Interactive Spoken Dialog Systems: Bringing Speech and NLP Together in Real Applications

Proceedings of a Workshop
Sponsored by the
Association for Computational Linguistics

Edited by
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and
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ACL/EACL Workshop on Spoken Dialogue Systems

Message from the Organizing Committee

Welcome to the ACL/EACL Workshop on Interactive Spoken Dialogue Systems. Recent advances in speech technologies, natural language processing, and dialogue modeling have made it possible to build dialogue agents for a wide range of applications from voice dialing to accessing information about the weather, train schedules, cultural events or local restaurants. However, there is little research on the integration of component technologies required for these agents. The purpose of this workshop is to bring together researchers in text-to-speech, ASR, NLP, generation and dialogue modeling as well as people who are building spoken dialogue systems, to address some of the challenges involved in this integration.

Topics for the workshop include:

- Automatic Speech Recognition
- Text-to-Speech Synthesis
- Dialogue Modelling
- Dialogue Strategies
- Evaluation of Spoken Dialogue Systems
- Usability and Portability

We would like to thank the members of the Program Committee - Rolf Carlson, Norman, Fraser, Lori Lamel, Jacques Terken - and also Hiyan Alshawi, Diane Litman and Don Hindle for their work in reviewing the submissions to the workshop. We are indebted to our invited speakers, Alex Acero, Marian Macchi, and James Allen, for providing tutorials on primary technologies influencing spoken dialog systems. We would also like to thank the our invited panelists for their contributions to the Workshop Program. We are sure that these efforts, combined with the active participation of the workshop attendees, will make this workshop a venue for stimulating discussion and fruitful interchange of ideas and information.

Julia Hirschberg, AT&T Labs Research
Candace Kamm, AT&T Labs Research
Marilyn Walker, AT&T Labs Research

ACL/EACL Workshop on Spoken Dialogue Systems

Madrid, Spain - July 11-12, 1997

Program

Friday, July 11

0900-1000 **Tutorial: Automatic Speech Recognition**

A. Acero, Microsoft, Redmond, WA, USA

1000-1100 **Tutorial: Text-to-Speech Synthesis**

M. Macchi, Bellcore, Morristown, NJ, USA

1100-1130 **Break**

1130-1230 **Tutorial: Dialogue Modelling**

J. Allen, University of Rochester, Rochester, NY, USA

1230-1400 **Lunch**

1400-1530 **Paper Session: Evaluation**

Evaluating Interactive Dialogue Systems: Extending Component Evaluation to Integrated System Evaluation, M. A. Walker, D. J. Litman, C. A. Kamm & A. Abella, AT&T Labs Research, Florham Park, NJ, USA

A Generic Template to Evaluate Integrate Components in Spoken Dialogue Systems, G. E. Churcher, E. S. Atwell, and C. Souter, CCALAS, The University of Leeds, Leeds, Yorkshire, England

Generality and Objectivity: Central Issues in Putting a Dialogue Evaluation Tool into Practical Use, L. Dybkjaer, N. O. Bernsen, and H. Dybkjaer, Center for Cognitive Science, Roskilde University, Roskilde, Denmark

1530-1600 **Break**

1600-1800 **Poster Session**

An Object-Oriented Model for the Design of Cross-Domain Dialogue Systems, I. M. O'Neill and M. F. McTear, University of Ulster at Jordanstown, Northern Ireland

Automatic Lexicon Enhancement by Means of Corpus Tagging, F. Bechet, T. Spriet, and M. El-Beze, Laboratoire Informatique d'Avignon, France

Clarification Dialogues as Measures to Increase Robustness in a Spoken Dialogue System, E. Maier, N. Reithinger, and J. Alexandersson, DFKI GmbH, Saarbruecken, Germany

Performance Measures for the Next Generation of Spoken Natural Language Dialogue Systems, R. W. Smith, East Carolina University, Greenville, NC, USA

Message-to-Speech: A practical compromise between Concept-to-Speech and Text-to-Speech Strategies for dialogue systems, P. Spyns (1), F. Deprez (1), L. Van Tichelen (1), and B. Van Coile (1,2), Lernout & Hauspie Speech Products, Ieper, Belgium (1) and E.L.I.S., University of Gent, Gent, Belgium (2)

Turn off the Radio and Call Again: How Acoustic Clues can Improve Dialogue Management, C. Lieske, Ecole Polytechnique Federale Lausanne

Context Modeling for Language and Speech Generation, K. van Deemter, Philips Research Laboratories, Eindhoven, The Netherlands

Planning Efficient Mixed Initiative Dialogue, E. Hagen, Deutsche Telekom, Darmstadt, Germany and B. Grote, Otto-von-Guericke Universitaet Magdeburg, Magdeburg, Germany

A Robust Dialogue System with Spontaneous Speech Understanding and Cooperative Response, T. Itoh, A. Denda, S. Kogure, and S. Nakagawa, Toyohashi University of Technology, Aichi-ken, Japan

Closing Troubleshooting Segments in User-System Dialogue, D. Duff, F. Reeder, and S. Luperfoy, The MITRE Corporation, McLean, VA, USA.

Saturday, July 12

0900-1030 **Paper Session: Automatic Speech Recognition**

The "Casual Cashmere Diaper Bag": Constraining Speech Recognition using Examples, P. Martin, Sun Microsystems Laboratories, Chelmsford, MA, USA

Grammatical Analysis in the OVIS Spoken Dialogue System, M.-J. Nederhof, G. Bouma, R. Koeling, and G. van Noord, University of Groningen, Groningen, The Netherlands

Filtering Errors and Repairing Linguistic Anomalies for Spoken Dialogue Systems, D. Roussel (1,2) and A. Halber, (1,3), Thomson-CSF Laboratoire Central de Recherches, Orsay Cedex (1), Laboratoire CLIPS IMAG, Grenoble (2), and Dept Signal, ENST, Paris (3), France

1030-1100 **Break**

1100-1230 **Paper Session: Usability/Portability**

How To Obey the 7 Commandments for Spoken Dialogue?, E. Krahmer, J. Landsbergen, and X. Pouteau, IPO, Eindhoven, The Netherlands

Towards a "PURE" Spoken Dialogue System for Information Access, R. Agarwal, Texas Instruments, Inc., Dallas, TX, USA

A Programmable Multi-Blackboard Architecture for Dialogue Processing Systems, M. Denecke, Interactive Systems Laboratories, Carnegie Mellon University, Pittsburgh, PA, USA

1230-1400 **Lunch**

1400-1530 **Paper Session: Dialogue Strategies**

Corpus-based Information Presentation for a Spoken Public Transport System, M. M. M. Rats, R. J. van Vark, and J. P. M. de Vreught, Delft University of Technology, Delft, The Netherlands

Dialogue Strategies for Improving the Naturalness of Telephone Human-Machine Communication, M. Danieli and E. Gerbino, CSELT, Torino, Italy, and L. Moisa, ICI, Bucharest, Romania.

Speech-Graphics Dialogue Systems, A. W. Biermann, M. S. Fulkerson, and G. A. Keim, Duke University, Durham, NC, USA

1530-1600 **Break**

1600-1730 **Dialogue Systems of the Future: Panel and Demonstrations**

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