



SLaTE 2009

ISCA International Workshop on Speech and Language Technology in Education

Wroxall Abbey Estate, Warwickshire, England

3rd – 5th September 2009

Technical Programme and Abstracts



International Speech
Communication
Association

**UNIVERSITY OF
BIRMINGHAM**

SLaTE

As Chair of the ISCA Special Interest group, SLaTE, I would like to welcome you to the SLaTE 2009 Workshop. The SLaTE SIG is interested in all research that concerns the use of language technologies for education applications, especially those for language learning. There are many domains that are covered by SLaTE, such as pronunciation error detection and dialogue games, as you will see over the next few days.

The first meeting on this topic was organized by the researchers at KTH and held in Marhollmen Sweden in 1998. That very successful meeting was followed by meetings in Aberdeen and in Venice. SLaTE itself was created by a group of interested researchers at the 2006 Interspeech conference in Pittsburgh, USA. And the first SLaTE SIG workshop was held in Farmington PA, USA in 2007. The present meeting at Wroxhall Abbey, UK carries on the tradition of assembling to hear high quality research, to attend demonstrations of software and to have interesting discussions with colleagues from around the world.

Several of the presentations from the 2007 meeting have resulted in the publication of a special issue of Speech Communication (October 2009). This issue had the highest number of proposed papers of any issue in Speech Communication history.

I would like to especially thank Martin Russell for organizing this wonderful workshop! It is well-planned and is full of interesting events, papers and demos. I hope you all enjoy this workshop and find many new ideas to take home with you.

Maxine Eskenazi
Chair, ISCA SIG SLaTE

SLaTE 2009

Welcome to the ISCA SLaTE 2009 workshop. The venue for the workshop is Wroxall Abbey Estate, in Warwickshire, England. This was chosen for a number of reasons: It's small, and SLaTE 2009 will be the only major event while we are there, it is unique and steeped in history, it is remote but relatively accessible, and it is close to a number of interesting places, including Warwick and Stratford-upon-Avon (visits to both of these are included in the social programme). It is certainly not a modern hotel. All of the guest rooms are different with their own unique characters, and the conference facilities are more intimate than you would expect in a more modern venue. I hope you like it!

Forty five papers were submitted to SLaTE 2009. This is a significant increase compared with SLaTE 2007 and indicates that our area is growing. Each submission was evaluated by at least three reviewers. Overall the quality was judged to be very high, and we accepted 37 papers. Of these, 19 will be presented as talks in the 5 oral sessions, and 18 as posters in 3 poster sessions. We also have 14 demonstrations in 2 sessions. This has resulted in a busy programme, and it has been necessary to include evening sessions on the Thursday and Friday, between the social events and dinner.

Where possible the papers have been grouped according to themes, however, due to the relatively small number of papers and the travel arrangements of some of their presenters it has not always been possible to adhere tightly to these themes.

I would like to thank the SLaTE committee for their support, and the reviewers for reading and assessing their allocated papers.

I hope that you enjoy the workshop!

Martin Russell
Organiser, SLaTE 2009

SLaTE Committee

Abeer Alwan	UCLA
Jared Bernstein	Ordinate Corp.
Rodolfo Delmonte	University of Venice
Maxine Eskenazi	Carnegie Mellon University
Björn Granström	KTH
Valerie Hazan	University College, London
Diane Litman	University of Pittsburgh
Dominic Massaro	University of California – Santa Cruz
Nobuaki Minematsu	University of Tokyo
Patti Price	PPrice.com
Martin Russell	University of Birmingham
Stephanie Seneff	MIT
Helmer Strik	Radboud University

SLaTE 2009 Scientific Review Committee

The organisers would like to thank the following individuals who took part in the review of papers submitted to SLaTE 2009.

Abeer Alwan	Gregory Aist
Anton Batliner	Kay Berkling
Jared Bernstein	Alan Black
Lei Chen	Catia Cucchiarini
Rodolfo Delmonte	Ryan Downey
Maxine Eskenazi	Horacio Franco
Björn Granström	Diego Giuliani
Valerie Hazan	W Lewis Johnson
Diane Litman	Nuno Mamede
Dominic Massaro	Nobuaki Minematsu
Mari Ostendorf	Patti Price
Martin Russell	Stephanie Seneff
Helmer Strik	Louis ten Bosch
Joseph Tepperman	Isabel Trancoso
Hugo Van hamme	

SLaTE 2009 - Outline Technical and Social Programme

	Thursday 3rd	Friday 4th	Saturday 5th	Sunday 6th
7.30-8.30am		Breakfast	Breakfast [plus SLaTE Committee meeting]	Breakfast
9.00-10.30am		Oral session 3: Creation & Assessment Of Content For SLaTE	Poster session 3: Topics in SLaTE (1)	Coach departs for Brighton 11.30am
10.30-11.00am		<i>Coffee</i>	<i>Coffee</i>	
11.00-12.45pm		Poster session 2: Pronunciation Training & Assessment (2)	Demo session 2	
12.45-1.45pm	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	
1.45-3.00pm	Welcome Oral session 1: Virtual Tutors & Games	Oral session 4: Pronunciation Training & Assessment (3)	Oral session 5: Topics in SLaTE (2)	
3.00-3.30pm			SLaTE general assembly	
3.30-4.00pm	<i>Tea (4.10 – 4:25pm)</i>	<i>Tea (3.30-4.00pm)</i>	<i>Tea (3.30-4.00pm)</i>	
4.00-5.30pm	Poster session 1: Language Proficiency Assessment	Excursion to Warwick Castle	Excursion to Stratford-upon-Avon	
5.30-6.30pm	Guided tours of Wroxall Abbey Estate			
6.30-8.00pm	Oral session 2: Pronunciation Training & Assessment (1)	Demo session 1		
8.00pm	Dinner	Dinner	Dinner	

Social Programme

Wroxall Abbey Estate History Talk and Tours - Thursday 3rd September, 5.30 – 6.30pm

Tony Carr, one of the ministers responsible for Wroxall Abbey Estate Chapel, will give a presentation on the history of Wroxall Abbey Estate. The talk will take place in the Chapel and will be followed by group tours of the estate.

Visit to Warwick Castle – Friday 4th September, 3.30 – 6.30pm

An executive coach and English speaking guide would meet the guests at Wroxall Abbey and depart for a visit to England's finest Medieval Castle

This breathtaking monument rises majestically above the banks of the River Avon. First fortified by William the Conqueror in 1068, it spans nine centuries of war and peace, turmoil and calm, upheaval and progress. Down through the years, the Castle has echoed to the sound of feast days, of lavish entertainments, of high society dinners. The guests will enjoy a guided tour which includes the magnificent Great Hall and State Apartments, with Madame Tussaud's "Royal Weekend House Party" and the Kingmaker attraction.

Visit to Stratford-on-Avon – Saturday 5th September, 4.00 – 8.00pm

An executive coach and English speaking guide would meet the guests at Wroxall Abbey and depart for a guided tour of Stratford-upon-Avon where they would be met by two English speaking guides for a walking tour of the town centre.

A small, old Elizabethan town on the gently-flowing River Avon, Stratford is famous as the birthplace of the Immortal Bard, William Shakespeare, born there in 1564. The charming town centre boasts an extensive array of 16th and 17th century buildings, with rows of half-timbered houses, including Shakespeare's Birthplace on Henley Street. Stratford is also well known as a stage for Shakespeare's works and is home to the Royal Shakespeare Company.

The experienced Guides will point out the many places of interest, including the five Shakespeare Houses, the three Royal Shakespeare Company theatres, the Church where the Bard is buried, Shakespeare's School, Harvard House, the Guild Chapel and other historic buildings of interest.

The guides would leave the guests after the tour and the coach would return them to Wroxall Abbey at 20:00

THURSDAY 3RD SEPTEMBER 2009

Thu 3/9/09 14:30 Welcome

Martin Russell

Thu 3/9/09 14:40 – 16:10 Oral 1

VIRTUAL TUTORS AND GAMES

Chair: Mari Ostendorf

14:40 Chair's Introduction

14:50 [O1.1] *Alicia Sagae, Baylor Wetzel, Andre Valente, W. Lewis Johnson*, "Culture-Driven Response Strategies for Virtual Human Behavior in Training Systems" [[PDF](#)]

15:10 [O1.2] *Brandon Yoshimoto, Ian McGraw, Stephanie Seneff*, "Rainbow Rummy: A Web-based Game for Vocabulary Acquisition using Computer-directed Speech" [[PDF](#)]

15:30 [O1.3] *Preben Wik, Rebecca Hincks, Julia Hirschberg*, "Responses to Ville: A virtual language teacher for Swedish" [[PDF](#)]

15:50 [O1.4] *Joost van Doremalen, Helmer Strik, Catia Cucchiari*, "Utterance Verification in Language Learning Applications" [[PDF](#)]

16:10 – 16:25 Tea and Coffee

Thu 3/9/09 16:25 – 17:50 Poster 1

LANGUAGE PROFICIENCY ASSESSMENT

Chair: Helmer Strik

16:00 – 16:20 Introduction to poster session 1

16:20 – 17:30 Posters

[P1.1] *Jared Bernstein, Masanori Suzuki, Jian Cheng, & Ulrike Pado*, "Evaluating Diglossic Aspects of an Automated Test

of Spoken Modern Standard Arabic" [[PDF](#)]

[P1.2] *Ingunn Amdal, Magne H. Johnsen, Eivind Versvik*, "Automatic evaluation of quantity contrast in non-native Norwegian speech" [[PDF](#)]

[P1.3] *Klaus Zechner*, "What did they actually say? Agreement and Disagreement among Transcribers of Non-Native Spontaneous Speech Responses in an English Proficiency Test" [[PDF](#)]

[P1.4] *Pieter Müller, Febe de Wet, Christa van der Walt & Thomas Niesler*, "Automatically assessing the oral proficiency of proficient L2 speakers" [[PDF](#)]

[P1.5] *Jian Cheng, Brent Townshend*, "A Rule-Based Language Model for Reading Recognition" [[PDF](#)]

[P1.6] *Dean Luo, Nobuaki Minematsu, Yutaka Yamauchi and Keikichi Hirose*, "Analysis and Comparison of Automatic Language Proficiency Assessment between Shadowed Sentences and Read Sentences" [[PDF](#)]

Thu 3/9/09 17:50 – 18:40

Talk on the history of Wroxall Abbey Estate

Thu 3/9/09 18:40 – 20:00 Oral 2

PRONUNCIATION TRAINING & ASSESSMENT (1)

Chair: Björn Granström

18:40 [O2.1] *Florian Hönig, Anton Batliner, Karl Weilhammer, Elmar Nöth*, "Islands of Failure: Employing word accent information for pronunciation quality assessment of English L2 learners" [[PDF](#)]

19:00 [O2.2] *Alissa M. Harrison, Wai-kit Lo, Xiao-jun Qian, Helen Meng*,

“Implementation of an Extended Recognition Network for Mispronunciation Detection and Diagnosis in Computer-Assisted Pronunciation Training” [\[PDF\]](#)

19:20 [O2.3] *Sandra Kanters, Catia Cucchiarini, Helmer Strik*, “The Goodness of Pronunciation Algorithm: a Detailed Performance Study” [\[PDF\]](#)

19:40 [O2.4] *Preben Wik, David Lucas Escribano*, “Say ‘Aaaaa’ Interactive Vowel Practice for Second Language Learning” [\[PDF\]](#)

Thu 3/9/09 20:00 Dinner at Wroxall Abbey

FRIDAY 4TH SEPTEMBER 2009

Fri 4/9/09 09:00 – 10:30 Oral 3

CREATION & ASSESSMENT OF CONTENT FOR SLaTE

Chair: Martin Russell

09:00 Chair’s introduction

09:10 [O3.1] *Yushi Xu, Anna Goldie, Stephanie Seneff*, “Automatic Question Generation and Answer Judging: A Q&A Games for Language Learning” [\[PDF\]](#)

09:30 [O3.2] *Julie Medero, Mari Ostendorf*, “Analysis of Vocabulary Difficulty Using Wiktionary” [\[PDF\]](#)

09:50 [O3.3] *Juan Pino, Maxine Eskenazi*, “Semi-automatic Generation of Cloze Question Distractors: Effect of Students’ L1” [\[PDF\]](#)

10:10 [O3.4] *Luís Marujo, José Lopes, Nuno Mamede, Isabel Trancoso, Juan Pino, Maxine Eskenazi, Jorge Baptista, Céu Viana*, “Porting REAP to European Portuguese” [\[PDF\]](#)

10:30-11:00 Tea and Coffee

Fri 4/9/09 11:00 – 12:45 Poster 2

PRONUNCIATION TRAINING & ASSESSMENT (2)

Chair: Isabel Trancoso

11:00 – 11:20 Introduction to poster session 2

11:20 – 13:00 Posters

[P2.1] *Helmer Strik, Frederik Cornillie, Jozef Colpaert, Joost van Doremalen, Catia Cucchiarini*, “Developing a CALL System for Practicing Oral Proficiency: How to Design for Speech Technology, Pedagogy and Learners” [\[PDF\]](#)

[P2.2] *Hansjörg Mixdorff, Daniel Külls, Hussein Hussein, Gong Shu, Hu Guoping, Wei Si*, “Towards a Computer-aided Pronunciation Training System for German Learners of Mandarin” [\[PDF\]](#)

[P2.3] *William R. Rodríguez, Eduardo Lleida*, “Formant Estimation in Children’s Speech and its application for a Spanish Speech Therapy Tool” [\[PDF\]](#)

[P2.4] *Natalia Cylwik, Agnieszka Wagner, Grażyna Demenko*, “The EURONOUNCE corpus of non-native Polish for ASR-based Pronunciation Tutoring System” [\[PDF\]](#)

[P2.5] *Hiroyuki Obari, Hiroaki Kojima, Machi Okumura, Masahiro Yoshikawa, Shuichi Itahashi*, “Investigating the Effectiveness of Pronest to Train English Proficiency” [\[PDF\]](#)

[P2.6] *Oscar Saz, Victoria Rodríguez, Eduardo Lleida, W.-R. Rodríguez, C. Vaquero*, “An Experience with a Spanish Second Language Learning Tool in a Multilingual Environment” [\[PDF\]](#)

Fri 4/9/09 14:00 – 15:30 Oral 4

PRONUNCIATION TRAINING & ASSESSMENT (3)

Chair: Maxine Eskenazi

- 14:00 Chair's introduction
- 14:10 [O4.1] *Lei Chen*, "Audio Quality Issue for Automatic Speech Assessment" [\[PDF\]](#)
- 14:30 [O4.2] *Shizhen Wang, Patti Price, Yi-Hui Lee and Abeer Alwan*, "Measuring Children's Phonemic Awareness through Blending Tasks" [\[PDF\]](#)
- 14:50 [O4.3] *Minh Duong Jack Mostow*, "Detecting Prosody Improvement in Oral Rereading" [\[PDF\]](#)
- 15:10 [O4.4] *Alexander Gruenstein, Ian McGraw, Andrew Sutherland*, "A Self-Transcribing Speech Corpus: Collecting Continuous Speech with an Online Educational Game" [\[PDF\]](#)

15:30 – 15:45 Tea and Coffee**Fri 4/9/09 15:45 – 18:30****Excursion to Warwick Castle**

- 15:45 Coach leaves for Warwick Castle
- 16:00 – 18:00 Tours of Warwick Castle
- 18:30 return to Wroxall Abbey

Fri 4/9/09 18:30 – 20:00 Demo 1

- [D1.1] "Japanese CALL system based on Dynamic Question Generation and Error Prediction for ASR", *Tatsuya Kawahara, Hongcui Wang, Yasushi Tsubota and Masatake Dantsuji*, Kyoto University, Japan
- [D1.2] "Development of a CALL System to Enhance ESL/EFL Learners' Skills of Shadowing and Reading Aloud", *Dean Luo¹, Nobuaki Minematsu¹, Yutaka Yamauchi²*, ¹The University of Tokyo ²Tokyo International University
- [D1.3] "Computer Aided Pronunciation Training (CAPT) System "AZAR"", *Michael Beilig*

- [D1.4] "Spoken dialog systems for learning foreign language communication skills", *Andre Valente and W. Lewis Johnson*, Alelo Inc
- [D1.5] "Langofone - Language learning in your pocket", *Preben Wik*, Center for Speech Technology (CTT), Dept. Speech, Music and Hearing, KTH, Stockholm, Sweden
- [D1.6] "COMUNICA: MULTILEVEL TOOLS FOR SPANISH CALL", *Oscar Saz, W.-Ricardo Rodriguez, Eduardo Lleida, Carlos Vaquero*, Communications Technology Group (GTC), Aragón Institute for Engineering Research (I3A), University of Zaragoza, Zaragoza, Spain
- [D1.7] "Pronunciation Evaluation System for Oral English Testing and Oral Chinese Testing", *Si Wei*
- 20:00 Dinner at Wroxall Abbey

SATURDAY 5TH SEPTEMBER 2009**Sat 5/9/09 09:00 – 10:30 Poster 3****TOPICS IN SLaTE (1)**

- Chair: Nuno Mamende
- 09:00 – 09:20 Introduction to poster session 3
- 09:20 – 10:30 Posters
- [P3.1] *Grażyna Demenko, Agnieszka Wagner, Natalia Cylwik and Oliver Jokisch*, "An Audiovisual Feedback System for Acquiring L2 Pronunciation and L2 Prosody" [\[PDF\]](#)
- [P3.2] *Rebecca Hincks, Jens Edlund*, "Using speech technology to promote increased pitch variation in oral presentations" [\[PDF\]](#)
- [P3.3] *Zöe Handley, Mike Sharples, Dave Moore*, "Training Novel Phonemic

- Contrasts: A Comparison of Identification and Oddity Discrimination Training" [\[PDF\]](#)
- [P3.4] *Angela M. Wigmore, Gordon J.A. Hunter, Eckhard Pflügel and James Denholm-Price*, "TalkMaths : A Speech User Interface for Dictating Mathematical Expressions into Electronic Documents" [\[PDF\]](#)
- [P3.5] *Liu Liu, Jack Mostow, and Gregory Aist*, "Automated Generation of Example Contexts for Helping Children Learn Vocabulary" [\[PDF\]](#)
- [P3.6] *Khe Chai Sim*, "Improving Phone Verification Using State-level Posterior Features and Support Vector Machine for Automatic Mispronunciation Detection" [\[PDF\]](#)
- 10:30-11:00 Tea and Coffee**
- Sat 5/9/09 11:00 – 12:45 Demo 2**
- [D2.1] "Structure-based pronunciation assessment", *Nobuaki Minematsu and Masayuki Suzuki*
- [D2.2] "Voice Race and Voice Scatter: Online Educational Games for Collecting Orthographically-Labeled Speech Data", *Alexander Gruenstein, Ian McGraw, and Andrew Sutherland*
- [D2.3] "REAP.PT, a tutoring system for teaching Portuguese", *L. Marujo, J. Lopes, N. Mamede, I. Trancoso, J. Pino, M. Eskenazi, J. Baptista, C. Viana*
- [D2.4] "Virtual Chinese Tutor (VCT) - A Chinese Language Pronunciation Learning Software", *Yow-Bang Wang^{1,2}, Hsin-Min Wang¹, Lin-Shan Lee^{1,2}*, ¹Institute of Information Science, Academia Sinica, ²Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan, R.O.C.
- [D2.5] "Automatic assessment of non-native prosody", *Florian Hönig, Anton Batliner, Karl Weilhammer, Elmar Nöth*
- [D2.6] "A Spoken Dialog System for Learners of English", *Karl Weilhammer, Catharine Oertel, Robin Siegemund, Ricardo Sá, Anton Batliner, Florian Hönig und Elmar Nöth*
- [D2.7] "CLIMB LEVEL 4 – teaching English for aviation safety", *Maxine Eskenazi, Gary Pelton, Carnegie Speech Company*
- Sat 5/9/09 12.45 – 13.45 Lunch**
- Sat 5/9/09 13:45 – 15:00 Oral 5**
- TOPICS IN SLaTE (2)**
- Chair: Stephanie Seneff
- 13:45 Chair's Introduction
- 14:00 [O5.1] *Masayuki Suzuki, Luo Dean, Nobuaki Minematsu, Keikichi Hirose*, "Improved Structure-based Automatic Estimation of Pronunciation Proficiency" [\[PDF\]](#)
- 14:20 [O5.2] *Gregory Aist and Jack Mostow*, "Predictable and Educational Spoken Dialogues: Pilot Results" [\[PDF\]](#)
- 14:40 [O5.3] *John Ingram, Hansjörg Mixdorff and Nahyun Kwon*, "Voice morphing and the manipulation of intra-speaker and cross-speaker phonetic variation to create foreign accent continua: A perceptual study" [\[PDF\]](#)
- Sat 5/9/09 15:00**
- SLaTE General Assembly**
- 15:30 – 16:00 Tea and Coffee**
- Sat 5/9/09 16:00**
- Walking tour of Stratford-upon-Avon**
- 20.00 Return to Wroxall Abbey