BIOGRAPHICAL SKETCH

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NAME: Manning, Christopher David

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POSITION TITLE: Thomas M. Siebel Professor in Machine Learning, Professor of Linguistics and of Computer Science

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
The Australian National University, Australia	B.A.	06/1989	Mathematics, Computer Science & Linguistics
Stanford University, Stanford, CA	Ph.D.	12/1994	Linguistics

A. Personal Statement

My primary research goal is to develop computers methods that can intelligently process, understand, and generate human language. I am the inaugural Thomas M. Siebel Professor in Machine Learning in the Departments of Computer Science and Linguistics at Stanford University. I have led the application of deep learning to natural language processing (NLP), with well-known research on Tree Recursive Neural Networks, sentiment analysis, neural network dependency parsing, the GloVe model of word vectors, machine translation, and deep language understanding. I also focus on computational linguistic approaches to parsing, robust textual inference and multilingual language processing, including being a principal developer of Stanford Dependencies and Universal Dependencies. I have coauthored some of the most widely read textbooks on statistical approaches to NLP (Manning and Schütze 1999) and information retrieval (Manning, Raghavan, and Schütze, 2008). I am an ACM Fellow, an AAAI Fellow, an ACL Fellow, and a Past President of the ACL. I have won ACL, Coling, EMNLP, and CHI Best Paper Awards. I am the founder of the Stanford NLP group and manage development of the Stanford Core NLP software. I have an ongoing rich collaboration with Dr. Langlotz through a PhD student we both supervise, and have worked on several biomedical NLP tasks in the recent past. I am excited and interested to extend NLP methods developed outside of medicine for the unique properties of imaging text. This grant provides a unique opportunity to develop a set of broadly useful tools for health care data, much like those I have already developed outside of biomedicine.

B. Positions and Honors

Positions and Employment

1996	Computer Systems Officer, Department of House of Representatives, Canberra, Australia
1989-1990	Teacher, Ichihara Chuo Gakko, Chiba-ken, Japan
1994-1996	Assistant Professor, Computational Linguistics Program, Department of Philosophy, Carnegie Mellon University.
1996-1999	Lecturer (tenured from 1998), Department of Linguistics, University of Sydney.
9/1/1999-2006	Assistant Professor of Computer Science and Linguistics, Stanford University
9/1/2006-2012	Associate Professor of Computer Science and Linguistics, Stanford University.
2010-2011	Visiting faculty at Google while on sabbatical from Stanford.
9/1/2012-2016	Professor of Computer Science and Linguistics, Stanford University.
2/14/2016-present	Thomas M. Siebel Professor in Machine Learning, Professor of Linguistics and of Computer Science, Stanford University.

Other Experience and Professional Memberships

1993-1994	Member, Interim Committee on the Status of Minorities in Linguistics, Linguistic Society of America

1993-1995	Member, Executive Committee (Bernard and Julia Bloch Memorial Fellow), Linguistic Society of America
1998-2000	Member, Computational Linguistics Editorial Board, Association for Computational Linguistics
2003-2006	Member, Committee on Endangered Languages and Their Preservation, Linguistic Society of America
2006-2012	Treasurer for the North American Chapter, Association for Computational Linguistics
2015	President, Association for Computational Linguistics
2013-2016	Executive Board, Association for Computational Linguistics
2015-2019	Nominating Committee, Association for Computational Linguistics

Honors

1999-2002	Frederick E. Terman Fellowship, Stanford University
2001, 2002,	IBM Faculty Partnership Award, Stanford University
2007-2011	Sony Faculty Scholar in the School of Engineering, Stanford University
2010	American Association for Artificial Intelligence (AAAI) Fellow
2011	Fellow of the Association for Computational Linguistics (ACL)
2013	Fellow of the Association for Computing Machinery

C. Contributions to Science

I have written two seminal textbooks and review articles that comprehensively describe the underpinnings of modern computational linguistics and natural language processing.

1. Christopher D. Manning, Prabhakar Raghavan, and Hinrich Schutze. 2008. Introduction to Information Retrieval. Cambridge: Cambridge University Press.
2. Christopher D. Manning and Hinrich Schutze. 1999. Foundations of Statistical Natural Language Processing. Cambridge, MA: MIT Press.
3. Julia Hirschberg and Christopher D. Manning. 2015. Advances in natural language processing. Science 349:261–266.
4. Christopher D. Manning. 2015. Computational linguistics and deep learning. Computational Linguistics 41:701–707.

My laboratory has created a widely used software library for natural language processing and computational linguistics, the Stanford CoreNLP Toolkit.

1. C. D. Manning, M. Surdeanu, J. Bauer, J. Finkel, S. J. Bethard, D. McClosky, The Stanford CoreNLP Natural Language Processing Toolkit, in Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics, System Demonstrations (Association for Computational Linguistics, Stroudsburg, PA, 2014), pp. 55–60. http://nlp.stanford.edu/software/corenlp.html .
2. Spence Green, Marie-Catherine de Marneffe, and Christopher D. Manning. 2013. Parsing models for identifying multiword expressions. Computational Linguistics 39:195–227.
3. Dan Klein, Christopher D Manning. Accurate unlexicalized parsing. Proceedings of the 41st Annual Meeting on Association for Computational Linguistics-Volume 1. Association for Computational Linguistics, 2003.

I have developed many novel machine learning methods to extract information from biomedical narrative and for the purpose of image understanding.

1. Sonal Gupta, Diana L. MacLean, Jeffrey Heer, and Christopher D. Manning. 2014. Induced lexico-syntactic patterns improve information extraction from online medical forums. Journal of the American Medical Informatics Association (JAMIA) 21:902–909.
2. Richard Socher, Andrej Karpathy, Quoc V. Le, Christopher D. Manning, and Andrew Y. Ng. 2014. Grounded compositional semantics for finding and describing images with sentences. Transactions of the Association for Computational Linguistics pp. 207–218.
3. David McClosky, Sebastian Riedel, Mihai Surdeanu, Andrew McCallum, and Christopher D. Manning. 2012. Combining joint models for biomedical event extraction. BMC Bioinformatics 13 (Suppl 11).

4. Shipra Dingare, Malvina Nissim, Jenny Finkel, Christopher Manning, and Claire Grover. 2005. A system for identifying named entities in biomedical text: How results from two evaluations reflect on both the system and the evaluations. Comparative and Functional Genomics 6:77–85.

I have devised widely used word embedding methods, including Glove, and associated neural network and other machine learning approaches to natural language understanding and computational linguistics:

1. Jeffrey Pennington, Richard Socher, Christopher Manning. Glove: Global vectors for word representation. Proceedings of the 2014 conference on empirical methods in natural language processing (EMNLP), pp 1532-1543. 2014. https://nlp.stanford.edu/projects/glove/
2. Kristina Toutanova, Aria Haghighi, and Christopher D. Manning. 2008. A global joint model for semantic role labeling. Computational Linguistics 34:161–191.
3. Eric H Huang, Richard Socher, Christopher D Manning, Andrew Y Ng. Improving word representations via global context and multiple word prototypes. Proceedings of the 50th Annual Meeting of the Association for Computational Linguistics: Long Papers-Volume 1. pp 873-882 2012.
4. Kai Sheng Tai, Richard Socher, Christopher D Manning. Improved semantic representations from tree-structured long short-term memory networks. Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics. Pp 1556–1566. 2015. https://arxiv.org/abs/1503.00075

My laboratory has developed and evaluated novel machine learning methods for language understanding in several other domains:

1. Sida I. Wang, Samuel Ginn, Percy Liang, and Christopher D. Manning. 2017. Naturalizing a programming language via interactive learning. In Proceedings of the 55th Annual Meeting of the Association for Computational Linguistics (Volume 1), pp. 929–938.
2. Kevin Clark and Christopher D. Manning. 2016. Deep reinforcement learning for mention-ranking coreference models. In Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing, pp. 2256–2262.
3. Abigail See, Peter J. Liu, and Christopher D. Manning. 2017. Get to the point: Summarization with pointer-generator networks. In Proceedings of the 55th Annual Meeting of the Association for Computational Linguistics (Volume 1), pp. 1073–1083.
4. Danqi Chen, Jason Bolton, and Christopher D. Manning. 2016. A thorough examination of the CNN/Daily Mail reading comprehension task. In Proceedings of the 54th Annual Meeting of the Association for Computational Linguistics (Volume 1), pp. 2358–2367.

Complete List of Published Work:
https://scholar.google.com/citations?user=1zmDOdwAAAAJ&hl=en

D. Additional Information: Research Support and/or Scholastic Performance

On-going Research Support

IIS-1514268 (PI: Jurafsky) 06/01/15 – 05/31/19
National Science Foundation
RI: Medium: Deep Reading: Integrating Neural and Symbolic Models of Meaning
Major goal: The goal of this project is to develop systems that can build richer understandings of text than current systems. This project develops compositional forms of deep learning that bridge between lexical and compositional semantics.
Role: Co-PI

W911NF-15-1-0462 (PI: Liang) 07/31/15 – 07/30/20
Defense Advanced Research Projects Agency
Deep Models of Compositionality and Context
Major Goal: Develop deep neural network methods to represent the semantics of positive and negative long phrases in a principled way.
Role: Co-PI

Agreement# 135254 (PI: Manning) 01/01/18 – 12/31/19

JD.com American Technologies Corporation
SAIL-JD AI Research Initiative
Major Goal: Foundational research concerning advanced AI technologies, including machine learning, deep learning, robots, natural language processing and computer vision.
Role: PI

Completed Research Support

HR0011-12-C-0015 (PI: Manning) 10/12/11 – 09/30/16
Defense Advanced Research Projects Agency / International Business Machines Corporation
DELPHI: Distributed Empirical Language Processing for Human Interaction; Stanford subcontract
Major Goal: Employ distributed semantic representations to sophisticated natural language processing tasks related to human interaction.
Role: PI

SPO# 108654 (PI: Manning) 08/01/12 – 12/31/16
Allen Institute for Artificial Intelligence (AI2)
Question Answering Using Linguistic Features and Textual Inference
Major Goal: Develop an approach to broad question answering by incorporating shallow lexical methods (broad coverage) and logical reasoning (high precision) in a unified framework based on natural logic
Role: PI

FA8750-13-2-0040 (PI: Manning) 10/26/12 – 12/31/17
Defense Advanced Research Projects Agency
Robust Deep Semantics for Language Understanding
Major Goal: Pioneered methods for deep learning for natural language understanding, effective knowledge base construction from text, natural logic methods for text understanding, improved mention co-reference algorithms, and the further development of multilingual tools in CoreNLP.
Role: PI

SPO# 124344 (Manning) 01/01/16 – 12/31/17
Ford Research and Innovation Center
Natural Language Processing for Noise-Robust Conversational Voice Recognition Systems in Cars
Major Goal: Develop a new neural dialogue agent that is able to effectively sustain grounded, multi-domain discourse spanning three distinct tasks in the in-car personal assistant space through a novel key-value retrieval mechanism.
Role: PI