows:

Members \$ 15.00

Student Members \$ 5.00

Check your records and if you have not paid your 2004 dues, please forward your checks (in US funds) to:

W.S. Brown Jr.

Executive Secretary- AAPS

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