

Alex Waibel

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Professional Preparation

Massachusetts Institute of Technology	Electrical Engineering	B.S. 1979
Carnegie Mellon University	Electrical Engineering & Computer Science	M.S. 1980
Carnegie Mellon University	Computer Science	Ph.D. 1986

Alex Waibel is a Professor of the School of Computer Science, at Carnegie Mellon University, USA and a University Professor at the Computer Science Department at University of Karlsruhe, Germany. He directs the Interactive Systems Laboratories at both Universities. At Carnegie Mellon, Dr. Waibel holds joint appointments in the Computer Science Department, the Human Computer Interaction Institute and the Language Technology Institute. He also serves as Director of the Language Technology PhD Program and as Associate Director of the Language Technology Institute. He also serves on the steering committee of the Human Computer Interaction Institute.

Professor Waibel's research interests include multimodal interfaces, speech recognition, handwriting recognition, human computer interaction, machine translation, and machine learning. From May, 1987 to July, 1988, he has worked as Senior Research Scientist at the ATR Interpreting Telephony Research Laboratories in Osaka, Japan, where he initiated research in neural computation and its application to speech translation. His efforts in speech translation led to the development of JANUS, one of the first and most advanced speech-to-speech translation systems to date. He has also started the INTERACT project at CMU, an effort aimed at building more flexible and natural multimodal Human Computer Interfaces.

Dr. Waibel was one of the founders and now serves as the Chairman of C-STAR, the Consortium for Speech Translation Research, which now includes more than 20 major international companies and research institutes interested in Speech Translation. He also co-directs Verbmobil, a large German research initiative centered around speech translation systems, sponsored by the German Ministry for Science and Technology. He has published over 150 articles. Dr. Waibel served on government steering committees and advisory panels at DARPA, NSF in the US and BMBF in Germany and served as referee for a number of journals, conferences and granting agencies. He was a member of the Technical Committee of the IEEE ASSP society. He was awarded the MIT Guillemin award (1979), the IEEE Signal Processing Society's Senior best paper award (1991), the ATR paper award (1990), and the "1994 Alcatel SEL Research Award" for work on speech translation and innovative technologies improving human communication.

Five Publications Related to this Proposal:

"Multimodal Interfaces," A. Waibel, M.T. Vo, P. Duchnowski, and S. Manke, *Artificial Intelligence Review*, 1995.

Recognition of Conversational Telephone Speech Using the JANUS Speech Engine. T. Zeppenfeld, M. Finke, K. Ries, M. Westphal, A. Waibel. IEEE Proceedings of the 1997 International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Muenchen, Germany, 1997.

“CLARITY: Inferring Discourse Structure From Speech”, M. Finke, M. Lapata, A. Lavie, L. Levin, L. Tomokiyo, T. Polzin, K. Ries, A. Waibel, K. Zechner. AAAI’98 Spring Symposium Series, March 23-25, 1998, Stanford University, California.

“Tracking Eyes and Monitoring Eye Gaze”, R. Stiefelhagen, J. Yang, A. Waibel . Proceedings of PUI97 (Banff, Alberta, Canada).

“NPen++: A Writer Independent, Large Vocabulary On-Line Cursive Handwriting Recognition System,” S. Manke, M. Finke, and A. Waibel, Proceedings of *the International Conference on Document Analysis and Recognition*, 1995.

Five Other Publications:

“Translation of Conversational Speech”, A. Waibel, *IEEE Computer*, Vol. 29, No. 7, pp. 41-48, 1996.

The Challenge of Spoken Language Systems: Research Directions for the Nineties, A. Waibel et al., *IEEE Transactions on Speech and Audio Processing*, Vol.3, No.1, January 1995.

A real-time fact tracker. J. Yang and A. Waibel. Proceedings of the Third IEEE Workshop on Applications of Computer Vision, pp. 142-147, Sarasota, Florida, 1996.

Multimodal Interfaces for Multimedia Information Agents. A. Waibel, B. Suhm, M.T. Vo and J. Yang. *IEEE Proceedings of the 1997 International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Muenchen, Germany, 1997.

“Detecting Emotions in Speech”, T. Polzin and A. Waibel. Cooperative Multimodal Communication CMC’98. January 28-30, 1998 Tilbury.

Collaborators

We have close collaborations with research groups worldwide, particularly, under C-STAR joint work with groups in the US, Europe and Japan. Under NSF, we have collaborated with Dr. Ron Cole at OGI. Under DARPA, we have collaborated with MITRE, ISX, and SAIC. At CMU, with a number of people, including Dan Olsen, Jaime Carbonell and Howard Wactlar.

Ph.D. students (30 graduated and in progress): Jain (1991), Tebelskis (1995), Vo (1998), Wang (1998), Polzin (1998), Bodenhausen (1994), Manke(1998), Hild (1997), Rogina (1997), Woszczyna (1998), Buo (1996), Geutner (1999), Suhm (1998), Minker (1997), Kemp (1999), Finke (present), Gavalda (2000), Ries (present), Maier (2000), Zechner (present), Yu(present), Fritsch (1999), Stiefelhagen(present).

Ph.D. Thesis Committees (9): Lang (88), Lee(88), Lin(92), Witbrock(95), Zhang(94), Chase(97), Kreuziger(94), Kollnig(95), Prechelt(95). **External Ph.D Thesis committee (4):** Watrous (88), Mathan (91), Devillier (92), Haffner (94).

My Graduate Advisors: Bachelor's advisor at MIT: Jon Allen. Ph.D. advisors at CMU: Raj Reddy.