

ANDREAS STOLCKE

Speech Technology and Research Laboratory
SRI International
333 Ravenswood Ave.
Menlo Park, CA 94025
Phone (510) 666-2969
Fax (510) 666-2956
Email stolcke@speech.sri.com

Education

1994	Ph.D.	(Computer Science) University of California at Berkeley Dissertation: <i>Bayesian Learning of Probabilistic Language Models</i>
1988	Diplom	(Computer Science) Technische Universität, Munich, Germany

Research Experience

2000–present	Senior Visiting Researcher, International Computer Science Institute, Berkeley, CA
1994–present	Senior Research Engineer, Speech Technology and Research Laboratory, SRI International, Menlo Park, CA
Summer 1996	Project Lead, <i>Dependency Language Modeling</i> , Workshop on Innovative Techniques in Speech Recognition, Johns Hopkins University
1994	Post-Doctoral Researcher, International Computer Science Institute, Berkeley, CA

Research Interests

Machine learning and probabilistic modeling for natural language processing, speech recognition, and speaker recognition. Special interests: language modeling, pronunciation and prosody modeling, speaker modeling, multi-party dialog, grammar induction, efficient algorithms and model combination.

Editorial and Other Service

2003–2006	Co-Editor, <i>Computer Speech and Language</i>
2005	Organizer, IEEE ICASSP Special Session on Human Language Technology
2000–2002	Associate Editor, <i>IEEE Transactions on Speech and Audio Processing</i>
1997–1999	Editorial Board, <i>Computational Linguistics</i>
1996–1997	Editorial Board, <i>Free Speech Journal</i> Reviewer for the above journals, as well as <i>Machine Learning, Language and Speech</i> , <i>Journal of AI Research</i> , ACL and NAACL conferences, 1995 Machine Learning Conference
1995–present	Author and maintainer of <i>SRILM</i> , a widely used open-source toolkit for statistical language modeling

Representative Publications

1. A. Mandal, M. Ostendorf, & A. Stolcke (2009), Improving robustness of MLLR adaptation with speaker-clustered regression class trees. *Computer Speech and Language* 23(2), 176–199.
2. A. Stolcke *et al.* (2008), The SRI-ICSI Spring 2007 Meeting and Lecture Recognition System. In R. Stiefelhagen, R. Bowers, & J. Fiscus (eds.), *Multimodal Technologies for Perception of Humans*.

International Evaluation Workshops CLEAR 2007 and RT 2007, Springer LNCS vol. 4625, pp. 450–463.

3. A. Stolcke, S. Kajarekar, L. Ferrer, & E. Shriberg (2007), Speaker Recognition with Session Variability Normalization Based on MLLR Adaptation Transforms. *IEEE Trans. on Audio, Speech, and Language Processing* 15(7), 1987–1998.
4. I. Bulyko, M. Ostendorf, M. Siu, T. Ng, A. Stolcke, & Ö. Çetin (2007), Web resources for language modeling in conversational speech recognition. *ACM Trans. on Speech and Language Processing* 5(1), Article 1, 25 pages.
5. A. Stolcke *et al.* (2006), Recent Innovations in Speech-to-Text Transcription at SRI-ICSI-UW. *IEEE Trans. Audio, Speech and Language Processing* 14(5), 1729–1744.
6. Y. Liu, E. Shriberg, A. Stolcke, D. Hillard, M. Ostendorf, & M. Harper (2006), Enriching Speech Recognition with Automatic Detection of Sentence Boundaries and Disfluencies. *IEEE Trans. Audio, Speech and Language Processing* 14(5), 1526–1540.
7. Y. Liu, N. V. Chawla, M. P. Harper, E. Shriberg, & A. Stolcke (2006), A study in machine learning from imbalanced data for sentence boundary detection in speech. *Computer Speech and Language* 20(4), 468–494.
8. K. Kirchhoff, D. Vergyri, J. Bilmes, K. Duh, & A. Stolcke (2006), Morphology-based language modeling for conversational Arabic speech recognition. *Computer Speech and Language* 20(4), 589–608.
9. M. Graciarena, E. Shriberg, A. Stolcke, F. Enos, J. Hirschberg, & S. Kajarekar (2006), Combining Prosodic, Lexical and Cepstral Systems for Deceptive Speech Detection. *Proc. IEEE ICASSP*, vol. 1, pp. 1033–1036, Toulouse.
10. E. Shriberg, L. Ferrer, S. Kajarekar, A. Venkataraman, & A. Stolcke (2005), Modeling Prosodic Feature Sequences for Speaker Recognition. *Speech Communication* 46(3-4), 455–472.
11. W. Wang, A. Stolcke, & M. P. Harper (2004), The Use of a Linguistically Motivated Language Model in Conversational Speech Recognition. *Proc. IEEE Intl. Conf. on Acoustics, Speech and Signal Processing*, vol. 1, pp. 261–264, Montreal.
12. J. Zheng, H. Franco, & A. Stolcke (2003), Modeling word-level rate-of-speech variation in large vocabulary conversational speech recognition. *Speech Communication* 41(2-3), 273–285.
13. S. Kajarekar, L. Ferrer, A. Venkataraman, K. Sonmez, E. Shriberg, A. Stolcke, & R. R. Gadde (2003), Speaker Recognition using Prosodic and Lexical Features. *Proc. IEEE Speech Recognition and Understanding Workshop*, pp. 19–24, St. Thomas, U.S. Virgin Islands.
14. D. Vergyri, A. Stolcke, V. R. R. Gadde, L. Ferrer, & E. Shriberg (2003), Prosodic Knowledge Sources for Automatic Speech Recognition. *Proc. IEEE Intl. Conf. on Acoustics, Speech and Signal Processing*, vol. 1, pp. 208–211, Hong Kong.
15. V. R. Rao Gadde, A. Stolcke, D. Vergyri, J. Zheng, K. Sonmez, & A. Venkataraman (2002), Building an ASR System for Noisy Environments: SRI’s 2001 SPINE Evaluation System. *Proc. Intl. Conf. on Spoken Language Processing*, vol. 3, pp. 1577–1580, Denver.
16. A. Stolcke (2002), SRILM—An Extensible Language Modeling Toolkit. *Proc. Intl. Conf. on Spoken Language Processing*, vol. 2, pp. 901–904, Denver.

17. G. Tur, D. Hakkani-Tur, A. Stolcke, & E. Shriberg (2001), Integrating Prosodic and Lexical Cues for Automatic Topic Segmentation, *Computational Linguistics* 27(1), 31–57.
18. L. Mangu, E. Brill, & A. Stolcke (2000), Finding consensus in speech recognition: word error minimization and other applications of confusion networks, *Computer Speech and Language* 14(4), 373–400.
19. E. Shriberg, A. Stolcke, D. Hakkani-Tur, & G. Tur (2000), Prosody-Based Automatic Segmentation of Speech into Sentences and Topics, *Speech Communication* 32(1–2), 127–154.
20. A. Stolcke, K. Ries, N. Coccaro, E. Shriberg, R. Bates, D. Jurafsky, P. Taylor, R. Martin, C. Van Ess-Dykema, & M. Meteer (2000), Dialogue Act Modeling for Automatic Tagging and Recognition of Conversational Speech, *Computational Linguistics* 26(3), 339–373.
21. A. Stolcke (1998), Entropy-based Pruning of Backoff Language Models. *Proc. DARPA Broadcast News Transcription and Understanding Workshop*, pp. 270–274, Lansdowne, VA.
22. A. Stolcke (1995), An Efficient Probabilistic Context-Free Parsing Algorithm that Computes Prefix Probabilities. *Computational Linguistics* 21(2), 165-201.
23. A. Stolcke & S. Omohundro (1994), Inducing Probabilistic Grammars by Bayesian Model Merging. In *Grammatical Inference and Applications*, R. C. Carrasco & J. Oncina (eds.), Springer, pp. 106–118.
24. C. Wooters & A. Stolcke (1994), Multiple-Pronunciation Lexical Modeling in a Speaker-Independent Speech Understanding System. *Proc. Intl. Conf. on Spoken Language Processing*, 1363–1366, Yokohama.
25. A. Stolcke & J. Segal (1994), Precise N-gram Probabilities from Stochastic Context-free Grammars. *Proc. ACL*, pp. 74–79, Las Cruces, NM.

Professional Honors and Memberships

2003	<i>Computer Speech and Language</i> Paper Award (with L. Mangu and E. Brill)
1989-1992	IBM Graduate Fellowship
Since 2000	Member and (since 2011) Fellow, IEEE and IEEE Signal Processing Society
Since 1992	Member, Association for Computational Linguistics