

Alon Lavie

Curriculum Vitae

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Business Address: Language Technologies Institute
Carnegie Mellon University
5000 Forbes Ave
Pittsburgh, PA 15213
Phone: (412) 268-5655
Fax: (412) 268-6298
E-mail: alavie@cs.cmu.edu
Homepage: <http://www.cs.cmu.edu/~alavie>

Home Address: 5124 Beeler St
Pittsburgh, PA 15217
Phone: (412) 621-0933

Personal Data: Birthplace: Haifa, Israel
Birth date: August 24, 1961
Citizenship: Israel
Current US Immigration Status: Permanent Resident

Education

1989–1995 PhD in Computer Science (1996)
MS in Computer Science (1993)
School of Computer Science, Carnegie Mellon University
Dissertation Title: *GLR*: A Robust Grammar-Focused Parser
for Spontaneously Spoken Language*
Advisor: Masaru Tomita

1986–1989 MS in Computer Science (1990)
Computer Science Dept., Technion - I.I.T., Haifa, Israel
Dissertation Title: *The Applicability of Two Level Morphology
to the Inflection of Hebrew Verbs*
Advisors: Alon Itai and Uzzi Ornan

1983–1986 BA in Computer Science (1987), Summa Cum Laude
Computer Science Dept., Technion - I.I.T., Haifa, Israel

Educational Awards and Honors

1988	Henry and Miriam Gutwirth Scholarship, Technion
1984–1987	Technion Employee Memorial Foundation Award
1984, 1986	Technion President Outstanding Student Award, Technion
1985	Technion Dean of Computer Science Outstanding Student Award, Technion

Employment

1996–	Associate Research Professor (2003–), Research Scientist (1996–2003), Language Technologies Institute, Carnegie Mellon University <i>Directing research projects on parsing and machine translation of text and spoken language; advising seven PhD students and one MS student in the above areas; teaching LTI graduate-level courses (Algorithms for NLP, MT, Language Technologies, Grammar Formalisms, NLP Lab, MT Lab)</i>
1995–1996	Post-doctoral Fellow, Center for Machine Translation, Carnegie Mellon University <i>Senior member of the JANUS speech translation project, in charge of research on robust parsing, integration of speech and language processing, and speech translation evaluation methods.</i>
1990 (Jun–Aug)	IBM Scientific Center, Haifa, Israel. <i>Researcher in the Natural Language Processing Group. Involved in research on creating a morphological analyzer for Hebrew and statistical language modeling for machine translation.</i>
1989 (Mar–Aug)	IBM Scientific Center, Haifa, Israel. <i>Researcher in the Natural Language Processing Group. Involved in research on creating a morphological analyzer for Hebrew.</i>
1985–1986	Exatec Computers Ltd., Haifa, Israel. <i>System Programmer. Participated in the implementation of an operating system (MS-DOS) and system communication software for the EXATEC mini-computer. (Part time during undergraduate studies.)</i>
1983–1984	Process Control Laboratory, Chemical Engineering Dept., Technion, Haifa, Israel. <i>Programmer. Developed various simulation programs. (Part time during undergraduate studies).</i>

Publication List

Book Chapters

- 2008 Lavie, A., “Stat-XFER: A General Search-based Syntax-driven Framework for Machine Translation”. Invited paper in *Proceedings of CICLing-2008*, Haifa, Israel, February 2008. Gelbuch (ed.), Computational Linguistics and Intelligent Text Processing, LNCS 4919, Springer. Pages 362-375.
- 2005 Carbonell, J. G., A. Lavie, L. Levin and A. Black, “Language Technologies for Humanitarian Aid”. In *Technology for Humanitarian Action*, K. M. Cahill (ed.), pp. 111-138, Fordham University Press, ISBN 0-8232-2393-0, 2005.
- 2004 Lavie, A. and Rosé, C. P., “Optimal Ambiguity Packing in Context-Free Parsers with Interleaved Unification”. In *Current Issues in Parsing Technologies*, H. Bunt, J. Carroll and G. Satta (eds.). Text Speech and Language Technology Book Series (vol.23), Ch. 15, Kluwer Academic Press, ISBN 1-4020-2293-X, June 2004.
- 2001 Rosé, C.P. and A. Lavie. “Balancing Robustness and Efficiency in Unification-augmented Context-Free Parsers for Large Practical Applications”. In *Robustness in Language and Speech Technology*, van Noord and Junqua (eds.), ELSNET series, Kluwer Academic Press.
- 1997 Lavie, A., D. Gates, N. Coccaro and L. Levin. “Input Segmentation of Spontaneous Speech in JANUS: a Speech-to-speech Translation System”. In *Dialogue Processing in Spoken Language Systems: Revised Papers from ECAI-96 Workshop*, E. Maier, M. Mast and S. LuperFoy (eds.), LNCS series, Springer Verlag, June 1997.
- 1997 Gates, D., A. Lavie, L. Levin, A. Waibel, M. Gavaldà, M. Woszczyna and P. Zhan. “End-to-end Evaluation in JANUS: a Speech-to-speech Translation System”. In *Dialogue Processing in Spoken Language Systems: Revised Papers from ECAI-96 Workshop*, E. Maier, M. Mast and S. LuperFoy (eds.), LNCS series, Springer Verlag, June 1997.
- 1997 Qu, Y., B. DiEugenio, A. Lavie, L. Levin and C.P. Rosé. “Minimizing Cumulative Error in Discourse Context”. In *Dialogue Processing in Spoken Language Systems: Revised Papers from ECAI-96 Workshop*, E. Maier, M. Mast and S. LuperFoy (eds.), LNCS series, Springer Verlag, June 1997.
- 1996 Lavie, A. and M. Tomita. “GLR* - An Efficient Noise-Skipping Parsing Algorithm for Context-Free Grammars”. In *Recent Advances in Parsing Technology*, H. Bunt and M. Tomita (eds.), Text Speech and Language Technology series (vol. 1), Kluwer Academic Press, August 1996.

Invited and Refereed Journal Publications

- 2006 Lavie, A., F. Pianesi and L. Levin, “The NESPOLE! System for Multilingual Speech Communication over the Internet”. In *IEEE Transactions on Speech and Audio Processing*, 14(5). September 2006. Pages 1664-1673.
- 2004 Han, B. and Lavie, A., “A Framework for Resultion of Time in Natural Language”. *ACM Transactions on Asian Language Information Processing (TALIP)*, 3(1). March 2004. Pages 11-32.
- 2003 Lavie, A., S. Vogel, L. Levin, E. Peterson, K. Probst, A. Font Llitjos, R. Reynolds, J. Carbonell, and R. Cohen. “Experiments with a Hindi-to-English Transfer-based MT System under a Miserly Data Scenario”. *ACM Transactions on Asian Language Information Processing (TALIP)* 2(2), June 2003. Pages 143-163.
- 2002 Probst, K., L. Levin, E. Peterson, A. Lavie, and J. Carbonell. “MT for Minority Languages Using Elicitation-Based Learning of Syntactic Transfer Rules”, *Machine Translation* 17(4) Pages 245-270.
- 2000 Levin, L., A. Lavie, M. Woszczyna and A. Waibel, “The Janus III Translation System: Speech-to-Speech Translation in Multiple Domains”, *Machine Translation* 15(1-2), pages 3–25.
- 1997 Waibel, A., A. Lavie and L. Levin. “JANUS: A System for Translation of Conversational Speech”. *Kuenstliche Intelligenz (KI)*, 97(4). (Invited system overview).
- 1994 Bates, J. and A. Lavie. “Recognizing Substrings of LR(k) Languages in Linear Time”. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 16(3), May 1994, pages 1051–1077.

Conference Proceedings

- 2007 Hewavitharana, S., A. Lavie and S. Vogel. “Experiments with a Noun-Phrase driven Statistical Machine Translation System”. In Proceedings of MT Summit XI, Copenhagen, Denmark, September 2007.
- 2007 Font-Llitjos, A., J. Carbonell and A. Lavie. “Improving Transfer-Based MT Systems with Automatic Refinements”. In Proceedings of MT Summit XI, Copenhagen, Denmark, September 2007.
- 2007 Monson, C., J. Carbonell, A. Lavie and L. Levin. “ParaMor: Finding Paradigms across Morphology”. In CLEF 2007 Working Notes: CLEF at Morpho Challenge 2007, Budapest, Hungary, September 2007.
- 2007 Lavie, A. and A. Agarwal. “METEOR: An Automatic Metric for MT Evaluation with High Levels of Correlation with Human Judgments”. In Proceedings of the Second Workshop on Statistical Machine Translation at the 45th Meeting of the Association for Computational Linguistics (ACL-2007), Prague, Czech Republic, June 2007. Pages 228–231.
- 2007 Sagae, K., E. Davis, A. Lavie, B. MacWhinney and S. Wintner. “High-accuracy Annotation and Parsing of CHILDES Transcripts”. In Proceedings of the Workshop on Cognitive Aspects of Computational Language Acquisition at the 45th Meeting of the Association for Computational Linguistics (ACL-2007), Prague, Czech Republic, June 2007. Pages 25–32.
- 2007 Monson, C., J. Carbonell, A. Lavie and L. Levin. “ParaMor: Minimally Supervised Induction of Paradigm Structure and Morphological Analysis”. In Proceedings of the Ninth Meeting of the ACL Special Interest Group in Computational Morphology and Phonology, Workshop held at the 45th Meeting of the Association for Computational Linguistics (ACL-2007), Prague, Czech Republic, June 2007. Pages 117–125.
- 2007 Szpektor, I., I. Dagan, A. Lavie, D. Shacham and S. Wintner. “Cross Lingual and Semantic Retrieval for Cultural Heritage Appreciation”. In Proceedings of the Workshop on Language Technology for Cultural Heritage Data at the 45th Meeting of the Association for Computational Linguistics (ACL-2007), Prague, Czech Republic, June 2007. Pages 65–72.
- 2006 Sagae, K. and A. Lavie. “A Best-First Probabilistic Shift-Reduce Parser”. In Proceedings of the 21st International Conference on Computational Linguistics and the 44th Meeting of the Association for Computational Linguistics - posters (COLING/ACL-2006), Sydney, Australia, July 2006. Pages 691–698.
- 2006 Sagae, K. and A. Lavie. “Parser Combination by Reparsing”. In Proceedings of the 2006 Human Language Technology Conference of the North American Chapter of the Association for Computational Linguistics - short papers (HLT-NAACL-2006). New York, NY, June 2006. Pages 129–132.
- 2005 Sagae, K. and A. Lavie. “A Classifier-Based Parser with Linear Run-Time Complexity”. In Proceedings of the 9th International Workshop on Parsing Technologies (IWPT-2005), Vancouver, Canada, October 2005. Pages 125–132.

- 2005 Lita, L. V., M. Rogati and A. Lavie. “BLANC: Learning Evaluation Metrics for MT” . In Proceedings of the Joint Conference on Human Language Technologies and Empirical Methods in Natural Language Processing (HLT/EMNLP-2005), Vancouver, Canada, October 2005. Pages 740–747.
- 2005 Sagae, K., A. Lavie and B. MacWhinney. “Automatic Measurement of Syntactic Development in Child Language”. In Proceedings of the 43th Annual Meeting of the Association of Computational Linguistics (ACL-2005), Ann Arbor, Michigan, June 2005.
- 2005 Banerjee, S. and A. Lavie. “METEOR: An Automatic Metric for MT Evaluation with Improved Correlation with Human Judgments”. In Proceedings of Workshop on Intrinsic and Extrinsic Evaluation Measures for MT and/or Summarization at the 43th Annual Meeting of the Association of Computational Linguistics (ACL-2005), Ann Arbor, Michigan, June 2005.
- 2005 Jayaraman, S. and A. Lavie. “Multi-Engine Machine Translation Guided by Explicit Word Matching”. In Companion Volume of Proceedings of the 43th Annual Meeting of the Association of Computational Linguistics (ACL-2005), Ann Arbor, Michigan, June 2005.
- 2005 Jayaraman, S. and A. Lavie. “Multi-Engine Machine Translation Guided by Explicit Word Matching”. In Proceedings of the 10th Annual Conference of the European Association for Machine Translation (EAMT-2005), Budapest, Hungary, May 2005.
- 2005 Font-Llitjos, A., J. Carbonell and A. Lavie. “A Framework for Interactive and Automatic Refinement of Transfer-based Machine Translation”. In Proceedings of the 10th Annual Conference of the European Association for Machine Translation (EAMT-2005), Budapest, Hungary, May 2005.
- 2004 Lavie, A., S. Wintner, Y. Eytani, E. Peterson and K. Probst. “Rapid Prototyping of a Transfer-based Hebrew-to-English Machine Translation System”. In Proceedings of the 10th International Conference on Theoretical and Methodological Issues in Machine Translation (TMI-2004), Baltimore, MD, October 2004.
- 2004 Lavie, A., K. Sagae and S. Jayaraman. “The Significance of Recall in Automatic Metrics for MT Evaluation”. In Proceedings of the 6th Conference of the Association for Machine Translation in the Americas (AMTA-2004), Washington, DC, September 2004.
- 2004 Probst, K. and A. Lavie. “A Structurally Diverse Minimal Corpus for Eliciting Structural Mappings between Languages”. In Proceedings of the 6th Conference of the Association for Machine Translation in the Americas (AMTA-2004), Washington, DC, September 2004.
- 2004 Monson, C., A. Lavie, J. Carbonell and L. Levin. “Unsupervised Induction of Natural Language Morphology Inflection Classes”. In Proceedings of Workshop on Current Themes in Computational Phonology and Morphology at the 42th Annual Meeting of the Association of Computational Linguistics (ACL-2004), Barcelona, Spain, July 2004.

- 2004 Sagae, K., B. MacWhinney and A. Lavie. “Adding Syntactic Annotations to Transcripts of Parent-Child Dialogs”. In Proceedings of the Fourth International Conference on Language Resources and Evaluation (LREC-2004), Lisbon, Portugal, May 2004.
- 2004 Monson, C., L. Levin, R. Vega, R. Brown, A. Font Llitjos, A. Lavie, J. Carbonell, E. Cañlef, R. Huisca. “Data Collection and Analysis of Mapudungun Morphology for Spelling Correction”. In Proceedings of the Fourth International Conference on Language Resources and Evaluation (LREC-2004), Lisbon, Portugal, May 2004.
- 2004 Lavie, A., K. Probst, E. Peterson, S. Vogel, L. Levin, A. Font-Llitjos and J. Carbonell. “A Trainable Transfer-based Machine Translation Approach for Languages with Limited Resources”. In Proceedings of Workshop of the European Association for Machine Translation (EAMT-2004), Valletta, Malta, April 2004.
- 2003 Levin, L., C. Langley, A. Lavie, D. Gates, D. Wallace and K. Peterson. “Domain Specific Speech Acts for Spoken Language Translation”. In Proceedings of 4th SIGdial Workshop on Discourse and Dialogue (SIGDIAL-2003), Sapporo, Japan, July 2003.
- 2003 Sagae, K., and A. Lavie. “Combining Rule-Based and Data-Driven Techniques for Grammatical Relation Extraction in Spoken Language”. In Proceedings of 8th International Workshop on Parsing Technologies (IWPT-2003), Nancy, France, April 2003.
- 2003 Langley, C., and A. Lavie. “Parsing Domain Actions with Phrase-Level Grammars and Memory-Based Learners”. In Proceedings of 8th International Workshop on Parsing Technologies (IWPT-2003), Nancy, France, April 2003.
- 2002 Carbonell, J., K. Probst, E. Peterson, C. Monson, A. Lavie, R. Brown and L. Levin. “Automatic Rule Learning for Resource Limited MT”. In Proceedings of 5th Conference of the Association for Machine Translation in the Americas (AMTA-2002), Tiburon, CA, October 2002.
- 2002 Taddei, L., E. Costantini and A. Lavie. “The NESPOLE! Multimodal Interface for Cross-lingual Communication: Experience and Lessons Learned”. In Proceedings of IEEE International Conference on Multimodal Interfaces (ICMI-2002), Pittsburgh, PA, October 2002.
- 2002 Lavie, A., F. Metze, R. Cattoni and E. Costantini. “A Multi-Perspective Evaluation of the NESPOLE! Speech-to-Speech Translation System”. In Proceedings of Speech-to-Speech Translation Workshop at the 40th Annual Meeting of the Association of Computational Linguistics (ACL-02), Philadelphia, PA, July 2002.
- 2002 Langley, C., A. Lavie, L. Levin, D. Wallace, D. Gates and K. Peterson. “Spoken Language Parsing using Phrase-level Grammars and Trainable Classifiers”. In Proceedings of Speech-to-Speech Translation Workshop at the 40th Annual Meeting of the Association of Computational Linguistics (ACL-02), Philadelphia, PA, July 2002.

- 2002 Levin, L., D. Gates, D. Wallace, K. Peterson, A. Lavie, F. Pianesi, E. Pianta, R. Cattoni and N. Mana. "Balancing Expressiveness and Simplicity in an Interlingua for Task-based Dialogue". In Proceedings of Speech-to-Speech Translation Workshop at the 40th Annual Meeting of the Association of Computational Linguistics (ACL-02), Philadelphia, PA, July 2002.
- 2002 Levin, L., R. Vega, J. Carbonell, R. Brown, A. Lavie, E. Canulef and C. Huenchullan. "Data Collection and Language Technologies for Mapudungun". In Proceedings of International Workshop on Resources and Tools in Field Linguistics at the Third International Conference on Language Resources and Evaluation (LREC-2002), Las Palmas, Canary Islands, Spain, June 2002.
- 2002 Lavie, A., F. Metze, F. Pianesi, S. Burger, D. Gates, L. Levin, C. Langley, K. Peterson, T. Schultz, A. Waibel, D. Wallace, J. McDonough, H. Soltau, R. Cattoni, G. Lazzari, N. Mana, E. Pianta, E. Costantini, L. Besacier, H. Blanchon, D. Vaufreydaz and L. Taddei. "Enhancing the Usability and Performance of NESPOLE! - a Real-world Speech-to-Speech Translation System". In Proceedings of HLT-2002 Human Language Technology Conference, San Diego, CA, March 2002.
- 2002 Metze, F., J. MacDonough, H. Soltau, A. Waibel, A. Lavie, S. Burger, C. Langley, L. Levin, T. Schultz, F. Pianesi, R. Cattoni, G. Lazzari, N. Mana and E. Pianta. "The NESPOLE! Speech-to-Speech Translation System". In Proceedings of HLT-2002 Human Language Technology Conference, San Diego, CA, March 2002.
- 2001 Cattoni, R., M. Federico and A. Lavie. "Robust Analysis of Spoken Input Combining Statistical and Knowledge-based Information Sources". In Proceedings of Automatic Speech Recognition and Understanding (ASRU-2001), Madonna di Campiglio, Italy, December 2001.
- 2001 Sagae, K., A. Lavie and B. MacWhinney. "Parsing the CHILDES Database: Methodology and Lessons Learned". In Proceedings of 7th International Workshop on Parsing Technologies (IWPT-2001), Beijing, China, October 2001.
- 2001 Probst, K., R. Brown, J. Carbonell, A. Lavie, L. Levin, and E. Peterson. "Design and Implementation of Controlled Elicitation for Machine Translation of Low-density Languages". In Proceedings of the MT-2010 Workshop at MT-Summit VIII, Santiago de Compostela, Spain, September 2001.
- 2001 Zhang, Y., R. Brown, R. Frederking and A. Lavie. "Pre-processing of Bilingual Corpora for Mandarin-English EBMT". In Proceedings of MT-Summit VIII, Santiago de Compostela, Spain, September 2001.
- 2001 Zechner, K. and A. Lavie. "Increasing the Coherence of Spoken Dialogue Summaries by Cross-Speaker Information Linking". In Proceedings of NAACL-2001 Workshop on Automatic Summarization, Pittsburgh, PA, June 2001.
- 2001 Lavie, A., C. Langley, A. Waibel, F. Pianesi, G. Lazzari, P. Coletti, L. Taddei and F. Balducci. "Architecture and Design Considerations in NESPOLE!: a Speech Translation System for E-commerce Applications". In Proceedings of HLT-2001 Human Language Technology Conference, San Diego, CA, March 2001.

- 2001 Lavie, A., L. Levin, T. Schultz, C. Langley, B. Han, A. Tribble, D. Gates, D. Wallace and K. Peterson. "Domain Portability in Speech-to-Speech Translation". In Proceedings of HLT-2001 Human Language Technology Conference, San Diego, CA, March 2001.
- 2000 Levin, L., B. Bartlog, A. Font-Llitjos, D. Gates, A. Lavie, D. Wallace, T. Watanabe and M. Woszczyna. "Lessons Learned from a Task-Based Evaluation of Speech-to-Speech Machine Translation". In Proceedings of 2nd International Conference on Language Resources and Evaluation (LREC-2000), Athens, Greece, June 2000.
- 2000 Ries, K., L. Levin, L. Valle, A. Lavie and A. Waibel. "Shallow Discourse Genre Annotation in Call-Home Spanish". In Proceedings of 2nd International Conference on Language Resources and Evaluation (LREC-2000), Athens, Greece, June 2000.
- 2000 Levin, L., D. Gates, A. Lavie, F. Pianesi, D. Wallace, T. Watanabe and M. Woszczyna. "Evaluation of a Practical Interlingua for Task-Oriented Dialogue". In Proceedings of ANLP/NAACL-2000 Workshop on Applied Interlinguas, Seattle, WA, April 2000.
- 2000 Lavie, A. and C. P. Rose. "Optimal Ambiguity Packing in Context-Free Parsers with Interleaved Unification". In Proceedings of 6th International Workshop on Parsing Technologies (IWPT-2000), Trento, Italy, February 2000.
- 1999 Levin, L., K. Ries, A. Thymé-Gobbel and A. Lavie. "Tagging of Speech Acts and Dialogue Games in Spanish Call Home". In Proceedings of ACL-99 Workshop on Discourse Tagging, College Park, MD, June 1999.
- 1998 Levin, L., D. Gates, A. Lavie and A. Waibel. "An Interlingua Based on Domain Actions for Machine Translation of Task-Oriented Dialogues". In Proceedings of ICSLP-98, Sydney, Australia, November 1998.
- 1998 Levin, L., A. Thymé-Gobbel, A. Lavie, K. Ries and K. Zechner, "A Discourse Coding Scheme for Conversational Spanish". In Proceedings of ICSLP-98, Sydney, Australia, November 1998.
- 1998 Woszczyna, M., M. Broadhead, D. Gates, M. Gavaldà, A. Lavie, L. Levin and A. Waibel. "A Modular Approach to Spoken Language Translation for Large Domains". In Proceedings of AMTA-98, Langhorn, PA, October 1998.
- 1998 Finke M., M. Lapata, A. Lavie, L. Levin, L. Mayfield Tomokiyo, T. Polzin, K. Ries, A. Waibel and K. Zechner. "Clarity: Inferring Discourse Structure from Speech". In Proceedings of Workshop on Applying Machine Learning to Discourse Processing. AAAI'98 Spring Symposium Series, Stanford University, CA, March 1998.
- 1997 Rosé, C.P., and A. Lavie. "An Efficient Distribution of Labor in a Two-Stage Robust Interpretation Process". In Proceedings of EMNLP-97, Providence, RI, August 1997.

- 1997 Lavie, A., L. Levin, P. Zhan, M. Taboada, D. Gates, M. Lapata, C. Clark, M. Broadhead and A. Waibel. "Expanding the Domain of a Multi-lingual Speech-to-Speech Translation System". In Proceedings of Workshop on Spoken Language Translation, Joint Meeting of ACL/EACL-97, Madrid, Spain, July 1997.
- 1997 Lavie, A., A. Waibel, L. Levin, M. Finke, D. Gates, M. Gavaldà, T. Zeppenfeld and P. Zhan. "JANUS-III: Speech-to-Speech Translation in Multiple Languages". In Proceedings of ICASSP-97, Munich, Germany, April 1997.
- 1996 Lavie, A., L. Levin, Y. Qu, A. Waibel, D. Gates, M. Gavaldà, L. Mayfield and M. Taboada. "Dialogue Processing in a Conversational Speech Translation System". In Proceedings of ISSD, ICSLP-96, Philadelphia, PA, October 1996.
- 1996 Lavie, A., A. Waibel, L. Levin, D. Gates, M. Gavaldà, T. Zeppenfeld, P. Zhan and O. Glickman, "Translation of Conversational Speech with JANUS-II". In Proceedings of ICSLP-96, Philadelphia, PA, October 1996.
- 1996 Zhan, P., K. Ries, M. Gavaldà, D. Gates, A. Lavie and A. Waibel. "JANUS II: Towards Spontaneous Spanish Speech Recognition". In Proceedings of ICSLP-96, Philadelphia, PA, October 1996.
- 1996 Lavie, A., "GLR*: a Robust Parser for Spontaneously Spoken Language". In Proceedings of ESSLLI-96 workshop on Robust Parsing, Prague, Czech Republic, August 1996.
- 1996 Lavie, A., D. Gates, N. Coccaro and L. Levin. "Input Segmentation of Spontaneous Speech in JANUS: a Speech-to-speech Translation System". In Proceedings of ECAI-96 Workshop on Dialogue Processing in Spoken Language Systems, Budapest, Hungary, August 1996.
- 1996 Gates, D., A. Lavie, L. Levin, A. Waibel, M. Gavaldà, M. Woszczyna and P. Zhan. "End-to-end Evaluation in JANUS: a Speech-to-speech Translation System". In Proceedings of ECAI-96 Workshop on Dialogue Processing in Spoken Language Systems, Budapest, Hungary, August 1996.
- 1996 Qu, Y., B. DiEugenio, A. Lavie, L. Levin and C.P. Rosé. "Minimizing Cumulative Error in Discourse Context". In Proceedings of ECAI-96 Workshop on Dialogue Processing in Spoken Language Systems, Budapest, Hungary, August 1996.
- 1996 Lavie, A., D. Gates, M. Gavaldà, L. Mayfield, A. Waibel and L. Levin. "Multi-lingual Translation of Spontaneously Spoken Language in a Limited Domain", In Proceedings of COLING-96, Copenhagen, Denmark, August 1996.
- 1996 Woszczyna, M., M. Finke, T. Kemp, A. McNair, A. Lavie, L. Mayfield, M. Maier, I. Rogina, T. Sloboda, A. Waibel, T. Zeppenfeld and P. Zhan. "JANUS II: Advances in Spontaneous Speech Translation". In Proceedings of ICASSP-96, Atlanta, GA, May 1996.
- 1996 Lavie, A., L. Levin, A. Waibel, D. Gates, M. Gavaldà and L. Mayfield. "JANUS: a Multi-lingual Speech-to-speech Translation System for Spontaneously Spoken Language in a Limited Domain". In Proceedings of AMTA-96, Montreal, Canada, 1996.

- 1995 Levin, L., O. Glickman, Y. Qu, D. Gates, A. Lavie, C.P. Rosé, C. Van Ess-Dykema and A. Waibel. "Using Context in Machine Translation of Spoken Language". In Proceedings of TMI-95. Leuven, Belgium, 1995.
- 1995 Suhm, B., P. Geutner, T. Kemp, A. Lavie, L.J. Mayfield, A.E. McNair, I. Rogina, T. Sloboda, W. Ward, M. Woszczyna and A. Waibel. "JANUS: Towards Multilingual Spoken Language Translation". In Proceedings of ARPA Workshop on Spoken Language Technology, 1995.
- 1994 Lavie, A., "An Integrated Heuristic Scheme for Partial Parse Evaluation". In Proceedings of ACL-94 (Student Session), Las Cruces, NM, June 1994.
- 1994 Suhm, B., L. Levin, N. Coccaro, J. Carbonell, K. Horiguchi, R. Isotani, A. Lavie, L. Mayfield, C. Roseé, C. Van Ess-Dykema and A. Waibel. "Speech-Language Integration in a Multi-Lingual Speech Translation System". In Proceedings of AAAI-94 Workshop on Integration of Natural Language and Speech Processing, Seattle, WA, 1994.
- 1994 Woszczyna, M., N. Aoki-Waibel, F.D. Bu, N. Coccaro, K. Horiguchi, T. Kemp, A. Lavie, A. McNair, T. Polzin, I. Rogina, C.P. Rose, T. Schultz, B. Suhm, M. Tomita and A. Waibel. "JANUS 93: Towards Spontaneous Speech Translation". In Proceedings of ICASSP-94, Adelaide, Australia, April 1994.
- 1993 Woszczyna, M., N. Coccaro, A. Eisele, A. Lavie, A. McNair, T. Polzin, I. Rogina, C.P. Rosé, T. Sloboda, M. Tomita, J. Tsutsumi, N. Aoki-Waibel, A. Waibel and W. Ward. "Recent Advances in JANUS: A Speech Translation System". In Proceedings of EuroSpeech-93, Berlin, Germany, September 1993.
- 1993 Lavie, A. and M. Tomita. "GLR* - An Efficient Noise-Skipping Parsing Algorithm for Context-Free Grammars". In Proceedings of IWPT-93, Tilburg, The Netherlands, August 1993.
- 1992 Bates, J. and A. Lavie. "Recognizing Substrings of LR(k) Languages in Linear Time". In Proceedings of POPL-92, Albuquerque, NM, January 1992. (Also available as Technical Report CMU-CS-91-188).
- 1988 Lavie, A., A. Itai, U. Ornan and M. Rimon, "On the Applicability of Two Level Morphology to the Inflection of Hebrew Verbs". In Proceedings of the Association of Literary and Linguistic Computing conference, Jerusalem, June 1988. (Also published as Computer Science Dept., Technion Technical Report no. 513, July 1988).

Technical Reports and Distributed Papers

- 1996 Lavie, A., “GLR* : A Robust Grammar-Focused Parser for Spontaneously Spoken Language”. PhD dissertation, Technical Report CMU-CS-96-126, Carnegie Mellon University, Pittsburgh, PA, May 1996.

Conference and Workshop Presentations without Proceedings

- 1993 Lavie, A. and M. Tomita, “Efficient Generalized LR Parsing of Word Lattices”. Presented at BISFAI-93, Bar-Ilan University, Israel, June 1993.

Evidence of External Reputation

Professional Awards and Honors:

- 2003 Carnegie Mellon Language Technologies Institute Lycos Junior Faculty Chair.
- 2002 Carnegie Mellon School of Computer Science Allen Newell Award for Research Excellence.
- Awarded jointly to the faculty leading speech translation research effort at CMU during the past decade (jointly awarded to Alex Waibel, Lori Levin, Tanja Schultz, Monika Woszczyna, Robert Frederking, Ralf Brown and Alan Black).*

Adjunct, Consulting, and Visiting Positions:

- 2005 (March) Caesaria Rothschild Institute, University of Haifa, Israel.
- Visiting Researcher. Working with Dr. Shuly Wintner's Computational Linguistics Lab team on developing a Hebrew-to-English Machine Translation system.*
- 2004 (Feb–Apr) Caesaria Rothschild Institute, University of Haifa, Israel.
- Visiting Researcher. Working with Dr. Shuly Wintner's Computational Linguistics Lab team on developing a Hebrew-to-English Machine Translation system.*
- 2001 (Jul–Aug) ITC-irst, Trento, Italy.
- Visiting Researcher in the Natural Language Processing Group. Working with NESPOLE! Project team on developing speech-to-speech Translation components.*

Invited Talks:

- 2008 Lavie, A., “Stat-XFER: A General Framework for Search-based Syntax-driven MT”. Invited talk at CICLING-2008 Conference, Haifa, Israel, February 2008.
- 2006 Lavie, A., “Machine Translation: An Introduction and Overview”. John Hopkins Summer School, Johns Hopkins University, Baltimore, June 2006.
- 2005 Lavie, A., “Multi-Engine Machine Translation and METEOR: a High-Accuracy Metric for MT Evaluation”. Microsoft Research, Seattle, November 2005.
- 2005 Lavie, A., “Learning-based MT Approaches for Languages with Limited Resources”. Turing Center Distinguished Lecture, University of Washington, Seattle, November 2005.
- 2005 Lavie, A., “Multi-Engine Machine Translation and METEOR: a High-Accuracy Metric for MT Evaluation”. UMIACS, University of Maryland - College

Park, March 2005.

- 2005 Lavie, A., “Multi-Engine Machine Translation and METEOR: a High-Accuracy Metric for MT Evaluation”. Army Research Lab, March 2005.
- 2005 Lavie, A. and L. Levin, “Machine Translation for Languages with Limited Resources”. UMIACS, University of Maryland - College Park, March 2005.
- 2005 Lavie, A. and L. Levin, “Machine Translation for Languages with Limited Resources”. Army Research Lab, March 2005.
- 2004 Lavie, A., “A Trainable Transfer-based MT Approach for Languages with Limited Resources”. Invited presentation at Computer Science Colloquium, University of Haifa, Israel, March 2004.
- 2000 Lavie, A. and L. Levin, “Speech-to-speech MT in the JANUS System”. Invited presentation at Computational Linguistics Seminar, UMIACS, University of Maryland - College Park, April 2000.

External Professional Activities

Professional Affiliations:

Association for Machine Translation in the Americas (AMTA): Member of the Executive Board - 2006–2008

Association for Computational Linguistics (ACL)
Association for Machine Translation in the Americas (AMTA)
SIGParse - ACL Special Interest Group on Parsing
SIGSemitic - ACL Special Interest Group on Semitic Languages
C-STAR - Consortium for Speech Translation Advanced Research

Editorial Boards:

2007– Journal of Machine Translation

Program Committees:

2006 Program Co-chair - AMTA 2006

Program Committee Member - International Workshop on Parsing Technologies (IWPT): 1997, 2000, 2001, 2003, 2005, 2007

Organizing Committees:

2005 Logistics Arrangements Chair - IWPT 2005, IWPT 2007

2005 Workshop Co-organizer - ACL 2005

2001 Local Arrangements Chair - NAACL Conference 2001

Funding Agencies Panels and Reviews:

2008 National Science Foundation (NSF), HLC Program, Proposal Review Panel Member.

2001 Israel Science Foundation (ISF), Proposal Reviewer.

2000 National Science Foundation (NSF), HCI Program, Proposal Review Panel Member.

Conference and Workshop Reviews:

ACL Conferences - 1998–2008
AMTA Conferences - 2004–2008
COLING Conferences - 2000, 2004
IWPT Conferences - 1997–2007
HLT/EMNLP Conference - 2005
IJCAI Conference - 2005
MT Summit Conference - 2003
ICSLP Conference - 1998, 2002
AAAI Conference - 2002
HLT Conference - 2001
PLDI Conference - 1996

Journal Reviews:

Machine Translation, 1999–2008
Speech Communication Journal, 2005
Natural Language Engineering Journal, 2004
Machine Learning Journal, 2004
Computational Linguistics (CL), 1999
SIAM Journal on Computing, 1996
ACM Transactions on Programming Languages and Systems (TOPLAS),
1994

Contract and Grant Support

Awards as Principle Investigator:

- 2007– DKRLM: Discriminative Knowledge-Rich Language Modeling for Machine Translation. NSF.
- 2006– METEOR: Learning Evaluation Metrics for Machine Translation. NSF.
- 2005– GRASP: Parsing of Grammatical Relations for Databases of Spoken Language Interactions. With Brian MacWhinney. NSF.
- 2004– Hebrew-to-English Machine Translation. With Shuly Wintner. CRI/University of Haifa.
- 2003–2005 MEMT: Multi-Engine Machine Translation. With Jaime Carbonell. ITIC.
- 2003–2005 AMTEXT: Extraction-based Machine Translation. With Jaime Carbonell. ITIC.

Awards as Co-Principle Investigator:

- 2006– LETRAS: Learning-based Approaches for Machine Translation of Low-Resource Languages. With Jaime Carbonell and Lori Levin. NSF.
- 2005– GALE: Multi-Engine Machine Translation. With Jaime Carbonell, Stephan Vogel, Alex Waibel and Ralf Brown. DARPA.
- 2001–2007 AVENUE: Adaptable Voice Translation for Minority Languages. With Jaime Carbonell, Alex Waibel, Lori Levin and John Lafferty. NSF (ITR Program).
- 2000–2005 LINGWEAR for the Information Warrior. Project is now named Mega-RADD. With Alex Waibel, Lori Levin, Robert Frederking and others. DARPA (TIDES Program).
- 2001–2004 JAVELIN: Justification-based Answer Valuation through Language Interpretation. With Eric Nyberg, Jamie Callan, Jaime Carbonell, Robert Frederking, John Lafferty and Teruko Mitamura. ARDA (AQUAINT Program).
- 2002–2004 BABYLON: Mobile Speech-to-Speech Translation for Military Field Applications. With Alex Waibel, Lori Levin, Robert Frederking and Alan Black. DARPA.
- 2000–2003 Milli-RADD: Rapidly Adaptable Data Driven Machine Translation with Limited Resources. With Lori Levin, Jaime Carbonell, and Ralf Brown. DARPA (TIDES Program).
- 2000–2003 NESPOLE!: Negotiating through Spoken Language in E-commerce. With Alex Waibel and Lori Levin. NSF (MLIAM Program).

1997–1999 Clarity: Identifying Discourse Structure of Spoken Language. With Alex Waibel and Lori Levin. Department of Defense.

List of Courses Taught

Primary Instructor:

- Algorithms for NLP (11-711), Language Technologies Institute, CMU, Fall semester, annually 1996–2007.
- Laboratory for NLP (11-712), Language Technologies Institute, CMU, Fall 2001, Spring semester annually 2003–2008.
- Advanced Seminar in Machine Translation (11-734), Language Technologies Institute, CMU, Spring 2006, Spring 2008.
- Graduate Seminar on Robust Parsing (11-920), Language Technologies Institute, CMU, Spring 1999.

Co-Instructor:

- Language Technologies (11-682), Language Technologies Institute, CMU, Fall semester, annually 2000-2006.
- Machine Translation (11-731), Language Technologies Institute, CMU, Spring 2005, Spring 2007.
- Grammar Formalisms (11-722), Language Technologies Institute, CMU, Spring 2004, Spring 2006.
- Laboratory in Machine Translation (11-732), Language Technologies Institute, CMU, Spring 2005, Fall 2006–2007.
- Laboratory in NLP (11-712), Language Technologies Institute, CMU, Spring 2000.

Teaching Assistant:

- Introduction to Artificial Intelligence (15-381), Computer Science Department, CMU, Spring 1992.
- Programming Languages (15-312), Computer Science Department, CMU, Spring 1991.
- Discrete Math, Theory of Computation, Introduction to Natural Language Processing, Computer Science Department., Technion, Israel, 1986–1988.

Student evaluations of teaching are available for most courses.

Student Advising

(Dates indicate the student's graduation.)

Ph.D. Committees:

- In Progress Christian Monson (co-advisor). *Unsupervised Induction of Natural Language Morphological Structure*, Language Technologies Institute, Carnegie Mellon University.
- In Progress Benjamin Han (co-advisor). *A Constraint Based Framework for Resolution of Time in Natural Language*, Language Technologies Institute, Carnegie Mellon University.
- 2007 Ariadna Font-Llitjos (co-advisor). *Towards Interactive and Automatic Refinement of Translation Rules*, Language Technologies Institute, Carnegie Mellon University.
- 2006 Kenji Sagae (Advisor). *Parsing of Grammatical Relations for Databases of Spoken Language*, Language Technologies Institute, Carnegie Mellon University.
- 2006 Fei Huang (Committee Member). *Multilingual Named-Entity Extraction and Translation from Text and Speech*, Language Technologies Institute, Carnegie Mellon University.
- 2005 Katharina Probst (Advisor). *Learning Syntactic Transfer Rules for Machine Translation*, Language Technologies Institute, Carnegie Mellon University.
- 2003 Chad Langley (Advisor). *Domain Action Classification and Argument Parsing for Interlingua-Based Spoken Language Translation*, Language Technologies Institute, Carnegie Mellon University.
- 2002 Paul Placeway (Committee Member). *Multi-Pass Unification Parsing with Automatic Feature Extraction and Optimization*, Language Technologies Institute, Carnegie Mellon University.
- 2001 Klaus Zechner (Committee Member), *DIASUMM: Summarization of Spoken Dialogues in Unrestricted Domains*, Language Technologies Institute, Carnegie Mellon University.
- 2000 Gerald Penn (Committee Member). *The Algebraic Structure of Attributed Type Signatures*, Language Technologies Institute, Carnegie Mellon University.
- 1997 Carolyn Rosé, (Committee Member) *Interactive Dialogue Interpretation for Intelligent Tutoring*. Computational Linguistics Program, Carnegie Mellon University.

LTI Ph.D. Students Advised

- 2007– Daniel Rashid
- 2007– Vamshi Ambati
- 2007– Greg Hanneman
- 2006– Abhaya Agarwal
- 2002– Benjamin Han (co-advised with Jaime Carbonell)
- 2001– Christian Monson (co-advised with Jaime Carbonell)
- 2004–2007 Ariadna Font-Llitjos (co-advised with Jaime Carbonell)
- 1999–2006 Kenji Sagae (co-advised with Brian MacWhinney)
- 2001–2005 Katharina Probst (co-advised with Jaime Carbonell and Lori Levin)
- 2001–2005 Erik Peterson (co-advised with Lori Levin and Jaime Carbonell)
- 2003–2004 Alison Alvarez (co-advised with Jaime Carbonell and Lori Levin)
- 2002–2003 Rachel Reynolds
- 1999–2003 Chad Langley

LTI Master’s Students Advised (Project work only: no thesis)

- 2007– Alok Parlikar
- 2005–2007 Greg Hanneman
- 2003–2005 Shyamsundar Jayaraman
- 2003–2004 Laura Kieras
- 2000–2002 Alicia Tribble
- 1996–1997 Matthew Broadhead
- 1996–1997 Cortis Clark

NLP III (Masters Project) Advising, Computational Linguistics Program, Carnegie Mellon University

- 1997 Klaus Zechner (Committee Member) *Building Chunk Level Representations for Spontaneous Speech in Unrestricted Domains.*
- 1997 Maite Taboada (Committee Member) *Discourse Information for Disambiguation: The Phoenix Approach in JANUS.*

Service and Committee Work

Departmental Responsibilities, Language Technologies Institute, CMU:

- 2005 Chair of LTI Faculty Hiring Committee
- 2003–2004 Student Research Symposium Faculty Advisor
- 1996–2007 Member of PhD/MS Admissions Committee

Committees at Carnegie Mellon:

- 2003–2005 LTI Senator on Carnegie Mellon Faculty Senate
- 1999 Member of SCS Committee for ACM Dissertation Awards

Other Committees:

- 1987–1988 Departmental Representative to Graduate Student Association, Technion, Israel.
- 1985–1986 Departmental Representative to Student Senate and member of the Departmental Student Committee, Technion, Israel.

Military Service:

- 1979–1983 Israeli national military course of duty. Participated in military computer projects. Climbed to the military rank of Captain.