

*Curriculum Vitae*  
Alinda Friedman  
June 2014

**Contact Information**

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**Citizenship** Canada

**Education**

1977	Ph.D. , Experimental Psychology, University of Colorado at Boulder
1973	M.A., Experimental Psychology, University of Colorado at Boulder
1971	B.A. (Magna Cum Laude), Psychology, SUNY at Stony Brook

**Appointments**

2014 – present	Professor Emeritus
2013 (Feb)	Visiting Researcher, Department of Geography, UC Santa Barbara, California
2013 (05-12)	Medical Leave
2009 (01-04)	Visiting Researcher, Department of Geography, UC Santa Barbara, California
1997-2014	Professor, Psychology, University of Alberta
1998-2002	Associate Chair of Graduate Studies in Psychology, University of Alberta
1994-1995	Visiting Associate Professor, University of Victoria, Victoria, Canada
1983-1997	Associate Professor, Psychology, University of Alberta
1979-1983	Assistant Professor, Psychology, University of Alberta
1978-1979	Assistant Professor, Psychiatry, University of Colorado School of Medicine, Denver, Colorado
1978-1979	Research Psychologist, Brain Sciences Laboratory, National Jewish Hospital & Research Center, Denver, Colorado
1977-1978	Instructor, Department of Psychiatry, University of Colorado School of Medicine, Denver, Colorado
1976-1978	Research Associate, Psychophysiology Laboratory, National Jewish Hospital & Research Center, Denver, Colorado
1972-1976	Research & Teaching Assistant, Department of Psychology, University of Colorado, Boulder
1971-1972	Research & Teaching Assistant, Department of Psychology, University of Massachusetts, Amherst
1969-1971	Research & Teaching Assistant, Department of Psychology, SUNY at Stony Brook, New York

## Professional Associations

Fellow, American Psychological Association, Division 3 (elected January, 2004)  
Fellow, American Psychological Society (elected January 1998)  
Member, Canadian Obesity Network  
Member, Canadian Society for Brain, Behavior, & Cognitive Science  
Member, Cognitive Science Society  
Member, Psychonomic Society  
Member, Spatial Intelligence & Learning Center (since March, 2007)  
Member, Scientific Advisory Board, SYSTAT, Inc. (since Sept 2007)

## Professional Service

### Editorial

2007 - present Editorial Board, *Spatial Cognition and Computation: An Interdisciplinary Journal*  
1997-2004 Consulting Editor, *Canadian Journal of Experimental Psychology*  
1989-1997 Consulting Editor, *Memory and Cognition*  
1979-1982 Consulting Editor, *Journal of Experimental Psychology: Human Perception & Performance*

### Grant Reviewer

Canada Council for the Arts  
Natural Sciences and Engineering Research Council (Canada; NSERC)  
National Science Foundation (U.S.; NSF)  
Israel Science Foundation

### Journal Reviewer

*Acta Psychologica; Applied Cognitive Psychology; Canadian Journal of Psychology; Cognitive Psychology; Developmental Psychology; IEEE Transactions in Applied Perception; Field Methods; JEP: Applied, JEP General; JEP: Human Perception & Performance; JEP: Learning, Memory, & Cognition; Journal of Memory & Language; Journal of Verbal Learning & Verbal Behavior; Memory & Cognition; Perception & Psychophysics; Psychological Science; Psychonomic Bulletin & Review; Quarterly Journal of Experimental Psychology; Human Experimental Psychology*

### Conference Reviewer

Conference on Spatial Information Theory (COSIT, 2001)

### Board Memberships

2008- Member, Scientific Advisory Board, SYSTAT Inc.

## Grant Support

2014-2015 Co-Investigator, *Dose-response relationships between physical activity, sedentary behaviour, and neurocognitive development among children of the early years.* ACCFCR/Norlien Foundation, \$30,000.  
*Spatial Cognition.* NSERC, \$135,000.

2011-2016

- 2009-2012 *Pediatric weight management: Advancing the evidence in family-centred care.* Faculty of Medicine & Dentistry, U Alberta & Alberta Health Services, Emerging Team Grant. \$300,000
- 2006-2011 *Spatial representation and reasoning about global-scale geography.* NSERC, \$110,000
- 2001-2005 *Recognizing and categorizing familiar objects.* NSERC, \$110,000.
- 1996-2000 *Frames of reference in object recognition.* NSERC, \$80,845.
- 1992-1995 *Factors in mental rotation, object recognition, and metaphor comprehension.* NSERC, \$45,000.
- 1988-1991 *Divided attention, cerebral specialization, and spatial cognition.* NSERC, \$54,000.
- 1985-1988 *Multiple resources in cerebral specialization, divided attention, and mental rotation.* NSERC, \$50,085.
- 1984-1985 *A study of the value & use of graphics in educational applications with emphasis on Telidon graphics.* Gov't. of Canada Dept. of Communications, \$20,498.
- 1982-1985 *Limited capacity processing and cerebral specialization.* NSERC, \$45,000.
- 1979-1982 *Resource allocation in cerebral specialization.* U.S. Office of Naval Research; University of Alberta subcontract \$79,725USD.
- 1978-1979 *Resource allocation in cerebral specialization.* National Jewish Hospital & Research Center, Denver, Colorado. U.S. \$4,637.

### **Equipment Grants**

- 2001-2002 *Recognizing and categorizing familiar objects,* NSERC, \$17,589.
- 1997-1998 *Frames of reference in object recognition,* NSERC, \$15,550.
- 1989-1990 Co-Principal Investigator, *Eye movement monitor for cognitive research,* NSERC, \$53,146.
- 1977-1978 *Levels of processing in cerebral specialization.* National Jewish Hospital and Research Center, \$6,960USD.

### **Other Grants**

- 1998 Canada Heritage - Young Canada Works, \$1,500.
- 1992 University of Alberta, CRF Travel Grant, \$1,100.
- 1990 University of Alberta, CRF Travel Grant, \$1,000.
- 1989 University of Alberta, VP-CRF Equipment Grant, \$5,000.
- 1985 Travel Grant, NSERC, \$560.
- 1984 Travel Grant, Alberta Heritage Foundation for Medical Research, \$1,600.
- 1984 Co-Supervisor, Summer Canada Internship Program, \$5,274.
- 1983 Co-Supervisor, Summer Canada Internship Program, \$10,800.

## Refereed Publications

Friedman, A., Montello, D., & Madan, C. (2014, in progress). Location memory: A replication and set of constraints on the category adjustment model. *To be submitted to Journal of Experimental Psychology: General*.

**Friedman, A.**, & Hamaliuk, J. (2014, manuscript complete). Size estimation redux. *To be submitted to Attention, Perception, & Psychophysics*.

Singhal, A., & **Friedman, A.** (submitted to *Experimental Brain Research*, November 2013). Human electrophysiology reveals top-down and bottom-up influences on cross-modal attention.

Parnes, M., & **Friedman, A.** (2014, accepted pending revisions). The effect of instructions on landmark, route, and directional memory for active. vs. passive learners of a virtual reality environment. *Journal of Experimental Psychology: Learning, Memory, & Cognition*.

Thrash, T., Waller, D., & **Friedman, A.** (2013, accepted pending revision). Enhanced prototypes do not necessarily lie in the extremes of psychological space. *Cognition*.

Vuong, Q.C., & **Friedman, A.** (2013, accepted pending revision). A motion bias for object categorization. *Attention, Perception, & Psychophysics*.

Montello, D., & **Friedman, A.**, & Phillips, W. (2014). Vague cognitive regions in geography and geographic information science. *International Journal of Geographic Information Science*, dx.doi.org/10.1080/13658816.2014.900178.

Zhang, H., **Friedman, A.**, Mou, W., & Waller, D. (2013). View combination in recognition of three-dimensional virtual reality layouts. *PsyCh Journal, 1*, 82-89.

**Friedman, A.**, Ludvig, E., Legge, E., & Vuong, Q.C. (2013). Bayesian combination of 2D location estimates. *Behavioral Research Methods, 45*, 98-107.

Vuong, Q.C., **Friedman, A.**, & J.C.A. Read (2012). The relative weight of shape and non-rigid motion cues in object perception: A model of the parameters underlying similarity judgments. *Journal of Vision, 12*, 1-20.

**Friedman, A.**, Montello, D., & Burte, H. (2012). Location memory for dots in polygons versus cities in regions: Evaluating the category adjustment model. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 38*, 1336-1351.

**Friedman, A.**, Mohr, C., & Brugger, P. (2012). Representational pseudoneglect and reference points both influence geographic location estimates. *Psychonomic Bulletin & Review, 19*, 277-284.

**Friedman, A.**, Ball, G.D.C., Kaczmarek, T., Barbarich, B., & Keaschuck, R.A. (2012). Estimation of food portions among obese children. *Journal of the Academy of Nutrition and Dietetics, 112*, 302-307.

**Friedman, A.**, Thrash, T., Waller, D., Greenauer, N., & Hodgson, E. (2011). View combination: A generalization mechanism for visual recognition. *Cognition, 119*, 229-241.

Uttal, D., **Friedman, A.**, Liu, L., & Warren, C. (2010). Learning fine-grained and category information in navigable real-world space: Getting better and worse at the same time. *Memory & Cognition, 38*, 1026-1040.

Ball, G.D.C., & **Friedman, A.** (2010). Dice, golf balls, and CDs: Incorrect assumptions about the volume of portion size measurement aids. *Canadian Journal of Dietetic Practice and Research, 71*, 146-149.

- Friedman, A.,** Vuong, Q.C., & Spetch, M.L. (2010). Facilitation by view combination and coherent motion in dynamic object recognition. *Vision Research*, *50*, 202-210.
- Spetch, M.L., **Friedman, A.,** Bialowas, J., & Verbeek, E. (2010 ). Contributions of category and fine-grained information to location estimates: When categories don't weigh in. *Memory & Cognition*, *38*, 154-162.
- Vuong, Q.C., **Friedman, A.,** & Plante, C. (2009). Modulation of viewpoint effects in object recognition by shape and motion cues. *Perception*, *38*, 1628-1648.
- Waller, D., **Friedman, A.,** Hodgson, E., & Greenauer, N. (2009). Learning scenes from multiple views: Novel views can be recognized more efficiently than learned views. *Memory & Cognition*, *37*, 90-99.
- Friedman, A.** (2009). The role of categories and spatial cuing in global-scale location estimates. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, *35*, 94-112.
- Friedman, A.,** Vuong, Q.C., & Spetch, M. (2009). View combination in moving objects: The role of motion in discriminating between novel and distinctive objects by humans and pigeons. *Vision Research*, *49*, 594-607.
- Friedman, A.** & Waller, D. (2008). View combination in scene recognition. *Memory & Cognition*, *36*, 467-478.
- Twyman, A., **Friedman, A.,** & Spetch, M.L. (2007). Penetrating the geometric module: Catalyzing children's use of landmarks. *Developmental Psychology*, *43*, 1523-1530.
- Spetch, M., **Friedman, A.,** & Vuong, Q. C. (2006). Dynamic object recognition in pigeons and humans. *Learning & Behavior*, *34*, 215-228.
- Spetch, M., & **Friedman, A.** (2006). Pigeons see correspondence between objects and their pictures. *Psychological Science*, *17*, 966-972.
- Friedman, A.** & Montello, D. (2006). Global-scale location and distance estimates: Common representations and strategies in absolute and relative judgments. *Journal of Experimental Psychology: Learning, Memory & Cognition*, *32*, 333-346.
- Spetch, M., & **Friedman, A.** (2006). Comparative cognition of object recognition. *Comparative Cognition and Behavior Reviews*, *1*, 12-35. <http://www.comparativecognition.org>.
- Friedman, A.,** Kerkman, D., Brown, N.R., Stea, D., & Cappello, H. (2005). Cross-cultural similarities and differences in North Americans' geographic location estimates. *Psychonomic Bulletin & Review*, *12*, 1054-1060.
- Friedman, A.,** Spetch, M. L., & Ferrey, A. (2005). Recognizing novel views of real objects and their photographs by humans and pigeons. *Journal of Experimental Psychology: General*, *134*, 149-162.
- Friedman, A.** & Kohler, B. (2003). Bidimensional regression: Assessing the configural similarity and accuracy of cognitive maps and other two-dimensional data sets. *Psychological Methods*, *8*, 468-491.
- Kerkman, D.D., **Friedman, A.,** & Brown, N.R., Stea, D., & Carmichael, A. (2003). The development of geographic categories and biases. *Journal of Experimental Child Psychology*, *84*, 265-285.
- Friedman, A.,** Spetch, M.L., & Lank, I. (2003). An automated apparatus for presenting depth-

rotated three-dimensional objects for use in human and animal object recognition research. *Behavior Research Methods, Instruments, and Computers*, 35, 343-349.

Spetch, M. & **Friedman, A.** (2003). Recognizing rotated views of objects: Interpolation versus generalization by humans and pigeons. *Psychonomic Bulletin & Review*, 10, 135-140.

**Friedman, A.**, Kerkman, D.D., & Brown, N. (2002). Spatial location judgments: A cross-national comparison of estimation bias in subjective North American geography. *Psychonomic Bulletin & Review*, 9, 615-623.

**Friedman, A.** & Brown, N., & McGaffey, A. (2002). A basis for bias in geographical judgments. *Psychonomic Bulletin & Review*, 9, 151-159.

Watson, B., **Friedman, A.** & McGaffey, A. (2001). Measuring and predicting visual fidelity. Proc. SIGGRAPH 2001. In *Computer Graphics Proceedings, Annual Conference Series*, ACM SIGGRAPH, 213-220. New York, NY, ISBN 1-58113-374-X.

Spetch, M., **Friedman, A.**, & Reid, S. (2001). The effect of distinctive parts on recognition of depth-rotated objects by pigeons and humans. *Journal of Experimental Psychology: General*, 130, 238-255.

**Friedman, A.** & Brown, N. (2000b). Updating geographical knowledge: Principles of coherence and inertia. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 26, 900-914.

Watson, B., **Friedman, A.**, & McGaffey, A. (2000). Using naming time to evaluate quality predictors for model simplification. *Proceedings of the ACM CHI 2000 Conference on Human Factors in Computing Systems*, 113-120.

**Friedman, A.** & Brown, N. (2000a). Reasoning about geography. *Journal of Experimental Psychology: General*, 129, 193-219.

Brown, N.R., & **Friedman, A.** (1999). Assessing and improving geographical beliefs: A cognitive approach. *Research in Geographic Education*, 1, 1-13.

Pilon, D. J. & **Friedman, A.** (1998). Grouping and detecting vertices in 2-D, 3-D, and quasi-3-d objects. *Canadian Journal of Psychology*, 52, 114-127.

Gagne, C., **Friedman, A.**, & Faries, J. (1996). Effect of priming on the comprehension of predicative metaphors. *Metaphor & Symbolic Activity*, 11, 125-143.

**Friedman, A.**, & Hall, D.L. (1996). The importance of being upright: Use of environmental and viewer-centered reference frames in shape discriminations of novel three-dimensional objects. *Memory & Cognition*, 24, 285-295.

**Friedman, A.**, & Pilon, D.P. (1994). Effects of distance between objects and distance from the vertical axis on shape identity judgments. *Memory & Cognition*, 22, 552-564.

Hall, D.L., & **Friedman, A.** (1994). Shape discriminations of three-dimensional objects depend on the number and location of bends. *Perception & Psychophysics*, 56, 288-300.

**Friedman, A.**, & Harding, C.A. (1990). Seeing versus imagining movement in depth. *Canadian Journal of Psychology*, 44, 371-383.

Polson, M.C., & **Friedman, A.** (1988). Task-sharing within and between hemispheres: A multiple resources approach. *Human Factors*, 30, 633-643.

**Friedman, A.**, Polson, M.C., & Dafoe, C.G. (1988). Dividing attention between the hands and the

head: Performance trade-offs between rapid finger-tapping and verbal memory. *Journal of Experimental Psychology: Human Perception & Performance*, 14, 60-68.

Herdman, C., & **Friedman, A.** (1985). Multiple resources in divided attention: A cross-modal test of the independence of hemispheric resources. *Journal of Experimental Psychology: Human Perception & Performance*, 11, 40-49.

Dobbs, A., **Friedman, A.**, & Lloyd, J. (1985). Frequency effects in lexical decisions: A test of the verification model. *Journal of Experimental Psychology: Human Perception & Performance*, 11, 81-92.

Shucard, D.W., Spector, S.L., Euwer, R.L., Cummins, K.R., Shucard, J.L., & **Friedman, A.** (1985). Central nervous system effects of antiasthma medication B an EEG study. *Annals of Allergy*, 54,177-184.

**Friedman, A.**, Polson, M.C., Dafoe, C.G., & Gaskill, S.J. (1982). Dividing attention within and between hemispheres: Testing a multiple resources approach to limited-capacity information processing. *Journal of Experimental Psychology: Human Perception & Performance*, 8, 625-650.

**Friedman, A.**, & Polson, M.C. (1981). The hemispheres as independent resource systems: Limited-capacity processing and cerebral specialization. *Journal of Experimental Psychology: Human Perception & Performance*, 7, 1031-1058.

**Friedman, A.** (1979). Framing pictures: The role of knowledge in automatized encoding and memory for gist. *Journal of Experimental Psychology: General*, 108, 316-355.

**Friedman, A.** (1978). Memorial comparisons without the "mind's eye." *Journal of Verbal Learning & Verbal Behavior*, 17, 427-444.

McDaniel, M. **Friedman, A.** & Bourne, L.E., Jr. (1978). Remembering the levels of information in words. *Memory & Cognition*, 6, 156-164.

**Friedman, A.** (1976). Finding the relevant attribute with visual and auditory stimuli. *American Journal of Psychology*, 89, 601-606.

**Friedman, A.**, & Bourne, L.E., Jr. (1976). Encoding the levels of information in pictures and words. *Journal of Experimental Psychology: General*, 105, 169-190.

### **Non-Refereed Chapters**

Kellogg, R.T., **Friedman, A.**, Johnson, P., & Rickard, T.C. (2004). Domain-specific knowledge in intellectual skills. In A. F. Healy (Ed.), *Experimental cognitive psychology and its applications: Festschrift in honor of Lyle Bourne, Walter Kintsch, and Thomas Landauer* (pp. 3-15). Washington DC: American Psychological Association.

**Friedman, A.** (1993). Designing graphics to support mental models. In M. Spector, M.C. Polson, & D. Muraida (Eds.), *Automating instructional design: Concepts and issues* (pp. 249-292). Englewood Cliffs, N.J.: Educational Technology Publications.

**Friedman, A.**, & Liebelt, L.S. (1981). On the time course of viewing pictures with a view towards remembering. In D.F. Fisher, R.A. Monty, & J.W. Senders (Eds.), *Eye movements: Cognition and visual perception* (pp. 137-155). Hillsdale, N.J.: Erlbaum.

## Invited Presentations and Colloquia

May 17, 2013. *Reasoning about geography: Is Bayes best?* Invited Keynote Address to a conference sponsored by the U.S. National Science Foundation's Spatial Intelligence and Learning and the University of Richmond. The conference was entitled: *Spatial Memory: Bayes and Beyond*.

February 20, 2013. *Bayesian models of spatial cognition, with special attention to the model of spatial memory known as the "Category Adjustment Model."* Seminar presented to students and faculty from the Geography and Psychology departments at the University of California, Santa Barbara.

February 8, 2011. *Why teaching people to use portion size measurement aids might not be such a good idea.* Invited presentation to Nutrition 440, the capstone class for dieticians at the University of Alberta, Canada.

January 29, 2010. *Location estimates in real-world space.* Invited presentation to the members of the Spatial Learning and Intelligence Center, Temple University and the University of Pennsylvania.

February 26, 2009. *The role of geographic categories and spatial cuing in global-scale location estimates.* Invited presentation to the Department of Geography Colloquium Series, University of California, Santa Barbara, California.

February 20, 2009. *What do object and scene recognition have in common?* Invited presentation to the Cognitive Psychology & Cognitive Neuroscience Series, Department of Psychology, University of California, Santa Barbara, California.

February 13, 2009. *Learning scenes (and arrays) from multiple views: View combination as a all-purpose recognition mechanism.* Invited presentation to the Cognitive Psychology & Cognitive Neuroscience Series, Department of Psychology, University of California, Santa Barbara, California.

April, 2007. *The dominance of categories in remembering global locations.* Invited presentation for the 2007 Battig-Ellis Memory Symposium, Rocky Mountain Psychological Association, Denver, Colorado.

March, 2004. *Reasoning with regions: Discovering geographical categories and assessing their effects on judgments about global locations.* Presented at a symposium entitled "Frontiers of Behavioral Geography", at the Centennial Meetings of the Association of American Geographers, Philadelphia, Pennsylvania.

December, 2003. *Recognizing 3D objects and their photographs by people and pigeons.* Presented to the Department of Psychology, Miami University, Oxford, Ohio.

December, 2003. *The regional representation of global geography: Influences on location judgments and geographical biases.* Presented to the Department of Psychology, Miami University, Oxford, Ohio.

May, 2003. *The role of categories in geographical judgments.* Presented at the Symposium on Reasoning and Representation in Specific Knowledge Domains, which was part of the Triple Festschrift Conference for Lyle E. Bourne, Jr., Walter Kintsch, and Tom Landauer, Department of Psychology, University of Colorado, Boulder, Colorado.



March, 2003. *Toward an explanation of bias in mental representations and judgments about global geography*. Presented to the Department of Geography, University of California at Santa Barbara.

March, 2003. *How people represent and think about large-scale space*. Presented to the Department of Psychology, University of California at Santa Barbara.

August, 2003. *Reasoning with regions*. Presented at a symposium on Large-Scale Spatial Cognition, at the meetings of the Cognitive Science Association for Interdisciplinary Learning, Hood River, Oregon.

October, 1994. *Frames of reference in object recognition*. Presented to the Department of Psychology, University of Victoria, Victoria, B.C.

June, 1992. *What's up?: Role of environmental vs. egocentric upright in shape identification judgments*. Presented to members of the Laboratoire de Psychologie Expérimental, Université Libre de Bruxelles.

July, 1990. *The Y-axis advantage in mental rotation of 3-D objects*. Presented to members of the Institute for Medical Psychology, University of Munich, Germany.

March, 1990. *Spinning objects in your mind: Representing and manipulating visual information in a nonvisual media*. Public address presented at Memorial University, St. John's, Newfoundland.

March, 1990. *The importance of being upright: The Y-axis advantage in mental rotation*. Presented to the Department of Psychology, Memorial University, St. John's, Newfoundland.

June, 1989. *Individual differences in spatial working memory and mental rotation*. Presented at the Ontario Institute for Studies in Education, Toronto, Ontario.

October, 1989. *On the nature of spatial working memory*. Presented to the Department of Psychology, University of Lethbridge, Lethbridge, Alberta.

June, 1988. *Human factors implications of mental rotation performance*. Presented at Bell Northern Research Laboratories, Ottawa, Ontario.

June, 1987. *Task-sharing within and between hemispheres: Implications for human factors research* (with M.C. Polson). Presented at the Third Annual Workshop on Automaticity and Multiple Resources. Sponsored by the Air Force Office of Scientific Research and the Air Force Human Resources Laboratory, Dayton, Ohio.

June, 1986. *Individual differences in spatial ability: A production system model of mental rotation*. Presented to the Laboratoire de Psychologie Expérimentale, Université Libre de Bruxelles, Brussels, Belgium.

August, 1985. *Dividing attention between the eyes and the ears and the hands and the head: A multiple resources approach*. Presented to the Institute for Cognitive Science, University of Colorado, Boulder, Colorado.

June, 1984. *Multiple resources in divided attention: A cross-modal test of the independence of hemispheric resources*. Presented at the Symposium on "Cognitive models of cerebral lateralization: Formulations and experimental evidence," 7th European Conference of the International Neuropsychological Society, Aachen, West Germany.

March, 1981. *Cerebral economics* (with M.C. Polson). Presented at the Fourth Annual Conference on Information Processing Abilities, New Haven, Connecticut.

October, 1981. *On the economy of dividing attention within or between cerebral hemispheres*. Presented to the Department of Psychology, University of Calgary, Calgary, Alberta, October 1981.

March, 1980. *Limited-capacity processing and cerebral specialization* (with M.C. Polson). Presented at the Third Annual Conference on Information Processing Abilities, Seattle, Washington.

May, 1980. *Hemispheric differences in levels of processing and resource allocation* (with M.C. Polson). Presented at the Naval Air Test Center, Patuxent River, Maryland.

June, 1980. *Eye movements and picture memory*. Presented at a Seminar on Eye Movements and Cognitive Psychology, University of California at Berkeley.

February, 1980. *On the time course of viewing pictures with a view towards remembering* (with L.S. Liebelt). Presented at the Conference on Eye Movements and Cognitive Processes, Tampa, Florida.

### **Conference Presentations, Including Published Proceedings Papers & Published Abstracts**

Montello, D.R., **Friedman, A.**, & Phillips, R. (2013, April 12) "*Like total SoCal*": A high resolution assessment of vague cognitive regions. Paper presented at the 109<sup>th</sup> Annual Meeting of the Association of American Geographers, Los Angeles, CA.

Parnes, M., & **Friedman, A.** (2012, May). *The effect of instructions on spatial memory in virtual environment learners*. Poster presented at the Banff Annual Seminar in Cognitive Science. Banff, Alberta.

**Friedman, A.** (2011, May). *Learning from multiple views: View combination as an all-purpose recognition mechanism*. Paper presented at JC4 (the Joint Canadian-Colorado Cognition Conference, Parksville, British Columbia. [all participants had something to do with the program at the University of Colorado, Boulder, as either graduate students, post-docs, or visiting professors but are now scattered around the world]

Cameron, N. & **Friedman, A.** (2011, April). *Becoming familiar: Analyzing the process of acquiring knowledge of a new travel route and destination*. Paper presented at the American Association of Geographers Annual Meeting, Seattle, Washington.

Brubaker, D., Coleman, L., Karzmarek, T., Nielsen, D.K., Krug, C., Smith, S., Ambler, K., Brunet, K., **Friedman, A.**, & Ball, G.D.C. (2010, April). *Estimation accuracy, usefulness, and satisfaction related to Portion Size Measurement Aids*. Poster presented at a symposium entitled "Nutrition to Grow: Exploring Maternal and Child Health", at the University of Alberta.

**Friedman, A.**, & Ball, G.D.C. (2009, November). *Estimation by proxy: Size judgments of common objects from perception, memory, and as proxies for food portions*. Paper presented at the Meetings of the Psychonomic Society, Boston, Massachusetts.

Spetch, M.L., **Friedman, A.**, Biawolas, J., & Verbeek, E., (2009, November). *Category- and item-level contributions to location memory: When categories don't weigh in*. Poster presented at the Meetings of the Psychonomic Society, Boston, Massachusetts.

Kaczmarek, T.G., **Friedman, A.**, Barbarich, B.N., Keaschuk, R.A., Ball, G.D.C. (2009, May). *Does the perception of food portion size vary in accuracy according to estimation method and food type in overweight boys and girls?* Poster presented at the 1<sup>st</sup> National Obesity Summit of the Canadian Obesity Network, Kananaskis, Alberta

**Friedman, A.**, & Ball, G.C.D. (2009, May). *Portion size measurement aids: Can people remember the size of common objects when thinking about food?* Paper presented at the 1<sup>st</sup> National Obesity Summit of the Canadian Obesity Network, Kananaskis, Alberta.

Plante, C., **Friedman, A.**, & Vuong, Q.C. (2008, May). *The role of dynamic information and structural similarity on object recognition.* Poster presented at the Connecting Minds 2008 Conference, Richmond, Virginia.

Twyman, A., **Friedman, A.** & Spetch, M.L. (2007, August). Penetrating the Geometric Module: Catalyzing Children's Use of Landmarks. In D.S. McNamara & J.G. Trafton (Eds.), *Proceedings of the 29th Annual Cognitive Science Society*, Nashville, Tennessee (pg 671-676).

**Friedman, A.** (2006, November). *Maps and memory aids do not trump category effects in geographic location judgments.* Paper presented at the Meetings of the Psychonomic Society, Houston, Texas.

Waller, D., **Friedman, A.**, Greenhauer, N., & Hodges, E. (2006). *Rapid prototyping of visual scenes: Evidence for view combination.* Poster presented at the Meetings of the Psychonomic Society, Houston, Texas.

Spetch, M.L., & **Friedman, A.** (2006, March). *Pigeons see correspondence between objects and pictures.* Proceedings of the 13<sup>th</sup> Annual Proceedings of the Conference on Comparative Cognition, Melbourne Beach, Florida.

Vuong, Q.C., **Friedman, A.**, & Hof, A. (2005, November). *The role of motion variability in recognizing dynamic novel objects.* Poster presented at the 13<sup>th</sup> Annual Workshop on Object Perception, Attention, and Memory, Toronto, Ontario.

Spetch, M.L., & **Friedman, A.** (2004, March). *Do pigeons recognize the correspondence between objects and images of objects?* Poster presented at the International Conference on Comparative Cognition, Melbourne, Florida.

Kerkman, D. D., **Friedman, A.**, Brown, N. R., & Stea, D. (2003, May). *Subjective representations of North American geography: Mexicans view it differently.* Paper presented at a symposium entitled, "Geographic perceptions," at Geo-Nexus: Research in Geographic and Environmental Education, San Marcos, Texas.

Spetch, M., **Friedman, A.**, & Ferrey, A. (2003, March). *A rose from any other view is still a rose: Viewpoint effects in pigeons' object recognition.* Paper presented at the International Conference on Comparative Cognition, Melbourne, Florida.

Spetch, M.L. & **Friedman, A.** (2002, June). *Recognition of depth-rotated objects: Humans interpolate and pigeons generalize.* Poster presented at the meeting of the Behavior, Brain, and Cognitive Science Society, Vancouver, BC.

Kerkman, D.D., **Friedman, A.**, Brown, N.R., & Cappello, H.M. (2001, December). *Measuring and dispelling misconceptions about our next-door neighbours.* Paper presented at a meeting of the Texas/World Health Organization Collaborating Center, Austin, Texas.

**Friedman, A.,** Kerkman, A., & Brown, N.R. (2001, November). *A cross-national comparison of biases in subjective North American geography*. Paper presented at the meetings of the Psychonomic Society, Orlando, Florida.

Brown, N.R., **Friedman, A.,** & Lee, P. J. (2001, November). *Distance estimates reflect objective and subjective geographical categories*. Paper presented at the meetings of the Psychonomic Society, Orlando, Florida.

Brown, N.R., **Friedman, A.,** Kerkman, D., Pinon, M., & Stea, D. (2000, April). *El Mar Bravo, or, how wide, really, is the Rio Grande?* Presented at the meetings of the Association of Borderlands Studies, San Diego-Tijuana.

**Friedman, A.,** & Quong, Q.C. (1999, August). *Cats, cows, cameras, and cars: The role of structural similarity in naming disoriented pictures*. Poster presented at the meetings of the Cognitive Science Society, Vancouver, British Columbia.

Brown, N., & **Friedman, A.** (1999, May). *Assessing and improving geographical beliefs: A cognitive approach*. Paper presented at the International Conference on Research in Geographic Education, San Marcos, Texas.

**Friedman, A.,** & Brown, N.R. (1999, July). *Cognitive coherence and inertia: Principles governing the effects of seed facts on representations of geographical knowledge*. Paper presented at the meetings of the Society for Applied Research in Memory and Cognition, Boulder, Colorado.

Rabiau, M., & **Friedman, A.** (1999, June). *Lions and tigers and bears: Structural similarity and visual detail in naming disoriented objects*. Poster presented at the meetings of the Canadian Society for Brain, Behavior, and Cognitive Science, Edmonton, Alberta.

Vuong, Q.C., & **Friedman, A.** (1999, June). *What's in a name? The dissociation between pictures and names in picture matching and naming*. Poster presented at the meetings of the Canadian Society for Brain, Behavior, and Cognitive Science, Edmonton, Alberta.

Spetch, M., **Friedman, A.,** & Reid, S. (1998, November). *Recognition of depth-rotated objects by pigeons and humans*. Poster presented at the meetings of the Psychonomic Society, Dallas, Texas.

**Friedman, A.,** & Brown, N.R. (1996, November). *Geographical illusions: The effect of new information on old biases*. Paper presented at the meetings of the Psychonomic Society, Chicago, Illinois.

**Friedman, A.,** & Brown, N.R. (1996, July). *Effect of category and item knowledge on absolute and relative geographical judgment*. Paper presented at the XX International Conference on Memory, Albano Terme, Italy.

Abecassis, M., Cornell, E., & **Friedman, A.** (1996, March). *Hansel and Gretel reconsidered: Landmark selection and usage by children and adults in unfamiliar environments*. Paper presented at the conference on Human Development, Birmingham, Alabama.

**Friedman, A.,** & Pilon, D. (1991, November). *Mental rotation and the gravitational upright*. Poster presented at the meetings of the Psychonomic Society, San Francisco, California.

Lloyd, J., **Friedman, A.,** & Dobbs, A. (1984, June). *The persistence of the word frequency effect in lexical decisions*. Presented at the meetings of the Canadian Psychological Association, Ottawa, Ontario.

**Friedman, A.,** & Pullyblank, J. (1982, November). *Remembering information about oneself and*

*others: The role of distinctiveness.* Presented at the meetings of the Psychonomic Society, Minneapolis, Minnesota.

Polson, M.C., & **Friedman, A.** (1980, November). *Cerebral economics: One hemisphere's energy crisis is the other's free ride.* Presented at the meetings of the Psychonomic Society, St. Louis, Missouri.

**Friedman, A.** (1977, January). *Eye movements, world knowledge, and the "gistification" of pictures in memory.* Second Interdisciplinary Conference on Psychology, Jackson Hole, Wyoming.

**Friedman, A.** (1977, May). *The "gistification" of pictures in memory: The more you know the less you'll remember.* Presented at the meetings of the Midwestern Psychological Association, Chicago, Illinois.

**Friedman, A.** (1976, July). *Comparing words: An "internal psychophysics" for a nonphysical dimension.* Presented at the 21st International Congress of Psychology, Paris, France.

### **Published Abstracts**

**Friedman, A.,** & Ball, G.D.C. (2009, May). Portion size measurement aids: Can individuals remember the size of common objects when thinking about food? Abstract published in *Applied Physiology, Nutrition, & Metabolism*, 34, 247, and presented at the 1<sup>st</sup> National Obesity Summit of the Canadian Obesity Network, Kananaskis, Alberta.

**Friedman, A.,** Buchanen, L., Richard Liow, S., & Sukoni, I. (1998, June). More than one way to name a cat: Category-specific agnosia in patients with deep dyslexia. Abstract published in *Brain and Cognition*, 1998, and poster presented at TENNET IX, Montreal.

**Friedman, A.,** & Hall, D. (1992, July). The importance of being upright: The Y-Axis advantage in mental rotation (with D. Hall). Paper presented at the 25th International Congress of Psychology, Brussels, Belgium. Abstract published in the *International Journal of Psychology*, 27, p. 27.

Hall, D.L., & **Friedman, A.** (1991, June). Mental rotation and the principal axis principle. Poster presented at the meetings of the Canadian Psychological Association and the Canadian Society for Brain, Behavior, and Cognitive Science, Calgary, Alberta. Abstract published in *Canadian Psychology*, 1991, 32, p. 291.

**Friedman, A.,** & Gagne, C. (1991, June). The role of subject and predicate attributes in metaphor comprehension. Poster presented at the meetings of the Canadian Psychological Association, Calgary, Alberta. Abstract published in *Canadian Psychology*, 32, p. 289.

**Friedman, A.,** & Hall, D.L. (1990, July). Representing and manipulating objects in working memory: Similarities between high and low spatial individuals. Symposium on "Mental image generation, rotation, and interhemispheric transfer: Perspectives on subprocesses," 13th European Conference of the International Neuropsychological Society, Innsbruck, Austria. Abstract published in the *Journal of Clinical and Experimental Neuropsychology*, 12, p. 402.

Hall, D.L., & **Friedman, A.** (1989, June). Effects of figural complexity, principal axis, and spatial ability on mental rotation performance (with D. Hall). Poster presented at the meetings of the Canadian Psychological Association, Halifax, Nova Scotia. Abstract published in *Canadian Psychology*, 30, p. 454.

**Friedman, A., Pilon, D. J., & Gabrys, G. L.** (1988, May). Cognitive coordinate systems for mental rotation. Invited presentation to the Banff Annual Symposium in Cognitive Science, Banff, Alberta. Abstract published in *Canadian Psychology*, 29, p. 383.

**Friedman, A., Pilon, D.J., & Gabrys, G.L.** (1988, June). Cognitive coordinate systems for mental rotation. Presented at the meetings of the Canadian Psychological Association, Montreal, Quebec, June 1988, and at the meetings of the Psychonomic Society, Chicago, Illinois, November 1988. Abstract published in *Canadian Psychology*, 1988, 29, p. 267.

**Friedman, A., & Polson, M. C.** (1986, June). Dividing attention between the hands and the mind. Invited presentation to the Symposium on "Hemispheric interaction: Capacities and limitations", 9th European Conference of the International Neuropsychological Society, Veldhoven, The Netherlands. Abstract published in the *Journal of Clinical and Experimental Neuropsychology*, 8, p. 143.

### **Technical Reports**

**Friedman, A., Polson, M.C., & Spector, M.** (1991). *Designing an advanced instructional design advisor: Incorporating visual materials and other research issues (Volume 4 of 6)*. Technical Paper AL-TP-1991-0017, Armstrong Laboratory, Human Resources Directorate, Brooks Air Force Base, Texas.

**Friedman, A.** (1986). *A study of the value and use of graphics in educational applications with emphasis on Telidon graphics*. The Behavioral Research and Evaluation Group, Information and Technology Branch, Department of Communication, Ottawa, Canada. Contract No. OST84-00287.

**Friedman, A., Polson, M.C., & Dafoe, C.G.** (1981, June). *Cerebral economics: Resource competition within but not between hemispheres*. U.S. Office of Naval Research, Contract No. N00014-79-C-0679, University of Alberta, Technical Report No. 3.

Polson, M.C., **Friedman, A., & Gaskill, S.J.** (1981, July). *Competition for left hemisphere resources: Right hemisphere superiority at abstract verbal information processing*. U.S. Office of Naval Research, Contract No. N00014-79-C-0679, University of Colorado, Technical Report No.2.

**Friedman, A. & Polson, M.C.** (1980, January). *Resource allocation in cerebral specialization*. U.S. Office of Naval Research, Contract No. N00014-79-C-0679, University of Alberta, Technical Report No. 1.

McDaniel, M.A., **Friedman, A., & Bourne, L.E., Jr.** (1977, March). *Remembering the levels of information in words*. Program on Cognitive Factors in Human Learning and Memory Report No. 60, University of Colorado.

**Friedman, A. & Bourne, L.E., Jr.** (1975, June). *Abstracting semantic information from pictures and words*. Program on Cognitive Factors in Human Learning and Memory Report No. 38, University of Colorado.

**Friedman, A. & Bourne, L.E., Jr.** (1975, March). *Encoding perceptual and conceptual information in pictures and words*. Program on Cognitive Factors in Human Learning and Memory Report No. 31, University of Colorado.

### **Teaching and Supervisory Activities**

**Courses Taught**

100-level	Introductory Psychology
200-level	Statistical Methods for Psychological Research Introduction to Cognitive Psychology Introduction to Research Methods in Psychology
300-level	Learning and Memory Honors Psychology: The Research Proposal Human Information Processing Visual Information Processing
400-level	Seminar in Advanced Cognitive Psychology (various topics) Honors Psychology: Writing for the Psychological Literature Honors Psychology: Computer Models of Psychological Processes Honors Psychology: Advanced Statistics and Experimental Design Advanced Analysis of Variance and Experimental Design
Graduate	Advanced Statistics and Experimental Design Professional Issues and Ethics

**Honors and Independent Study Supervision**

2010-2012	Josh Hamaluik, Honors (Psych 390, 490)
2006-2008	Courtney Plante, Honors (Psych 390, 490)
2006-2007	Magda Piwowarczyk, Individual Research (Psych 496A1, Psych 496B1)
2005-2006	Alexandra Twyman, Individual Research (Psych 496A1, Psych 496B1); co-supervised with M. Spetch
2004-2005	Tom Marsh, Individual Research (Psych 496A1, Psych 496B1)
2002	Katherine Wiebe, Individual Research (Psych 496B1)
2001-2002	Nolan Boucher, Individual Research (Psych 498A1, Psych 498B1)
2001-2002	Rachel Keaschuk, Individual Research (Psych 496A1, Psych 496B1)
1997-2000	Aaron McGaffey, Honors (Psych 390), Individual Research (Psych 497, Cmput 497), NSERC Summer Award
1997-1999	Marjorie Rabiau, Honors (Psych 390, 490)
1997	Teresa Dmitriw, Individual Research (Psych 496)
1997	Nancy Ward, Individual Research (Psych 496)
1996-1998	Quoc Vuong, Honors (Psych 390, 490); NSERC Summer Award
1996	Jonathan Nieuwendyck, Individual Research (Psych 496)
1996	Suzanne Wong, Individual Research (Psych 496)
1992	Marian Morry, NSERC Summer Award
1992	Siobhan Nearey, NSERC Summer Award
1991	Steven Ozar, Honors Thesis (Psych 490)
1991	Shauntelle Paul, Honors Thesis (Psych 490)
1990	Ben Mack, NSERC Summer Award
1989 - 1991	Christina Gagne, Honors Thesis (Psych 490); NSERC Summer Award
1988 - 1989	Cory Harding, Individual Research (Psych 496-497)
1986 - 1988	Judy Sheddon, Honors Thesis (Psych 599)
1984 - 1985	Randall Kopach, Individual Research (Psyco 496-497)
1984 - 1985	Brian Lake, Individual Research (Psyco 496-497)
1982 - 1983	Julie Lloyd, Individual Research (Psyco 496-497)

1981 - 1982 Jeanette DeRosario, Individual Research (Psyco 496-497)

### **Graduate Research Supervision (Non-Thesis)**

2010 Connie Svob, Individual Research (Psych 698-699)  
1989 David Hall, First Year Research Project  
1984 Jeremiah Faries, First Year Research Project  
1983 Roy Ballantine, Individual Research (Psych 698-699)  
1982 Lew Stelmach, Individual Research (Psych 698-699)

### **M.A. and M.Sc. Supervision & Committees**

2014 Lei Zhang  
2012 Roujing Zhang  
2011 Daniel Huntley, Computing Science  
2010 Michael Parnes (Supervisor)  
2009 Oliver Schweickart  
2009 Ryan van Kroonenburg  
2008 Mathew Rangel, Fine Arts  
2007 Ken Boyd, Philosophy  
2006 Gail Moroschan, Psychology  
2006 Brian Duffels, Psychology  
1999 Dmitry Brodsky, Computing Science  
1999 Oscar Meruvia, Computing Science  
1998 Ping Gu, Computing Science  
1992 Carey Herbert, Faculty of Business  
1991 David Hall, Psychology (Supervisor)  
1989 Bonita Wong, Computing Science  
1989 Daniel Pilon, Psychology  
1988 Paul Bergen, Linguistics  
1986 Jerome Yuzyk, Psychology  
1986 Peternela Scharf, Computing Science  
1986 Jeremiah Faries, Psychology (Supervisor)  
1985 Gurminder Singh, Computing Science  
1985 Jo-Anne LeFevre, Psychology  
1985 Eileen Thauberger, Nursing  
1984 Bruce Galenza, Psychology (Supervisor)  
1983 Chris Herdman, Psychology (Supervisor)  
1981 Lew Stelmach, Psychology  
1980 Donna Murray, Psychology

### **Phd Supervision & Committees**

2014 Ruoqing Zhang  
2014 Oliver Schweickhert  
2010 Eric Legge  
2003 Blaine Mullins  
2001 Tamsen Taylor, Psychology  
2000 Debbie Kelly, Psychology  
1999 Peter Lee, Psychology



1998	Tenaha O'Reilly, Psychology
1998	Scott Glover, Psychology
1997	Corinne Zimmerman, Psychology
1997	Michael Boshra, Computing Science
1994	Daniel Pilon, Psychology (Supervisor)
1994	David Hall, Psychology (Supervisor)
1992	Andrew Maquistan, Psychology
1990	Robert McEwan, Special Education - O.I.S.E. (External Examiner)
1987	Roy Ballantine, Psychology (Supervisor)
1985	Ian Humphreys, Physical Education
1982	Peter Holt, Psychology
1980	Michael Katzko, Psychology

## **Administrative Service**

### **Departmental**

2014	Member, Carthy Chair Selection Committee
2010-2012	Member, Graduate Admissions Committee
2006-2007	Chair, Cognitive Psychology Search Committee
2005-2008	Research Participation Committee
2004-2005	Cultural and Social Psychology Selection Committee
2003-2008	Undergraduate Curriculum Committee
1998-2002	Chair, Graduate Curriculum Committee
1998-2002	Chair, Graduate Scholarship Committee
1998-2002	Chair, Graduate Assistantship Committee
1998-2002	Chair, Graduate Recruitment & Admissions Committee
1998-1999	Chair 's Advisory Committee
1996-1999	Department of Psychology Chair Selection Committee
1996-1997	Graduate Recruitment Committee
1993-1994	Graduate Curriculum Committee
1993	Chair, Cognitive Psychology Search Committee
1991-1994	NSERC and SSHRC Scholarship Screening Subcommittee
1990-1992	Cognitive Psychology Search Committee
1990	A.P.O. Selection Committee
1988-1994	Chair, Undergraduate NSERC Award Committee
1987-1990	Chairman's Advisory Committee
1987-1988	Ad Hoc Committee on Chairman's Advisory Committee
1987-1988	NSERC and SSHRC Scholarship Screening Subcommittee
1987	Ad Hoc Committee on Computing Requirements in the Social Sciences
1986-1994	Undergraduate Advisor for Honors Psychology Students
1983-1985	Graduate Curriculum Committee
1982	Chair, Post-Doctoral Fellow Search Committee
1980-1984	Computer Policy Committee
1980-1984	Undergraduate Advisor for BSc Psychology Majors
1980-1981	Chair, Search Committee for Arts Faculty Position
1979-1980	Undergraduate Curriculum Committee

## **Faculty**

1998-pres	Faculty of Arts Representative to Faculty of Science Council
2010-2010	FEC Representative for W. Mou Tenure & Promotion
2006-2007	Member, Faculty of Arts Selection Committee (for Cognitive Psychology Candidate)
2004-2005	Psychology Chair Review Committee
2000	Member, Faculty of Arts Selection Committee (for Linguistics candidate)
1998-2002	Member, Faculty of Graduate Studies and Research
1993-1994	Faculty of Arts Ad Hoc Cttee on the Future of Computing in the Faculty
1993	Faculty of Science Rep RE: Combined B.Sc/M.B.A. program
1992	Faculty of Arts Visiting Committee
1991	Faculty of Arts Rep. to Faculty St. Jean Search & Selection Committee
1991	Faculty of Arts Selection Committee (for Cognitive Psychology candidate)
1990-1993	Faculty of Arts Research Committee (Chair, 1991-1993)
1989-1994	Faculty of Arts Rep. to Council of Faculty of Rehab. Medicine
1988-1991	B.A. Honors Committee
1987-1988	B.A. Honors Executive Committee
1987-1988	SAS Grants Committee (Alternate)
1986-1994	B.A. Honors Advisor
1982-1985	Ad Hoc Review Committee on Human Research (Arts)
1980-1985	Ad Hoc Review Committee on Human Research (Science)
1980-1983	B.Sc. 4-year Specialization Advisor (Science)
1980-1981	Task Force on Contract Research in the Social Sciences (Arts; Dean's Advisory Committee)

## **Community Service**

1989-1990	Treasurer and Chair of the Finance Committee, Board of Directors, Student's Union and Community Daycare Centre.
1988-1989	Executive Board Member and Chair of Research Committee, Student's Union and Community Daycare Centre.