

CURRICULUM VITAE

Alexander Hauptmann

EDUCATION

- Ph.D. Carnegie Mellon University (Computer Science) 1991
Thesis Title: *Meaning from Structure in Natural Language Processing*
- Diplom Technische Universität Berlin (Computer Science) 1984
- M.A. Johns Hopkins University (Psychology) 1982
- B.A. Johns Hopkins University (Psychology, French Minor) 1982

EMPLOYMENT

- Carnegie Mellon University (Pittsburgh, PA),
Senior System Scientist, School of Computer Science, 1998 - present.
System Scientist, School of Computer Science, 1994 - 1998.
Research Associate, School of Computer Science, 1992 - 1994.
Teaching Assistant for "Fundamental Structures of Computer Science II",
spring 1987.
- Electrotechnical Laboratory, Agency of Industrial Science and Technology, MITI
Tsukuba Science City, Japan.
Research fellow, January 1990 - February 1990.
- Siemens Research and Technology Laboratories (Princeton, NJ).
Summer Intern. June 1985 - August 1985
- Technische Universität Berlin,
Teaching Assistant for "Question Answering Systems", Spring 1984
- Johns Hopkins University,
Research Assistant to Prof. A. Chapanis, 1979 – 1982
Teaching Assistant for "Introductory Psychology", Fall 1982
Research Assistant to Prof. S.H. Hulse, 1978 – 1979

PERSONAL

Horses and horseback riding are my main hobby, where in the past, I competed at the international level of 3-day eventing, which includes dressage, cross-country jumping, and stadium jumping. I also enjoy skiing, theater, and travel. I am (still) a German citizen, with a green card, however I am in the process of applying for US citizenship.

I. CAREER GOALS

Over the years, my research interests have led me to pursue and combine several different areas of research: man-machine communication, natural language processing and multimedia understanding: In the area of man-machine communication, I am interested in the tradeoffs between different modalities, including gestures and speech, and in the intuitiveness of interaction protocols. In natural language processing, my desire is to break through the bottlenecks that are currently preventing larger scale natural language applications.

The latter theme was also the focus of my thesis, which investigated the use of machine learning on large text samples to acquire the knowledge needed for semantic natural language understanding. The approach developed in my thesis research was quite successful at using example sentences and target meanings to learn rules for semantic interpretation from syntactic structures. In the field of multimedia understanding, I am intrigued by the potential of combining natural language technology with clever interfaces in video retrieval applications.

Earlier work:

During my graduate research at CMU, I was centrally involved in the MINDS project (Multi-modal INteractive Dialog System) which became the first system to demonstrate the use of dialog constraints for improving speech recognition accuracy. Other research touched on speech synthesis using a large corpus of example data, and speech-to-speech machine translation in the form of a simple, but effective phrasebook translation system.

In more recent years, I worked with Jack Mostow to build the first prototypes for Project LISTEN (Language Instruction that Speech Technology Enables), where we explored the idea that speech recognition can be used to detect reading mistakes and help children learn to read correctly.

Most recently, my research in the Infromedia Project has been to build the News-on-Demand application, which is an instantiation of the Infromedia Digital Video Library idea, based completely on automatic methods for processing television news.

In each of these systems, there was one central aspect that made them all effective examples for their respective purposes. Through the combination of the strengths of speech recognition, video analysis, natural language processing and interface design, the systems were able to overcome some of the shortfalls inherent in speech, image, natural language and interfaces. My goal is to continue this type of research, at the boundaries of natural language processing, video and speech analysis, and man-machine communication.

Near-term goals:

In the immediate future, my research goals are closely connected to the current issues faced by the Infromedia project. One fundamental tenet of the Infromedia project is the use of speech recognition and video analysis to provide the basis for

content retrieval. My goal is to find ways to exploit multi-lingual, multimedia information from broadcast news to allow broader understanding of different perspectives in different video news sources. This can be achieved through judicious analysis of the text and video features using a variety of machine learning and language analysis methods, as well as understanding of the video editing structure.

Long term goals:

In the long term, my research goals are to devise ways to overcome the “semantic gap” in video analysis. Low-level features such as color histograms, audio spectral analysis, texture, transcript words, etc., do not provide enough information to characterize or understand the content of video. Yet, user information needs are defined in terms of high-level, often abstract concepts. It is my belief that we will need hundreds or thousands of mid-level ‘semantic concepts’ that can reliably characterize video clips in classes such as outdoors, vehicles, people, running, airplanes, trees, shaking hands, and so forth to bridge this semantic gap. My goal is to define a reasonably small, but useful set of such concepts and demonstrate that, if we could detect these in the video with acceptable accuracy, we would be able to bridge the semantic gap for many useful tasks.

My more fundamental research goals are to conduct research at the intersection of speech, video, natural language and man-machine communication. I believe it is through the crossing of boundaries and disciplines that the most dramatic research accomplishments will be achieved.

Multimedia technology is about to make a major impact on our daily interaction with computers. What is needed at this point are examples of applications of the technology that are easy to use and that provide clear demonstrations of the advantages of integrated speech and multimedia interfaces. Successful systems will probably also include a variety of knowledge sources that can complement each other. It is my goal is to help this breakthrough come about.

II. PUBLICATION LIST

CHAPTERS IN BOOKS

1. Yan, R., Hauptmann, A.G. and Jin, R., *Pseudo-Relevance Feedback for Multimedia Retrieval*, in **Video Mining**, Rosenfeld, A., Doermann, D., and DeMenthon, D. (eds), Kluwer, Boston, pp. 309 - 338, 2003.
2. Hauptmann, A.G., Jin, R. and Wactlar, H.D., *Data Analysis for a Multimedia Library in Text and Speech-Triggered Information Access*, Renals, S and Grefenstette, G. (eds), Springer, Berlin, pp. 6 - 37, 2003.
3. Lin, W.-H. and Hauptmann, A.G., *Meta-classification: Combining Multimodal Classifiers*, in Zaiane, O.R., Simoff, S.J., and Djeraba, C. (eds.), **Mining Multimedia and Complex Data**, Spinger Lecture Notes in Artificial Intelligence, LNAI2798, pp. 217-231, Berlin: Springer, 2003.
4. A.G. Hauptmann and M.J. Witbrock, *Informedia: News-on-Demand - Multimedia Information Acquisition and Retrieval*, in Maybury, M. (ed). **Intelligent Multimedia Information Retrieval** AAAI Press/MIT Press, 1997.
5. A.I Rudnicky and A.G. Hauptmann, *Multimodal interaction in speech systems* in Blattner, M.M. and Dannenberg, R.B. (eds.), **Multimedia Interface Design**, pp. 147 - 172, New York, NY: ACM Press, 1992.
6. S.R. Young, A.G. Hauptmann, W.H. Ward, E.T. Smith and P. Werner, *High Level Knowledge Sources in Usable Speech Recognition Systems*, in Waibel, A. and Lee, K.-F. (eds) **Readings in Speech Recognition**, San Francisco: Morgan Kaufmann, 1990. (Previously published in *Communications of the ACM*, vol. 32, no. 2, pp. 183 - 194, 1989.)

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8. Hauptmann, A.G., Gao, J., Yan, R., Qi, Y., Yang, J., Wactlar, H.D., Automated Analysis of Nursing Home Observations, *IEEE Pervasive Computing, Special Issue on Pervasive Computing for Successful Aging*, vol. 3, no. 2, pp. 15-21, April-June, 2004
9. M. Christel, A. Hauptmann, and H. Wactlar, Improving Access to Digital Video Archives through Informedia Technology, *Journal of the Audio Engineering Society*, July/August 2001, vol.48, no. 7/8, 2001.
10. H.D. Wactlar, A.G. Hauptmann, M.G. Christel, R.A. Houghton and A.M. Olligschlaeger, Complementary Video and Audio Analysis for Broadcast News Archives), *Communications of the ACM*, Vol 43, No. 2, February 2000, pp. 42 - 47.
11. P.J. Jang and A.G. Hauptmann, Learning How to Recognize Speech By Watching Television, *IEEE Intelligent Systems*, vol. 14, no.5, pp. 51 - 58, September/October 1999.

12. Wactlar, H.D., Christel, M.G., Hauptmann, A.G., and Gong, Y., Informedia Experience-on-Demand: Capturing, Integrating and Communicating Experiences across People, Time and Space., *ACM Computing Surveys* 31(2es), June 1999, No.9 (electronic publication)
13. Wactlar, H.D., Christel, M.G., Gong, Y., and Hauptmann, A.G. Lessons Learned from the Creation and Deployment of a Terabyte Digital Video Library, *IEEE Computer* 32(2): 66-73, 1999.
14. M.J. Witbrock and A.G. Hauptmann, Speech Recognition in a Digital Video Library, *JASIS: Journal of the American Society for Information Science*, 1997
15. A.I. Rudnicky, A.G. Hauptmann and K.-F. Lee, Survey of Current Speech Technology. *Communications of the ACM*, vol. 37, number 3, pp. 52-57, March, 1994.
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18. A.G. Hauptmann and B.F. Green, Comparing Command, Menu and Natural Language Computer Systems, In *Behaviour and Information Technology*, vol. 2, no. 2, pp. 163 - 178, 1983.

REFEREED CONFERENCE/WORKSHOP PAPERS

19. Wei-Hao Lin and Alexander Hauptmann, "Structuring Continuous Video Recordings of Everyday Life Using Time-Constrained Clustering", **IS&T/SPIE Symposium on Electronic Imaging (EI'06)**, San Jose, CA, January 15-19, p. 6073-12+, 2006.
20. TRECVID: the utility of a content-based video retrieval evaluation, A. G. Hauptmann, **IS&T/SPIE Symposium on Electronic Imaging (EI'06)**, San Jose, CA, January 15-19, p. 6061-08+, 2006.
21. A. Velivelli, T. S. Huang, A. G. Hauptmann, Video shot retrieval using a kernel derived from a continuous HMM. **IS&T/SPIE Symposium on Electronic Imaging (EI'06)**, San Jose, CA, p. 6073-37+, January 15-19, 2006.
22. Wei-Hao Lin and Alexander Hauptmann, "Revisiting the Effect of Topic Set Size on Retrieval Error", the 28th Annual International **ACM SIGIR Conference on Research and Development in Information Retrieval**, Salvador, Brazil, August 15-19, 2005
23. Chen, M-Y., Hauptmann, A., Christel, M., Wactlar, H., Putting Active Learning into Multimedia Applications: Dynamic Definition and Refinement of Concept Classifiers , **ACM Multimedia 2005**, National University of Singapore, Singapore, November 6-11, 2005
24. Jun Yang, Rong Yan and Alexander G. Hauptmann , The Use and Utility of High-Level Semantic Features Multiple Instance Learning for

- Labeling Faces in Broadcasting News Video, In **ACM Multimedia 2005**, National University of Singapore, Singapore, November 6-11, 2005
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 26. Hauptmann, A., Lessons for the Future from a Decade of Informedia Video Analysis Research, **International Conference on Image and Video Retrieval (CIVR'05)**, National University of Singapore, Singapore (Also: Lecture Notes in Computer Science, Volume 3568, August 2005, pp. 1-10), July 20-22, 2005
 27. Alexander Hauptmann and Wei-Hao Lin, "Assessing Effectiveness in Video Retrieval", **International Conference on Image and Video Retrieval (CIVR'05)**, Singapore, July 20-22, 2005.
 28. Eric P. Xing, Rong Yan and Alexander G. Hauptmann, Mining Associated Text and Images with Dual-wing Harmoniums; In Uncertainty in **Artificial Intelligence(UAI)'05**
 29. Yang, J., Hauptmann, A., Multimodal Analysis for Person-type Classification in News Video, Storage and Retrieval Methods and Applications for Multimedia 2005, part of the **IS&T/SPIE Symposium on Electronic Imaging 2005 (EI'05)**, San Jose, CA, pp. 165-172, January 18-19, 2005
 30. Ming-yu Chen, and Alex Hauptmann, "Active Learning in Multiple Modalities for Semantic Feature Extraction from Video", **The twentieth National Conference on Artificial Intelligence (AAAI 2005) Workshop on Learning in Computer Vision**, Pittsburgh, July 9-13, 2005
 31. Gao, J., Hauptmann, A.G., and Wactlar, H.D., Combining Motion Segmentation with Tracking for Activity Analysis, **Sixth International Conference on Automatic Face and Gesture Recognition (FGR'04)**, Seoul, Korea, pp. 699-704, May 17-19, 2004
 32. Chen, M-Y., and Hauptmann, A., Searching for a Specific Person in Broadcast News Video, **International Conference on Acoustics, Speech, and Signal Processing (ICASSP'04)**, Montreal, Canada, May 17-21, 2004
 33. Yang, J., and Hauptmann, A., Video Grammar for Locating Named People, **Joint Conference on Digital Libraries 2004 (JCDL'04)**, Tucson, AZ, June 7-11, 2004
 34. Chen, M-Y., and Hauptmann, A., Multi-modal Classification in Digital News Libraries, **Joint Conference on Digital Libraries (JCDL'04)**, Tucson, June 7-11, 2004
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Taipei, Taiwan, June 27-30, 2004
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 46. Duygulu, P., Hauptmann, A., What's News, What's Not? Associating News Video with Words, 3rd **International Conference on Image and Video Retrieval (CIVR'04)**, Dublin City University, Ireland, July 21-23, 2004
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- Retrieval (CIVR'04)**, Dublin City University, Ireland, pp. 674-675, July 21-23, 2004; Lecture Notes in Computer Science 3115 Springer 2004
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International Conference on Machine Learning (ICML 2003), August 21-24, 2003 Washington, DC USA.

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67. Jin, R., Hauptmann, A.G. and Yan, R., Image Classification Using a Bigram Model **AAAI Spring Symposium Series Intelligent Multimedia Knowledge Management**, Palo Alto, CA, March 24-26, 2003.
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107. Hauptmann, A.G., and Witbrock, M.J., Story Segmentation and Detection of Commercials in Broadcast News Video, **ADL-98 Advances in Digital Libraries**, Santa Barbara, CA, April, 1998.
108. Hauptmann, A.G., Jones, R.E., Seymore, K., Siegler, M.A., Slattery, S.T., and Witbrock, M.J., Experiments in Information Retrieval from Spoken Documents, **BNTUW-98 Proceedings of the DARPA Workshop on Broadcast News Transcription and Understanding Systems**, Lansdowne, VA, February, 1998.

109. Hauptmann, A.G., Scheytt, P., Wactlar, H.D., and Kennedy, P.E., Multi-Lingual Informedia: A Demonstration of Speech Recognition and Information Retrieval across Multiple Languages, **BNTUW-98 Proceedings of the DARPA Workshop on Broadcast News Understanding Systems**, Lansdowne, VA, February, 1998.
110. M.J. Witbrock, and A.G. Hauptmann, Using Words and Phonetic Strings for Efficient Information Retrieval from Imperfectly Transcribed Spoken Documents, in **DL97, The Second ACM International Conference on Digital Libraries**, July 23 - 26, 1997, Philadelphia.
111. A.G. Hauptmann, M.J. Witbrock, and M.G. Christel, Artificial Intelligence Techniques in the Interface to a Digital Video Library, Proceedings of the **CHI-97 Computer-Human Interface Conference** New Orleans LA, March 1997
112. M.J. Witbrock and A.G. Hauptmann, Improving Acoustic Models by Watching Television, Working Notes for **AAAI-97 Spring Symposium on Intelligent Integration and Use of Text, Image, Video and Audio Corpora**. March 24-26 1997, Stanford, pp 61-63
113. A.G. Hauptmann and M.J. Witbrock, Informedia News-On-Demand: Using Speech Recognition to Create a Digital Video Library, Working Notes for **AAAI-97 Spring Symposium on Intelligent Integration and Use of Text, Image, Video and Audio Corpora**. March 24-26 1997, Stanford, pp 120-126
114. M.J. Witbrock, and A.G. Hauptmann, Speech Recognition and Information Retrieval, Proceedings of the 1997 **DARPA Speech Recognition Workshop**, February 2-5, 1997.
115. A.G. Hauptmann and H.D. Wactlar, Indexing and Search of Multimodal Information, **International Conference on Acoustics, Speech and Signal Processing (ICASSP-97)** Munich, Germany, April, 1997
116. H.D. Wactlar, A.G. Hauptmann, and M.J. Witbrock, Informedia: News-on-Demand Experiments in Speech Recognition, **ARPA Speech Recognition Workshop**, February 18-21, 1996.
117. A.G. Hauptmann, Speech Recognition in the Informedia Digital Video Library: Uses and Limitations, **ICTAI-95 7th IEEE International Conference on Tools with AI**, Washington, DC, November 6-8, 1995.
118. A.G. Hauptmann, and M. Smith, Text, Speech, and Vision for Video Segmentation: The Informedia Project. **AAAI Fall Symposium, Computational Models for Integrating Language and Vision**. Boston, November 10-12, 1995
119. A.G. Hauptmann, M.J. Witbrock, A.I. Rudnicky, and S. Reed, Speech for Multimedia Information Retrieval, **UIST-95 Proceedings of User Interface Software and Technology**, Pittsburgh, PA, November, 1995.
120. H.D. Wactlar, A.G. Hauptmann, M. Smith and K. Pendyala, Automated Video Segmentation for On-Demand Retrieval from Very Large Video Libraries, The 138th **SMPTE Society of Motion Picture and Television Engineers Technical Conference**, Los Angeles, CA, 1995.

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122. A.G. Hauptmann and M.A. Smith, Video Segmentation in the Informedia Project, **IJCAI-95, Workshop on Intelligent Multimedia Information Retrieval** - Working Notes, Montreal, Quebec Canada. August 19, 1995, pp. 17 - 22.
123. L. Chase, R. Rosenfeld, A. Hauptmann, R. Mosur, E. Thayer, P. Placeway, W. Weide, and C. Lu, Improvements in Language, Lexical and Phonetic Modeling in Sphinx-II, Proceedings **ARPA Spoken Language Technology Workshop**, Austin TX January 1995, pp. 60-65.
124. J. Mostow, S. Roth, A.G. Hauptmann, and M. Kane, A Prototype Reading Coach that Listens, Twelfth **National Conference on Artificial Intelligence (AAAI94)**, Seattle, WA, August 1994. Recipient of the AAAI-94 Outstanding Paper Award.
125. J. Mostow, S. Roth, A. Hauptmann, M. Kane, A. Swift, L. Chase, and B. Weide, A Reading Coach that Listens (6-minute video), Video Track of the Twelfth **National Conference on Artificial Intelligence (AAAI94)**, Seattle, WA, August 1994.
126. A. Hauptmann, J. Mostow, S.F. Roth, M. Kane and A. Swift, A Prototype Reading Coach that Listens: Summary of Project LISTEN}, in Proceedings of the **ARPA Workshop on Human Language Technology**, Princeton, NJ: March 1994.
127. A.G. Hauptmann, L.L. Chase and D.J. Mostow, Speech Recognition applied to reading assistance for children: A baseline language model. } in **Eurospeech-93, 3rd European Conference on Speech Communication and Technology** - Proceedings, vol. 3, pp. 2255 - 2258, Berlin, Germany: ESCA, September 1993.
128. A.G. Hauptmann SpeakEZ: A first experiment in concatenation synthesis from a large corpus, in **Eurospeech-93, 3rd European Conference on Speech Communication and Technology** - Proceedings, vol. 3, pp. 1701 - 1705, Berlin, Germany: ESCA, September 1993.
129. D.J. Mostow, A.G. Hauptmann, L.L. Chase and S. Roth Towards a reading coach that listens: Automated detection of oral reading errors, "Proceedings of the Eleventh **National Conference on Artificial Intelligence (AAAI93)**", pp. 392 - 397, Washington, DC: American Association for Artificial Intelligence, July 1993.
130. A.G. Hauptmann, Meaning from Structure in Natural Language Processing, in Proceedings of **AAAI-91, National Conference on Artificial Intelligence**, pp. 125 - 130, July, 1991.
131. A.I. Rudnicky and A.G. Hauptmann, Models for evaluating interaction protocols in speech recognition, in CHI-91: Proceedings of the Conference on Computer Human Interfaces, May 1991.

132. A. Waibel, A.N. Jain, A.E. McNair, H. Saito, A.G. Hauptmann and J. Tebelskis, JANUS: a speech-to-speech translation system using connectionist and symbolic processing strategies, **ICASSP-91, International Conference on Acoustics, Speech and Signal Processing**, 1991.
133. A.G. Hauptmann and A.I. Rudnicky, A comparison of speech versus typed input, in Proceedings of the Third **DARPA Speech and Natural Language Workshop**, Morgan Kaufmann, San Mateo, CA. June 1990.
134. A.G. Hauptmann and A.I. Rudnicky, Speaking, Typing and Gesturing in **CHI-90 Workshop on Multimedia and Multimodal Interfaces**, International Conference on Human Factors in Computing Systems, Seattle WA, April 1990.
135. A.I. Rudnicky and A. G. Hauptmann Errors, Correction and Contrastive Emphasis in Speech Recognition Systems, in **AAAI Spring Symposium: Spoken Language Systems**, March 1989.
136. S.R. Young, A.G. Hauptmann and W.H. Ward, Layering Predictions: Flexible Use of Dialog Expectations in Speech Recognition), in **IJCAI-89, Proceedings of the Eleventh Annual Joint Conference on Artificial Intelligence**, August 1989.
137. A.G. Hauptmann, Speech and Gestures for Graphic Image Manipulation),
138. in **CHI-89: Proceedings of the Conference on Computer Human Interfaces**, May 1989.
139. A.G. Hauptmann, S.R. Young and W.H. Ward, Using Dialog-Level Knowledge Sources to Improve Speech Recognition, in Proceedings of **AAAI-88, The 7th National Conference on Artificial Intelligence**, Gregg, L.W. and Steinberg, E.R.(eds), August 1988.
140. W.H. Ward, A.G. Hauptmann, R.M. Stern and T. Chanak, Parsing Spoken Phrases Despite Missing Words, **ICASSP-88, International Conference on Acoustics, Speech and Signal Processing**, 1988.
141. R.M. Stern, W.H. Ward, A.G. Hauptmann and J. Leon, Sentence Parsing with Weak Grammatical Constraints, in **ICASSP-87, International Conference on Acoustics, Speech and Signal Processing**, August 1987.
142. P.J. Hayes, A.G. Hauptmann, J.G. Carbonell and M. Tomita, Parsing Spoken Language: a Semantic Caseframe Approach, **COLING-86, International Conference on Computational Linguistics**, August 1986.
143. S. Nakagawa, A.G. Hauptmann and M. Tomita, On Quick Word Spotting Techniques, **ICASSP-86, International Conference on Acoustics, Speech and Signal Processing**, April 1986.

TECHNICAL REPORTS

144. M. R. Naphade, L. Kennedy, J. R. Kender, S.-F. Chang, J. R. Smith, P. Over, and A. Hauptmann, "A Light Scale Concept Ontology for Multimedia Understanding for TRECVID 2005," IBM Research Technical Report, 2005.
145. C.G.M. Snoek and A.G. Hauptmann, Learning to Identify TV News Monologues by Style and Context, , Technical Report CMU-CS-03-193, October 2003.

146. Wactlar, H.D., Hauptmann, A.G., and Witbrock, M.J., Informedia News-on-Demand: Using Speech Recognition to Create a Digital Video Library, Technical Report, CMU-CS-98-109, Pittsburgh, PA, March 19, 1998.
147. Witbrock, M.J., and Hauptmann, A.G., Improving Acoustic Models by Watching Television, Technical Report, CMU-CS-98-110, Pittsburgh, PA, March 19, 1998.
148. A.G. Hauptmann, Meaning from Structure in Natural Language Processing, Ph.D. Dissertation, Technical Report CMU-CS-91-158, July 1991.
149. A.G. Hauptmann, P. McAvinney, and S. Shepard, Gesture Analysis for Graphic Manipulation, in Technical Report CMU-CS-88-198, November, 1988.
150. S.R. Young, A.G. Hauptmann and W.H. Ward, An Integrated Speech and Natural Language Dialog System: Using Dialog Knowledge in Speech Recognition, in Technical Report CMU-CS-88-128, April, 1988.

OTHER PUBLICATIONS

151. A.G. Hauptmann, M. Christel, R. Concescu, J. Gao, Q. Jin, W.-H. Lin, J.-Y. Pan, S. M. Stevens, R. Yan, J. Yang, Y. Zhang, "CMU Informedia's TRECVID 2005 Skirmishes", In TRECVID Workshop, 2005.
152. A. Hauptmann, M.-Y. Chen, M. Christel, C. Huang, W.-H. Lin, T. Ng, J. Yang, R. Yan, and H.D. Wactlar, Confounded Expectations Informedia at TRECVID 2004: Analyzing and Searching Broadcast News Video, Proceedings of (VIDEO) **TREC 2004 Text Retrieval Conference**, Gaithersburg, MD, November 2003.
153. A. Hauptmann, R.V. Baron, M.-Y. Chen, M. Christel, P. Duygulu, C. Huang, R. Jin, W.-H. Lin, T. Ng, N. Moraveji, N. Papernick, C.G.M. Snoek, G. Tzanetakis, J. Yang, R. Yan, and H.D. Wactlar, Informedia at TRECVID 2003: Analyzing and Searching Broadcast News Video, Proceedings of (VIDEO) **TREC 2003 Text Retrieval Conference**, Gaithersburg, MD, November 2003.
154. Hauptmann, A.G. Yan, R., Jin, R., Christel, M., Derthick, M., Chen, M., Lin, W., Baron, R. and Ng, T.D. Video Classification and Retrieval with the Informedia Digital Video Library System **TREC 2002, Text REtrieval Conference**, Gaithersburg, MD, November 2002.
155. Alexander G. Hauptmann, Rong Jin, Norman Papernick, Dorbin Ng, Yanjun Qi, Ricky Houghton, Sue Thornton: Video Retrieval with the Informedia Digital Video Library System. **TREC 2001, Text REtrieval Conference**, Gaithersburg, MD, November 2001.
156. A.G. Hauptmann, Integrating and Using Large Databases of Text, Images, Video and Audio}, *IEEE Intelligent Systems*, vol. 14, no. 5, pp. 34 - 35, September/October 1999.
157. Siegler, M., Jin, R. and Hauptmann, A., CMU Spoken Document Retrieval in TREC-8: Analysis of the role of Term Frequency TF, Proceedings of **TREC-8, The Eighth Text REtrieval Conference**, NIST, Gaithersburg, MD, November 1999.

158. Siegler, M., Berger, A., Witbrock, M. and Hauptmann, A., Experiments in Spoken Document Retrieval at CMU, **TREC-7, Proceedings of the 7th Text Retrieval Conference**, Gaithersburg MD, November, 1998.
159. Siegler, M.A., Witbrock, M.J., Slattery, S.T., Seymore, K., Jones, R.E., and Hauptmann, A.G., Experiments in Spoken Document Retrieval at CMU, **TREC-6 Proceedings of the 1997 Text REtrieval Conference**, Gaithersburg, MD, November 19-21, 1997.
160. A.G. Hauptmann, M.J. Witbrock and M.G. Christel. News-on-Demand: an Application of Informedia Technology. D-Lib Magazine, Sept 1995,
161. K.-F. Lee, A.G. Hauptmann and A.I. Rudnicky, The Spoken Word, in **BYTE**, July 1990.

VIDEO PRODUCTIONS

162. 1994 J. Mostow, S. Roth, A. Hauptmann, M. Kane, A. Swift, L. Chase, and B. Weide, A Reading Coach that Listens (6-minute video), Video Track of the Twelfth National Conference on Artificial Intelligence (AAAI94), Seattle, WA, August 1994.
163. 1988 Young, S.R., Hauptmann, A.G. and Ward, W.H. The Multimodal Interactive Dialog Systems (MINDS), several versions available.

CITATIONS AND AWARDS

- ACM Multimedia Best Paper Candidate: Yan, R., Yang, J., and Hauptmann, A., Learning Query-Class Dependent Weights in Automatic Video Retrieval, Proceedings of ACM Multimedia 2004, New York, NY, pp. 548-555, October 10-16, 2004
- Newell Award for Research Excellence, School of Computer Science, Carnegie Mellon University 2003
- The AAAI-94 Outstanding Paper Award, Twelfth National Conference on Artificial Intelligence, for J. Mostow, S. Roth, A. Hauptmann, and M. Kane, "A Prototype Reading Coach that Listens", 1994.
- PRIX ARS ELECTRONICA 93 Honorable Mention for Edge of Intention by the OZ/Animation Group (with J.Bates, A.Witkin, J.Altucher, A.Hauptmann, M.Kantrowitz, A.B.Loyall, K.Murakami, P.Olbrich, Z.Popovich, W.S.Reilly, P.Sengers, W.Welch and P.Weyrauch.

INVITED TALKS

- *March 2006, Google, A. Hauptmann, Effective Approaches to Video Search and Classification, Mountain View CA*
- *January 2006, A. Hauptmann, Intel Labs, Active Learning for Video Classification and "Extreme Video Retrieval", Santa Clara, CA.*
- *September 2003., A. Hauptmann, Machine Learning for Video Classification and Retrieval, ECML/PKDD-2003, Workshop on Multimedia Discovery and Mining, Dubrovnik, Croatia,*
- *July, 2003, A. Hauptmann, Evaluation of Video Retrieval, ARDA VACE Challenge Workshop on Video Event Ontologies, San Diego, CA.*
- *January 2003, Video Analysis in the Informedia Project, Fraunhofer Institute for Computer Graphics, Workshop: Multimedia Information Retrieval in Business Applications, Darmstadt, Germany.*
- *November, 2002. Invited Presentation, Finding Information in a Digital Video Archive, DIMACS Workshop on Video Mining. DIMACS Center, Rutgers University, Piscataway, New Jersey*
- *September 2002, Panel on "Semantic Multimedia Indexing", International Workshop on Digital Communication IWDC 2002: Advanced Methods for Multimedia Signal Processing, Capri, Italy, September 2002.*
- *August 2002, Location Based Multimedia Information for Mobile Environments, Seminar on Emerging Challenges of Mobile Multimedia Services, Chinese University of Hong Kong, Hong Kong.*
- *July 2002, Information Retrieval and Video Summarization, CIVR2002 International Conference on Image and Video Retrieval, London, U.K., 2002 (keynote address)*
- *January 2002, The Informedia Digital Video Library System and the TREC Video Retrieval Evaluations, Dagstuhl Seminar 02021: Content-Based Image and Video Retrieval, Schloss Dagstuhl, Wadern, Germany.*

- *May 2001, Automatic Content Extraction and Indexing of Video Data, Invited Talk, Information Technology for NIMA 2010-2020, National Imagery and Mapping Agency, Washington, DC.*
- *December, 2000, Content-based Video Retrieval, Invited Talk at the Multi Media Mining Retrieval Workshop, DaimlerChrysler, Ulm, Germany.*
- *October 2000, Multimedia Information Retrieval from a Digital Video Library", Invited Talk at the 6th International Workshop on Multimedia Information Systems, Chicago, IL, October 26-26, 2000.*
- *June 2000, Talk on Visualization and Summarization over Multiple Documents, DLI2 All-Projects Meeting, Stratford-upon-Avon, England, June 12-13, 2000.*
- *June 2000, Invited Talk on Multilingual Title Generation, Workshop on Cross Lingual Information Retrieval, Human Computer Interaction Laboratory (HCIL), University of Maryland, College Park MD.*
- *February 1999, Invited Talk on Information Retrieval from Video Documents, Center for Library and Information Science, University of Maryland, College Park MD.*
- *January 1999, Invited Talk on Information Extraction in the Informedia Digital Video Library, JustResearch Pittsburgh Research Center, Pittsburgh PA*
- *October 1998, Invited Presentation on Experience-on-Demand at the International Symposium for Wearable Computing ISWC, Pittsburgh PA.*
- *March 1997 Invited Talk on Multimedia Information Retrieval at ISI, University of Southern California, Los Angeles, CA.*
- *February 1997 - Invited Talk on Spoken Document Retrieval at AT&T Research Labs, Murray Hill, NJ.*
- *November 1996 - Invited Talk on Speech Recognition in Informedia at Lucent Technologies, NJ.*
- *October 1996 Invited Talk at the 10th Anniversary of the Center for Machine Translation, Carnegie Mellon University, Pittsburgh, PA.*
- *May 1996 Invited Talk at the University of Karlsruhe on Informedia News-on-Demand, Karlsruhe Germany.*
- *October 1995 - April 1996 Multiple Informedia presentations at ARPA in Washington DC to ARPA and military officials, including the Secretary of Defense. Washington, DC.*
- *August 1995 Informedia News-on-Demand System Demonstration at the ARPA STISS Symposium. Washington, DC.*
- *May 1995 Informedia News-on-Demand System Demonstration at the Association of American Universities Open House for Congressional members. Washington, DC.*
- *June 1994 Invited Presentation on Speech Synthesis at Apple Computer, Cupertino CA.*
- *February 1992 Invited Talk on Dialog in Speech Recognition System at the German Research Institute for Artificial Intelligence (DFKI), Saarbruecken, Germany.*

- *Panel on Glove-based Interfaces, HFS-91, Annual Meeting of the Human Factors Society, San Francisco, September 1991.*
- *March 1991 NCR Human Interface Technology Labs, The Use of Dialog in Speech Recognition Systems. Atlanta, GA.*

III. PROFESSIONAL ACTIVITIES

CONFERENCE AND WORKSHOP COMMITTEES

- 2006 Program committee, SPIE/EI, ACM Multimedia, CIVR
- 2005 Program committee, ICME, ACM Multimedia Conference, CIVR
- Summer 2005, SIGIR workshop in Multimedia Information Retrieval, San Salvador, Brazil
- Spring 2004, program committee of PCM2004, Pacific-Rim Conference for Multimedia, Tokyo, Japan
- Spring 2004 – Spring 2006 Co-Organizer of the ARDA VACE Challenge Workshops: Large-Scale Ontologies for Multimedia
- Spring 2004, Program committee, International Workshop Multimedia Data and Document Engineering, Washington, DC.
- Spring 2004, Program committee, ACM Multimedia.
- 2003-2004 Program committee, SPIE/EI Document Recognition and Retrieval Conference (DRR)
- Spring 2003 Co-Organizer of the AAAI Spring Symposium on Intelligent Multimedia Knowledge Management, Palo Alto, CA.
- Spring 2003, program committee, SIGIR 2003.
- Spring 2003, program committee, International Workshop Multimedia Data and Document Engineering, Berlin, Germany.
- Spring 2001, program committee, SIGIR 2001, New Orleans, LA.
- Spring 2001, program committee, International Workshop on Multimedia Data Mining, KDD 2001, San Francisco, CA.
- Spring 2000, program committee, RIAO 2000, Paris, France
- April 1999, program committee, ESCA Cambridge Robust Audio Information Extraction Workshop, Cambridge University, Cambridge, England
- August 1998, program committee, SIGIR-98 Workshop on Multimedia Indexing and Retrieval, Melbourne, Australia.
- May 1998, Co-organizer, Center for Automated Learning and Discovery, Workshop on Mixed Media Databases, Pittsburgh, PA
- 1999 Guest Editor of IEEE Expert Special Issue on the Integration of Text, Image, Video and Audio Information.
- March 1997 Co-Organizer of the AAAI Spring Symposium of intelligent integration of text, image, video and audio information.

CONSULTING

- 2004 – 2006, Consultant on Synthetic Interview Technology, MedRespond LLC, Pittsburgh, PA. 5 days/year
- March 1993 - June 1994 Consultant on Speech Synthesis for EER Systems Corp, Vienna VA. 5 days
- Spring 2000 Consultant on Synthetic Interview Technology for Westwind Media, Denver CO. 5 days

EDITORIAL BOARD MEMBERSHIPS

- 1992 - 1994, Member of the editorial board of the Journal of the American Voice Input/Output Society (AVIOS)
- 1994 - 1996, Member of the editorial board of the International Journal of Speech Technology.

OTHER

- 2003-2004 Grant Reviewer for Science Foundation Ireland (SFI) and the Dutch National Research Council (NWO)
- 2003-2005 Advisory Panel to TREC Video Retrieval Track
- 2001 - present, Co-founder, Carnegie Interactive, Pittsburgh, PA.
- 2001 - present, Co-founder and Board Member, MedRespond, Pittsburgh, PA.
- 1996-2000 Co-Founder and member of the board, Grand Illusion Studios, Inc., Pittsburgh PA.
- Sept 1997 Grant Reviewer for the National Endowment for the Humanities
- Spring 2001 Grant Reviewer for the Institute of Museum and Library Services
- Spring 2002 Grant Reviewer for the NSF Information Technology Proposals.
- 1998/1999 NIST SBIR Grant Reviewer

IV. TEACHING ACTIVITIES

COURSES TAUGHT AT CARNEGIE MELLON

- Fall 2002 minisemester “Multimedia”, Master of Science in Electronic Commerce Elective 20-791, taught together with Mike Christel.
- Fall 2001 minisemester “Multimedia”, Master of Science in Electronic Commerce Elective 20-791, taught together with Mike Christel.
- Fall 2000 minisemester “Multimedia”, Master of Science in Electronic Commerce Elective 20-791, taught together with Mike Christel.
- Fall 1999 minisemester “Multimedia”, Master of Science in Electronic Commerce Elective 20-791, taught together with Mike Christel.

COURSES TAUGHT OUTSIDE CARNEGIE MELLON

- Summer 2000, “Multimedia Digital Libraries”, ELSNET European Summer School on Language and Speech Communication, Chios, Greece

V. CONTRIBUTIONS TO EDUCATION

CURRICULUM DESIGN

- Multimedia, Course design for MSEC (with Mike Christel)

VI. STUDENT ADVISING

CURRENT PHD STUDENTS

Wei-Hao Lin

- 2001

Rong Yan

- 2001

Ming-Yu Chen

- 2002

Jun Yang

- 2003

COMPLETED PHD STUDENTS

Rong Jin

- *Statistical Approaches Toward Automatic Title Generation, 2003*

M.S. OR PH.D. THESIS COMMITTEE SERVICE

Matt Siegler

- Integration of Continuous Speech Recognition and Information Retrieval for Mutually Optimal Performance, 1999

Rosie Jones

- Exploiting Natural Language Structure for Bootstrapping Information Extraction, expected 2005

OTHER

- Advised LTI Master's students Paul Kennedy and Jaeyun Photina Jang.
- External PhD thesis committee member of Thijs Westerveld, University of Twente, Holland, 2004, "Using generative probabilistic models for multimedia retrieval"