Natural Language Processing

What is Natural Language Processing of Online Chat and Weblogs?
-NPS Chat Corpus
-Topic Detection in Chat
-Thread Extraction in Chat
-Authorship Attribution for Weblogs
-Detecting Sexual Predators in Online Chat
Semantic Search
Natural Language Processing of Requirements Documents
Speech and Gesture for Human/Robot Coordination
Computational Gesture Analysis

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Education
Ph.D., Computer and Information Sciences,
University of Pennsylvania, 2005
M.A., Philosophy, New School for Social Research, 1994
M.A., Political Science, Pennsylvania State University, 1992
B.A., Politics, Catholic University of America, 1987

Professional Associations
Association for Computational Linguistics (ACL)
Association for Symbolic Logic (ASL)
American Association for Artificial Intelligence (AAAI)
Association for Computing Machinery (ACM)
Institute of Electrical and Electronics Engineers (IEEE)

Professional Activity and Service
Technical Program Committee Co-Chair
2008 IEEE International Conference on Semantic
Computing, Santa Clara, CA, August 4-7, 2008

Program Committee Co-Chair
14th Monterey Workshop, *Workshop on Innovations for Requirements Analysis: From Stakeholders Needs to Formal Designs*, September 10-14, 2007, Monterey, CA

Journal and Conference Publications

P. Adams & C. Martell, Topic Detection and Extraction in Chat, *Proceedings of 2008 IEEE International Conference on Semantic Computing*, Santa Clara, CA, August 2008 (forthcoming).

G. Ball, K. Squire, C. Martell & M. Shing, **MAJIC: A Java Application for Controlling Multiple, Heterogeneous Robotic Agents**, *Proceedings of the 19th IEEE/IFIP International Symposium on Rapid Systems Prototyping*, Monterey, CA, June 2008.

C. Martell, P. Anand, R. Gera, et al., **A Semantic-Based Search Engine for Open Architecture Requirements Documents** *Proceedings of the 5thAnnual Acquisitions Research Symposium*, Monterey, CA, May 2008.

C. Martell & J. Kroll, **Corpus-Based Gesture Analysis: An Extension of the FORM Dataset for the Automatic Detection of Phases in Gesture**, *International Journal of Semantic Computing*, Vol. 1, No. 4, December 2007.

E. Sjoberg, K. Squire, & C. Martell, **Online Parameter Estimation of a Robot's Motion Model**, *Proceedings of the 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems*, San Diego, CA, USA, Oct/Nov 2007.

E. Forsyth & C. Martell, **Lexical and Discourse Analysis of Online Chat Dialog**, *Proceedings of the 2007 IEEE International Conference on Semantic Computing*, Irvine, CA, September 2007.

V. Berzins, C. Martell, Luqi, P. Adams, **Innovations in Natural Language Document Processing for Requirements Engineering**, *Proceedings of the 2007 Monterey Workshop*, Monterey, CA, September 2007.

N. Rowe, D. Barnes, M. McVicker, M. Egan, R. Betancourt, T. Toledo, D. Horner, D. Davis, L. Guiterrez, & C. Martell, **Do Word Clues Suffice in Detecting Spam and Phishing?**, *Proceedings of the 2007 IEEE Workshop on Information Assurance*, West Point, NY, June 2007.

L. Laribee, D. Barnes, N. Rowe & C. Martell, **Analysis and Defensive Tools for Social-Engineering Attacks on Computers Systems**, *Proceedings of 2006 IEEE Workshop on Information Assurance Workshop*, West Point, NY, June 2006.

C. Martell & J. Kroll, **Using FORM Gesture Data to Predict Phase Labels, International Workshop on Multimodal Corpora**, *Proceedings of the International Conference on Language Resources and Evaluation*, Genoa, Italy, May 2006.

M. Kolsch & C. Martell, **Towards a Common Human Gesture Description Language**, Workshop on Mixed Reality User Interfaces, *Proceedings of IEEE Virtual Reality 2006*, Alexandria, VA, March 2006.

B. MacWhinney, S. Bird, C. Cieri, & C. Martell, **TalkBank:**

Building an Open Unified Multimodal Database of Communicative Interaction, *Proceedings of the International Conference on Language Resources and Evaluation*, Lisbon, Portugal, May 2004.

B. MacWhinney, C. Martell, T. Schmidt, J. Wagner, P. Wittenburg, H. Brugman et al. **Collaborative Commentary: Opening Up Spoken-Language Databases**, *Proceedings of the International Conference on Language Resources and Evaluation*, Lisbon, Portugal, May 2004.

G. Kingston & C. Martell, **Degrees of Shared Awareness**, *Proceedings of the Ninth International Command and Control Research and Technology Conference*, Copenhagen, Denmark, September 2004.

C. Martell & C. Osborn, **FORM: An Extensible, Kinematically-based Gesture Annotation Scheme, V2**, *Proceedings of the International Conference on Spoken Language Processing*, Denver, CO, September 2002.

C. Martell, **FORM: An Extensible, Kinematically-based Gesture Annotation Scheme**, Proceedings of the International Conference on Language Resources and Evaluation, Las Palmas, Canary Islands, May 2002.

C. Martell, **The FORM Gesture Annotation System**, *Proceedings of the Workshop on Multimodal Resources and Multimodal Systems Evaluation Workshop*, International Conference on Language Resources and Evaluation, Las Palmas, Canary Islands, June 2002.

C. Martell, **An Agenda for Computational Gesture Studies**, *Proceedings of the First Congress of the International Society for Gesture Studies*, Austin, TX, June 2002.

C. Martell & P.T. Schoenemann, **Modeling Evolution of Language without "Mind Reading"**, *Proceedings Human Behavior and Evolution Society*, University College, London, June 2001.

P.T. Schoenemann and C. Martell, **A Neural-Net Model of Word Learning in Children that does not Require Language-Specific Innate Constraints**, *Proceedings Human Behavior and Evolution Society*, University College, London, June 2001.

Edited Volumes
G. Friedland & C. Martell, Eds., **Proceedings of the 2008 IEEE International Conference on Semantic Computing**, forthcoming.

B. Paech & C. Martell, Eds., **Proceedings of the 2007 Monterey Workshop**, forthcoming.

C. Martell & D. Loehr, Eds., **Special Issue on Gesture in Multimodal Systems**, *International Journal of Semantic Computing*, forthcoming, 2008.

Luqi & C. Martell, Eds., **Innovations for Requirements Engineering**, Naval Postgraduate School Technical Report #NPS-CS-08-001, 2008.

Book Chapters
V. Berzins, C. Martell, Luqi, P. Adams, **Innovations in Natural Language Document Processing for Requirements Engineering**, in *LNCS: Proceedings of the 2007 Monterey Workshop*, Springer, forthcoming.

C. Martell, **FORM**, in *Advances in Natural Multimodal Dialogue Systems*, J. van Kuppevelt, L. Dybjkaer, & N. Bernsen, eds, Springer, Dordrecht, The Netherlands, 2005, pp. 79-96

Other Publications
C. Martell, C. Osborn, L. Britt & K. Myers, **FORM1: Kinematic Gesture**, Data Publication, Linguistic Data Consortium, Philadelphia, PA, 2004

C. Martell, P. Howard, C. Osborn, L. Britt & K. Myers, FORM2: **Kinematic Gesture**, Data Publication, Linguistic Data Consortium, Philadelphia, PA, 2003

C. Martell, **Some Problems with Modeling Natural-Language Conditionals**, Technical Report, Department of Computer and Information Sciences, University of Pennsylvania, Philadelphia, PA, 2002

Invited Talks
Using FORM for Gesture Research, Stanford Language User Group (SLUGs), Stanford, CA, November 2004

Machine Learning of Non-Verbal Communication: An Experiment in Human-Augmented AI, The MOVES Institute, Monterey, CA, August 2004

Gesture as a long-distance biometric, Naval Postgraduate School, Monterey, CA, October 2003

Multi-Camera Conversational Data, National Institute of Standards, Washington, DC, April 2002

FORM and Annotation Graphs, Carnegie Mellon University/TalkBank Workshop on Gesture Research, Pittsburgh, PA, October 2001

Designing a System for Artificial Evolution, City University of Hong Kong, Hong Kong, May 2001