

CURRICULUM VITAE

Michael Ben Fleischman

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EDUCATION:

Massachusetts Institute of Technology, Cambridge, MA.
PhD in Computer Science, June 2008.
GPA 5.0/5.0

University of Southern California, Los Angeles, CA.
Masters of Sciences in Computational Linguistics, May 2002
GPA 4.0/4.0, Phi Kappa Phi.

Columbia College, Columbia University, New York, NY.
Bachelor of Arts. Majors: Philosophy, Psychology, December 1998
GPA 3.7/4.0, Cum Laude, Dean's List.

HONORS AND AWARDS:

Sigma Xi, 2008.

National Defense Science and Engineering Graduate Fellowship, 2003.

Phi Kappa Phi, 2002.

COMPUTER SCIENCE

RESEARCH:

Sept. 2003-2008 **Media Lab, Massachusetts Institute of Technology**, Cambridge, MA.
Graduate Research Assistant

- Grounded Language Modeling
Modeled relationship between words and video in broadcast sports. Trained Hierarchical Bayesian models on closed captioning data and temporal patterns mined from unlabeled sports video. Evaluations performed on video information retrieval and automatic speech recognition tasks. See Fleischman and Roy (2007,2008).
- Event Recognition
Automatically extracted temporal patterns of movement from video data for use as global features in a discriminative model of event recognition. Tree-Kernel Support Vector Machines were used to show performance over baseline Hidden Markov Models. See Fleischman et al. (2006).
- Situated Language Learning
Building computational models of natural language learning that exploit non-linguistic context. Experiments performed in virtual environments. Models show human-like learning performance. See Fleischman and Roy (COGSCI 2005).
- Situated Natural Language Interfaces
Designed a Natural Language Interface (NLI) for a virtual reality military training simulator that exploits non-linguistic context, or situation, in understanding. Situated NLI is compared to shallow parser and is found to be more accurate, efficient, and robust. See Fleischman and Hovy (2005).

May. 2002- **Information Sciences Institute (ISI)**, USC, Los Angeles, CA

- Sept. 2003 *Research Programmer*
- Ontology Construction
Creating large-scale, broad coverage Ontology through semi-automated merging algorithm. Employing both Machine Learning and heuristic techniques. Creating new upper model and investigating word sense and metonymic patterns.
 - Information Extraction
Using shallow syntactic patterns to extract concept-instance data from text. Using Machine Learning trained filters to increase precision and collected large corpora to combat low recall. See Fleischman and Hovy (ACL, 2003).
 - Semantic Role Labeling
Building automated system for the labeling of text with semantic information. Employed Maximum Entropy models in a tagging framework to achieve highest performance on a held out test set at current time. See Fleischman and Hovy (2003).

Sept. 2000-
May 2002 **Information Sciences Institute (ISI), USC, Los Angeles, CA**
Graduate Research Assistant, Dr. Eduard Hovy

- Named Entity Classification
Developed a system to categorize Named Entities into sub-classes (e.g. Politician, Entertainer, etc.). Employed statistical analysis of large corpora and machine learning techniques, such as Neural Networks, Bayesian Classifiers, Decision Trees, and Support Vector Machines. See Fleischman and Hovy (2002a, 2001).
- Emotion and Natural Language Generation
Developed a Natural Language Generation system for use in the Mission Rehearsal Environment (MRE) virtual training simulation developed at the Institute for Creative Technology (ICT). Generator uses information about the emotional state of the agent in order to rank multiple valid output utterances. See Fleischman and Hovy (2002b).
- Content Based Recommendations
Applied NLP techniques to making recommendations based on content, without user preference information. Used statistical learning methods to generate similarity scores between natural language summaries. See Fleischman and Hovy (2003).

NEUROSCIENCE RESEARCH

Jan. 1999-
August 2000 **Neuroscience Brain-Imaging Laboratory** – Mt. Sinai School of Medicine, New York
Research Coordinator, Dr. Monte Buchsbaum

- Assisted in brain-imaging research on human subjects with mental disorders using Positron Emission Tomography (PET) and Magnetic Resonance Imaging (MRI)
- Operated statistical and image processing software, created and managed subject databases, as well as oversaw the administration of laboratory grants and contracts

August 1999-
Sept. 1999 **Department of Neuroscience**, University of California at Irvine
Research Intern, Dr. James Fallon

- Identified and traced neuro-anatomical structures for development of Anatomical Standardization Technique used in brain imaging research.

Sept. 1998-
Dec. 1998 **Neurochemical Basis of Motivation and Learning Lab**, Columbia University, N.Y.
Research Assistant, Dr. Jon Horvitz

- Tested the effects of dopamine on distractibility in white rats

June 1996- **Neuropsychiatric Institute**, University of California at Los Angeles
Sept. 1997 *Research Assistant*, Dr. Robert Asarnow

- Assisted in longitudinal study of the heritability of various Axis I disorders

ADDITIONAL EDUCATION:

Tutorial on Language Processing by Humans, Taipei, Taiwan. August 2002
Americas School on Agents and Multi-Agent Systems, Los Angeles, CA. Jan. 2002.
Oxford School for Connectionist Modeling, Oxford, England. July 2001.

SKILLS:

Programming Languages: JAVA, PERL, C, LISP, SOAR, MatLab.
Platforms: PC, SOLARIS, LINUX.

COMPUTER SCIENCE PUBLICATIONS:

- Fleischman, M. and Roy, D. Grounded Language Modeling for Automatic Speech Recognition of Sports Video. *HLT/NAACL*. Columbus, OH. June 2008.
- Fleischman, M. and Roy, D. Unsupervised Content-Based Indexing of Sports Video Retrieval. 9th ACM Workshop on Multimedia Information Retrieval (MIR). Augsburg, Germany. September 2007.
- Fleischman, M. Roy, B. and Roy, D. Temporal Feature Induction for Sports Highlight Classification. *ACM Multimedia*. Augsburg, Germany. September 2007.
- Fleischman, M. and Roy, D. Situated Models of Meaning for Sports Video Retrieval. *HLT/ACL*. Rochester, NY. April 2007.
- Fleischman, M. and Roy, D. Representing Intentions in a Cognitive Model of Language Acquisition: Effects of Phrase Structure on Situated Verb Learning. *AAAI Spring Symposium*. Palo Alto, CA. March 2007.
- Fleischman, M., Decamp, P., and Roy, D. Mining Temporal Patterns of Movement for Video Content Classification. *8th ACM SIGMM International Workshop on Multimedia Information Retrieval*. Santa Barbara, CA. October 2006.
- Roy, D., Patel, R., DeCamp, P., Kubat, R., Fleischman, M., Roy, R., Mavridis, N., Tellex, S., Salata, A., Guinness, J., Levit, M., Gorniak, P. The Human Speechome Project. *28th Annual Cognitive Science Conference*. Vancouver, Canada. June, 2006.
- Fleischman, M. B. and Hovy, E. Taking Advantage of the Situation: Non-Linguistic Context for Natural Language Interfaces to Interactive Virtual Environments. 10th International Conference on Intelligent User Interfaces (IUI). Sydney, Australia. January 2006.
- Fleischman, M. B. and Roy, D. Why Verbs are Harder to Learn than Nouns: Initial Insights from a Computational Model of Intention Recognition in Situated Word Learning. 27th Annual Meeting of the Cognitive Science Society, Stresa, Italy. July 2005.
- Fleischman, M. B. and Roy, D. Intentional Context in Situated Language Learning. Ninth Conference on Computational Natural Language Learning, Ann Arbor, MI. June 2005.
- Fleischman, M. B. and Hovy, E. Multi-Document Person Name Resolution. 42nd Annual Meeting of the Association for Computational Linguistics, Reference Resolution Workshop, Barcelona, Spain. July 2004.

- Namhee Kwon, Fleischman, M., and Hovy, E. SENSEVAL Automatic Labeling of Semantic Roles Using Maximum Entropy Models. 42nd Annual Meeting of the Association for Computational Linguistics, SENSEVAL-3 Third International Workshop on the Evaluation of Systems for the Semantic Analysis of Text, Barcelona, Spain. July 2004.
- Namhee Kwon, Fleischman, M., and Hovy, E. Frame-Net Based Semantic Parsing Using Maximum Entropy Models. 21st International Conference on Computational Linguistics (COLING). Geneva, Switzerland, 2004.
- Philpot, A., Fleischman, M., and Hovy, E. Semi-automatic Construction of a General Purpose Ontology. International Lisp Conference, New York, New York. Oct. 2003.
- Fleischman, M., Hovy, E, and Echihiabi, A. Offline Strategies for Online Question Answering: Answering Questions Before They Are Asked. 41th Annual Meeting of the Association for Computational Linguistics, Sapporo, Japan. July 2003.
- Fleischman, M., Namhee Kwon, and Hovy, E. Maximum Entropy Models for FrameNet Classification. Empirical Methods in Natural Language Processing, Sapporo, Japan. July 2003.
- Fleischman, M. and Hovy, E. FrameNet Classification Using Maximum Entropy. HLT/NAACL. Edmonton, Canada, 2003.
- Traum, D., Fleischman, M. and Hovy, E. NL Generation for Virtual Humans in a Complex Social Environment. AAAI 2003 Spring Symposium on Natural Language Generation in Spoken and Written Dialogue. Palo Alto, CA, 2003.
- Fleischman, M. and Hovy, E. Recommendations without User Preferences: A Natural Language Processing Approach. Intelligent User Interfaces (IUI). Miami Beach, Florida, 2003.
- Fleischman, M. and Hovy, E. Fine Grained Classification of Named Entities. 19th International Conference on Computational Linguistics (COLING). Taipei, Taiwan, 2002.
- Fleischman, M. and Hovy, E. Emotional Variations in Speech-Based Natural Language Generation. International Natural Language Generation Conference. Arden House, New York, 2002.
- Fleischman, Michael. Automated Subcategorization of Named Entities. 39th Annual Meeting of the Association for Computational Linguistics, Student Research Workshop, Toulouse, France July 2001.

NEUROSCIENCE PUBLICATIONS:

- Buchsbaum MS, Nenadic I, Hazlett EA, Spiegel-Cohen J, Fleischman MB, Akhavan A, Silverman JM, Siever LJ. Differential metabolic rates in prefrontal and temporal Brodmann areas in schizophrenia and schizotypal personality disorder. *Schizophr Res.* 2002 Mar 1;54(1-2):141-50.
- Shihabuddin, L., Buchsbaum, M.S., Hazlett, E.A., Silverman, J., New, A., Brickman, A.M., Mitrapoulou, V., Nunn, M., Fleischman, M.B., Tang, C. & Siever, L.J. (1999). Striatal size and relative glucose metabolic rate in Schizotypal Personality Disorder and Schizophrenia. *Arch. Gen. Psychiatry.* 2001;58:877-884.
- Hazlett EA, Buchsbaum MS, Tang CY, Fleischman MB, Wei T, Byne W, Haznedar MM. Thalamic activation during an attention-to-prepulse startle modification paradigm: a functional MRI study. *Biological Psychiatry.* 2001 Aug 15;50(4):281-91.
- Grossman, R., Yehuda, R., Sta. Maria, N., Dolan, S., Flesichman, M., Naidiach, T., Buchsbaum, M. 18FDG PET imaging of central glucocorticoid sensitivity in PTSD. *American Psychiatric Association*, Chicago, IL, May 2000.
- Hazlett, E.A., Buchsbaum, M.S., Jeu, L.A., Nenadic, I., Fleischman, M.B., Shihabuddin, L., Haznedar, M.M., Harvey, P.D. Hypofrontality in unmedicated schizophrenia patients studied with PET during performance of a serial verbal learning task. *Schizophrenia Research* 43 (2000) 33-46.

- Heath, D., Gaser, C., Nenadic, I., Bloom, R., Fleischman, M., Platholi, J., Haznedar, M., Aronowitz, J., Buchsbaum, M. S. Preliminary Data on Neuroimaging Correlates of Diagnosis and Treatment of Prodromal Psychotic States and Sleep Paralysis. 2nd International Conference on Early Psychosis, New York, NY, April 2000.
- Schnur, D., Smith, S., Hazlett, E., Fleischman, M., Nisimova, M., Ahmed, S., Buchsbaum, M.. Quantitative MRI in Bipolar and Schizophrenic Patients. [Abstract] *Society of Biological Psychiatry Annual Meeting, Chicago, IL. 2000.*
- Shihabuddin, L., Buchsbaum, M.S., Tang, C., Brickman, A.M., Fleischman, M., New, A., Siever, L.J. Diffusion Tensor MRI in the Schizophrenia Spectrum. *American Psychiatric Association, Chicago, IL, May 2000.*
- Shihabuddin, L., Buchsbaum, M.S., Tang, C., Brickman, A.M., Fleischman, M., New, A., Siever, L.J. Diffusion Tensor Imaging in Schizophrenia and Schizophrenia Spectrum Disorders. *Society of Biological Psychiatry Annual Meeting 2000.*
- Grossman, R., Yehuda, R., Sta. Maria, N., Lee, R., Fleischman, M., de Leon, M., Buchsbaum, M. Hydrocortizone PET Study of Central Glucocorticoid Sensitivity. *International Society for Traumatic Stress Studies, Miami, Florida, November 1999.*
- Nenadic, I., Buchsbaum, M.S., Fleischman, M.B., Akhavan, A., Zhang, L., Hazlett, E. Altered Metabolism of Cortical Brodmann areas in Schizophrenia During a verbal Learning Task. *Hans Berger Conference, Jena, Germany; Sept. 1999.*