

# Lee I Newman

Curriculum Vitae, October 2009

IE University, School of Psychology  
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## Research Interests

I am interested in the cognitive and computational bases of human decision making, and more specifically in individual differences in decision making under risk and uncertainty. My research approach involves: (i) identifying key dimensions of variation in a decision task; (ii) revealing important clusters of decision makers based on these dimensions; (iii) characterizing these clusters based on measures of cognitive performance, personality, and biological correlates; and (iv) developing computational models to better understand decision mechanisms through simulation and prediction. I am also interested in understanding the environmental, task-specific, and person-specific factors that might be manipulated to positively influence decision performance. As a secondary interest, I have also studied the development and structure of object representations in ventral visual cortex using biologically-inspired computational models.

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## EDUCATION

### University Of Michigan

Ph.D., Psychology and Computer Science and Engineering 2009

Certificate, Program in Cognitive Science & Cognitive Neuroscience

Program Interdisciplinary doctoral program combining Psychology (Cognition and Cognitive Neuroscience) and Computer Science (Intelligent Systems). Completed candidacy qualifications in both departments with coursework in psychology, cognitive neuroscience, and computer science.

Dissert. The mechanisms of choice under uncertainty: Revealing, characterizing and modeling individual differences in decision style in the Iowa Gambling Task.

Advisor Dr. Thad Polk

### Massachusetts Institute of Technology

S.M., Management Science, MIT Sloan School of Management 1992

S.M., Technology and Policy, Technology & Policy Program 1992

Program Completed MBA program and an interdisciplinary Masters degree in policy focused on the economic, social and political implications of science and technology.

Thesis The performance of learning curve strategies in a disequilibrium environment with dynamic demand. (See publication: Sterman, et. al. 2008.)

Advisors Drs. Rebecca Henderson and John Sterman

### Brown University

Sc.B. *With Honors* and *magna cum laude*, Electrical Engineering 1989

Thesis A neural network architecture for speaker independent phonetic speech classification.

Advisor Dr. Harvey Silverman

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## HONORS, AWARDS, AND FELLOWSHIPS

### Research Fellowships & Awards

<b>Marquis Award for Distinguished Dissertation</b> , Dept. Psychology, University of Michigan	2009
<b>One-Term Dissertation Fellowship</b> , Rackham Graduate School, University of Michigan	2009
<b>Dissertation Research Grant</b> , Department of Psychology, University of Michigan	2008
<b>Allen Newell Student Paper Prize</b> , International Conference on Cognitive Modeling	2007
<b>Spring/Summer Research Grant</b> , Rackham Graduate School, University of Michigan	2007
<b>Predocctoral Fellowship</b> , Rackham Graduate School, University of Michigan	2006
<b>Spring/Summer Research Grant</b> , Rackham Graduate School, University of Michigan	2005
<b>Honorable Mention</b> , NSF Graduate Research Fellowship	2004, 2005
<b>Regents Fellowship</b> , University of Michigan	2002

### Teaching Awards

<b>McKeachie Award Nomination</b> , American Psychological Association Nominated for national teaching award by Dept. of Psychology, University of Michigan.	2009
<b>Outstanding Graduate Student Instructor</b> , Rackham Graduate School, U. Michigan Highest competitive teaching award given to twenty graduate students across the university by the Rackham School of Graduate Studies.	2006
<b>Outstanding Graduate Student Instructor</b> , Department of Psychology, U. Michigan One of three students recognized by the Department of Psychology for outstanding teaching.	2005, 2006

### Academic Awards & Honors

<b>Degree with Honors</b> , Brown University	1989
<b>magna cum laude</b> , Brown University	1989
<b>George H. Main Premium in Engineering</b> , Brown University	1989
<b>Tau Beta Pi</b> , Brown University	1989
<b>Sigma Xi</b> , Brown University	1989

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## PUBLICATIONS

### Manuscripts in Process

- Newman, L.I.**, Park, J. & Polk, T.A. (in preparation). Nature, nurture, and faces: A computational account of multiple genetic influences on the neural substrates of face processing.
- Newman, L.I.**, Bechara, A., Preston, S.D., Weller, J.A., and Polk, T.A. (in preparation). A reexamination of decision making in the Iowa Gambling Task: Not everyone plays the same game.

### Articles in Refereed Journals

- Polk, T.A., Lacey, H.P., Nelson, J.K., Demiralp E., **Newman, L.I.**<sup>1</sup>, et. al. (2009). The development of abstract letter representation for reading: Evidence for the role of context. *Cognitive Neuropsychology* 26(1), 70-90.
- Park, J., **Newman, L.I.**<sup>2</sup> & Polk, T.A. (2009). The interplay of nature and nurture in face processing. *The Neuroscientist* 15(5), 445-449.
- Sterman, J.D., Henderson, R., Beinhocker, E.D., & **Newman, L.I.**<sup>3</sup> (2007). Getting big too fast: Strategic dynamics with increasing returns and bounded rationality. *Management Science* 53(4), 683-696.

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<sup>1</sup> Designed computational model, performed simulations, and wrote modeling section of the article.

<sup>2</sup> Contributed ideas and edited paper.

<sup>3</sup> Article based on unpublished MIT Masters thesis by Newman and Beinhocker and advised by Henderson and Sterman.

## Book Chapters

**Newman, L.I.** & Polk, T.A. (2008). “The computational cognitive neuroscience of learning and memory: Principles and models”, in Guadagnoli, M., Benjamin, A., DeBelle, S., Etnyre, B. & Polk, T.A., *Human Learning: Biology, Brain, and Neuroscience*, (77-99). Oxford, UK: Elsevier Ltd.

## Articles in Refereed Conference Proceedings

**Newman, L.I.**, Polk, T.A., & Preston, S.D. (2008). Revealing individual differences in the Iowa Gambling Task, In B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), *Proceedings of the 30th Annual Conference of the Cognitive Science Society* (1067-1072). Austin, TX: Cognitive Science Society.

**Newman, L.I.** & Polk, T.A. (2007). The emergence of semantic topography in a neurally-inspired computational model, *Proceedings of ICCM, Eighth International Conference on Cognitive Modeling*, (103-108). Oxford, UK: Taylor & Francis/Psychology Press.

## Conference Presentations

**Newman, L.I.** & Polk, T.A. (2009, March). “How nature shapes nurture: A computational account of genetic influences on the neural substrates of face processing”. Poster presented at *14<sup>th</sup> Annual Meeting of Cognitive Neuroscience Society*. San Francisco, CA.

**Newman, L.I.**, Polk, T.A., & Preston, S.D. (2008, September). “Modeling individual differences in the Iowa Gambling Task”. Poster presented at *Annual Conference of the Society for NeuroEconomics*. Park City, UT.

**Newman, L.I.**, Polk, T.A., & Preston, S.D. (2008, July). “Revealing individual differences in the Iowa Gambling Task”. Poster presented at *30th Annual Conference of the Cognitive Science Society*. Washington, DC.

**Newman, L.I.** & Polk, T.A. (2008, April). “The emergence of semantic topography and category-specific impairments in a neurally-inspired computational model”. Poster presented at *13<sup>th</sup> Annual Meeting of Cognitive Neuroscience Society*. San Francisco, CA.

**Newman, L.I.** & Polk, T.A. (2007, July). “The emergence of semantic topography in a neurally-inspired computational model”. Paper presented at *8<sup>th</sup> International Conference on Cognitive Modeling*. Ann Arbor, MI.

**Newman, L.I.** & Polk, T.A. (2006, November). “The emergence of semantic representations from topographic sensory maps”. Paper presented at *Computational Cognitive Neuroscience Conference*. Houston, TX.

**Newman, L.I.** & Polk, T.A. (2006, May). “Clusters, symbols, and cortical topography”. Presentation at *26th Annual Soar Workshop*. Ann Arbor, MI.

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## SERVICE & PROFESSIONAL ACTIVITIES

### Department of Psychology, University of Michigan

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|---|------------|
| <b>Member, Executive Committee</b>  | 2006/07    |
| Elected by department to serve as a voting member of the Executive Committee.   |            |
| <b>Departmental Associate</b>   | 2006/07    |
| Elected by department to serve as a voting participant in faculty meetings.   |            |
| <b>Member, Recruiting Committee</b>   | 2005, 2006 |
| Helped plan and manage graduate recruitment activities in the Cognition and Perception Area.  |            |
| <b>Computational &amp; Cognitive Neuroscience Reading Group</b>   | 2004       |
| Founded an interdisciplinary reading group to bring together faculty and students in Psychology, Neuroscience, and Computer Science who shared a common interest in computational explanations of the neural substrates of cognition (See: <a href="http://www.eecs.umich.edu/~leenewm/ccnrg/">http://www.eecs.umich.edu/~leenewm/ccnrg/</a> ). |            |

## Ad-Hoc Reviewing

Cognitive Science Society Conference

## Professional Memberships

American Association for Advancement of Science  
 American Psychological Association  
 Cognitive Neuroscience Society  
 Cognitive Science Society  
 Institute for Electrical and Electronic Engineers  
 Society for Neuroeconomics  
 Society for Judgment and Decision Making

## TEACHING

### Guest Lectures

#### Department of Psychology, University of Michigan

Invited lectures of 1.5 hours for the course *Introduction to Cognitive Psychology*. Class size of approximately 200-300 students. Podcasts of sample lectures available on request.

<i>Judgment &amp; Decision Making.</i>	2008
<i>Deductive Reasoning.</i>	2008
<i>Visual Imagery I: Visual Memory, Spatial Memory, Heuristics.</i>	2007
<i>Top-Down Perception: Expectations, Context Effects &amp; Interactive Activation.</i>	2007
<i>Language I: Structure and Meaning.</i>	2007
<i>Long Term Memory: Semantic Networks.</i>	2007
<i>Language: Structure, Meaning, Localization in the Brain.</i>	2007
<i>Language: Structure, Meaning, Localization in the Brain.</i>	2006
<i>Judgment and Decision-Making.</i>	2006

### Courses

#### Departments of Psychology and EECS, University of Michigan

Served as a Graduate Student Instructor for ten terms and approximately 650 undergraduate students. Responsibilities included planning and teaching weekly sections, one-on-one meeting with students in office hours, informal mentoring, running exam reviews sessions, and assigning grades. Teaching evaluations, student letters and anonymous comments, and faculty references available on request.

<i>Introduction to Cognitive Psychology</i>	2004, 2005, 2006, 2007, 2008
Median Instructor Rating: 4.92 out of 5.0	
Taught with Drs. Thad Polk, Bill Gehring, and Cindy Lustig. Responsible for three discussion sections, 75 undergraduate students.	
<i>Introduction to Psychopathology</i>	2006, 2009
Median Instructor Rating: 4.94 out of 5.0	
Taught with Dr. Joseph Gone. Responsible for two discussion sections, 60 undergraduate students.	
<i>Introduction to Human Neuropsychology</i>	2005
Median Instructor Rating: 4.93 out of 5.0	
Taught with Dr Jeffrey Hutsler. Responsible for two discussion sections , 70 undergraduate students.	
<i>Introduction to Artificial Intelligence</i>	2003, 2004
Median Instructor Rating: 4.48 out of 5.0	

Taught with Drs. Satinder Baveja-Singh, Michael Wellman. Responsible for two discussion sections, 50 graduate and undergraduate students.

### Undergraduate Mentoring

Tracy Ederer, <i>UM Psychology Program</i>	2008/09
Honors Thesis: "Revealing individual differences in decision-making behavior."	
Awards: LSA Honors Research Award; Tanner Memorial Award for Innovative Research; Virginia Voss Memorial Award for Technical Writing; Psychology Department Best Poster Award.	
Kristin Pearson, <i>UM Brain, Behavior &amp; Cognitive Science Program</i>	2006/07
Honors Thesis: "Individual differences in verbal working memory".	
Awards: Anne Rudo Memorial Award.	
Zachary Guren, <i>UM Psychology Program</i>	2006/07
Honors Thesis: "Testing the validity of a fixed history method for the Iowa Gambling Task."	
Sally Hollister, <i>UM Brain, Behavior &amp; Cognitive Science Program</i>	2005/06
Honors Thesis: "Articulatory versus acoustic coding in verbal working memory."	

### Service & Training in Teaching

#### Center for Research on Learning and Teaching, University of Michigan

Facilitator, Training for New Graduate Student Instructors	2009
Participant, New Graduate Student Instructor Training, Department of Psychology	2004
Participant, New Graduate Student Instructor Training, College of Engineering	2003

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## PROFESSIONAL EXPERIENCE

<b>HR One, Inc.</b>	New York, NY
<b>Founder &amp; Executive Vice President of Product Development</b>	1999-2001
Served as senior manager in company that provided web-based human resource products and services to small businesses. Raised institutional funding. Formulated business plan and corporate strategy as member of the executive team and Board of Directors. Managed \$2M budget. Responsible for product development. Hired and managed 25-person team. Developed and launched 15 products.	
<b>Brainstorm Interactive, Inc.</b>	New York, NY
<b>Founder &amp; Chief Operating Officer</b>	
Founded, built and sold company providing online services for professional and affinity-based networking and knowledge sharing. Raised private funding. Managed \$1M budget. Responsible for product development. Hired and managed 8-person team. Acquired 65,000 subscribers.	
<b>McKinsey &amp; Company, Inc.</b>	Chicago, IL
<b>Engagement Manager</b>	1992-1995
Served as a management consultant addressing core issues of Fortune 1000 executives. Managed project teams with a focus on organizational performance improvement and reengineering. Designed and conducted analytical problem solving efforts, developed findings, and presented recommendations to management. Worked with clients to establish performance metrics and to develop organizational plans for implementing recommendations and tracking results. Industry experience: mining, industrial manufacturing, and consumer packaged goods.	

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**REFERENCES**
**Dr. Thad Polk**

*Research advisor  
Dissertation chair  
Teaching mentor (cognitive)*

**Department of Psychology, Cognition & Perception Area**  
University of Michigan  
530 Church Street, East Hall  
Ann Arbor, MI 48109  
tpolk@umich.edu • 734.647.6982

**Dr. David Meyer**

*Dissertation committee member  
Cognition & Perception area chair (current)*

**Department of Psychology, Cognition & Perception Area**  
University of Michigan  
530 Church Street, East Hall  
Ann Arbor, MI 48109  
demeyer@umich.edu • 734.763.1477

**Dr. William Gehring**

*Teaching mentor (cognitive)  
Cognition & Perception area chair (former)*

**Department of Psychology, Cognition & Perception Area**  
University of Michigan  
530 Church Street, East Hall  
Ann Arbor, MI 48109  
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**Dr. John Laird**

*Dissertation committee member  
Academic advisor in computer science*

**Computer Science & Engineering Division, AI Laboratory**  
University of Michigan  
2260 Hayward, 3753 CSE Building  
Ann Arbor, MI 48109  
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**Dr. Joseph Gone**

*Teaching mentor (clinical)*

**Department of Psychology, Clinical Area**  
University of Michigan  
530 Church Street, East Hall  
Ann Arbor, MI 48109  
jgone@umich.edu • 734.647.3958

**Dr. Scott Page**

*General reference*

**Center for Study of Complex Systems  
(and Departments of Economics, and Political Science)**  
University of Michigan  
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**BIOGRAPHICAL INFORMATION**

**Birth date:** November 27, 1966; St. Louis, MO, U.S.A.  
**Citizenship:** U.S.A.  
**Marital Status:** Married  
**Languages:** English, *Native*. Spanish, *Intermediate*. Portuguese, *Basic*.