

Alinda Friedman, PhD

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Education

PhD	1977	University of Colorado, Boulder, Colorado (Experimental Psychology)
MA	1973	University of Colorado, Boulder, Colorado (Experimental Psychology)
BA	1971	State Univ. of New York at Stony Brook (magna cum laude, Psychology)
Dipl.	1967	New York City High School of Performing Arts (Drama)

Academic Employment

University of Alberta, Department of Psychology, Edmonton, Alberta, Canada

2014-pres	Professor Emeritus
1991-2014	Professor
1998-2002	Associate Chair, Graduate Studies
1983-1997	Associate Professor
1979-1983	Assistant Professor

Nat'l Jewish Hospital & Research Center, Brain Sciences Lab, Denver, Colorado

1978-1979	Research Psychologist
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Nat'l Jewish Hospital & Research Center, Psychophysiology Lab, Denver, Colorado

1976-1978	Research Associate
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University of Colorado, Department of Psychiatry, School of Medicine, Denver, Colorado

1978-1979	Assistant Professor
1977-1978	Instructor

University of Colorado, Department of Psychology, Boulder, Colorado

1972-1976	Research and Teaching Assistant
	Research Supervisors: Dr. Lyle E. Bourne, Jr., Dr. Walter Kintsch

University of Massachusetts, Department of Psychology, Amherst MA

1971-1972	Research and Teaching Assistant
	Research Supervisors: Dr. Jerome Myers, Dr. Arnie Wells

State University of New York, Department of Psychology, Stony Brook, New York

1969-1971	Research and Teaching Assistant
	Research Supervisors: Dr. Barry Gholson, Dr. Marvin Levine

Other Appointments

2013	Visiting Researcher, Dept. of Geography, Univ. of Calif., Santa Barbara
2009	Visiting Researcher, Dept. of Geography, Univ. of Calif., Santa Barbara
2002	Visiting Researcher, Dept. of Geography, Univ. of Calif., Santa Barbara
1994-1995	Visiting Assoc. Professor, Dept. of Psychology, Univ. of Victoria, Canada

Honors & Awards

2017	Raymond S. Nickerson Award for Best Paper in <i>JEP:Applied</i> , 2016, 22(4), 381-392.
2004	Elected Fellow to the American Psychological Association (APA)
2004	Elected Fellow to APA Division 3 (Experimental Psychology)
2004	Dissertation featured in <i>Great Dissertations Mark I. APS Observer</i> , 17 (10).
2000	JEP:G & JEP:HPP articles selected for <i>APA Monitor Science Watch</i> , 31, 7, 82.
1998	Elected Fellow to the Association for Psychological Science
1967-1971	New York State Regents College Scholarship

Professional Society Affiliations

1978-pres	American Psychological Association, Emeritus Fellow
1989-pres	Association for Psychological Science, Fellow
2009-2010	Canadian Obesity Network
1980-1991	Canadian Psychological Association
1990-pres	Canadian Society for Brain, Behavior, and Cognitive Science
1981-pres	Cognitive Science Society
1977-1992	Midwestern Psychological Association
1978-pres	Psychonomic Society, Emeritus Fellow
1988-1992	Rocky Mountain Psychological Association
2007-pres	Spatial Intelligence and Learning Center, Northwestern University
2008-2010	SYSTAT Inc., Scientific Advisory Board

Peer-reviewed Papers

[61] Galati, A., Plastira, M., Avraamides, M.N., & Friedman A. (2022). Beyond the physical divide of Greek-Cypriots and Turkish-Cypriots: Social and political variables shape geographical estimates. Online Proceedings of the 44th Annual Conference of the Cognitive Science Society, 44, 223-229, Austin, Texas.

[60] Friedman, A., Kohler, B., Gunalp, P., Boone, A.P., & Hegarty, M. (2020). A computerized spatial orientation test. *Behavior Research Methods*, 52(2), 799-812.

<https://doi.org/10.3758/s13428-019-01277-3>.

[59] Mushquash, A. R., Raquinha, A. M., Friedman, A., & Ball, G. D. C. (2018). Examining the accuracy and use of portion size estimation aids in parents of children with obesity: A randomized controlled trial. *Journal of Nutrition Education and Behavior*, 50(9), 918-923. <https://doi.org/10.1016/j.jneb.2018.06.005>

[58] Nankoo, J.F., Madan, C.R., Sawalha, J., Wylie, D.R., Friedman, A., Spetch, M.L., & Quong, Q.C. (2017). The contribution of non-rigid motion and shape information to object perception in pigeons and humans. *Journal of Vision*, 17(6), 1-12. <https://doi.org/10.1167/17.6.17>

[57] Hegarty, M., Friedman, A., Boone, A.P., & Barrett, T.J. (2016). Where are you? The effect of uncertainty and its visual representation on location judgments in GPS-like displays. *Journal of Experimental Psychology: Applied*, 22(4), 381-392. <https://doi.org/10.1037/xap0000103>

[56] Carson, V., Hunter, S., Kuzik, N., Wiebe, S., Spence, J.C., Friedman, A., Tremblay, M.S., Slater, L.G., Hinkley, T. (2016). Systematic review of physical activity and cognitive development in early childhood. *Journal of Science and Medicine in Sport*, 19(7), 573-578. <https://doi.org/10.1016/j.jsams.2015.07.011>

- [55] Carson, V., Kuzik, N., Hunter, S., Wiebe, S., Spence, J.C., Friedman, A., Tremblay, M.S., Slater, L.G., Hinkley, T. (2015). Systematic review of sedentary behavior and cognitive development in early childhood. *Preventive Medicine*, 78, 115-122. doi: 10.1016/j.ypmed/2015.07.016. <https://doi.org/10.1016/j.ypmed.2015.07.016>
- [54] Montello, D., & Friedman, A., & Phillips, W. (2014). Vague cognitive regions in geography and geographic information science. *International Journal of Geographic Information Science*, 28(9), 1802- 1820. <https://doi.org/10.1080/13658816.2014.900178>
- [53] Friedman, A., Ludvig, E., Legge, E., & Vuong, Q.C. (2013). Bayesian combination of 2D location estimates. *Behavioral Research Methods*, 45(1), 98-107. <https://doi.org/10.3758/s13428-012-0241-x>
- [53a] Friedman, A., Ludvig, E., Legge, E., & Vuong, Q.C. (2013).BRM Supplementary material. Spreadsheet to compute 2-D Bayesian statistics.
- [52] Zhang, H., Friedman, A., Mou, W., & Waller, D. (2012). View combination in recognition of three-dimensional virtual reality layouts. *PsyCh Journal*, 1(2), 82-89. <https://doi.org/10.1002/pchj.12>
- [51] 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(3), 1-20. <https://doi.org/10.1167/12.3.16>
- [50] 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(5), 1336-1351. <https://doi.org/10.1037/a0028074>
- [49] Friedman, A., Mohr, C., & Brugger, P. (2012). Representational pseudoneglect and reference points both influence geographic location estimates. *Psychonomic Bulletin & Review*, 19(2), 277-284. <https://doi.org/10.3758/s13423-011-0202-x>
- [48] Friedman, A., Bennet, T., Barbarich, B., Keaschuck, R.A., & Ball, G.D.C. (2012). Food portion estimation by children with obesity: The effects of estimation method and food type. *Journal of the Academy of Nutrition and Dietetics*, 112(2), 302-307. <https://doi.org/10.1016/j.jada.2011.10.008>
- [47] Friedman, A., Thrash, T, Waller, D., Greenauer, N., & Hodgson, E. (2011). View combination: A generalization mechanism for visual recognition. *Cognition*, 119(2), 229-241. <https://doi.org/10.1016/j.cognition.2011.01.012>
- [46] 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(8), 1026-1040. <https://doi.org/10.3758/mc.38.8.1026>
- [45] 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(3), 146-149. <https://doi.org/10.3148/71.3.2010.146>
- [44] 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(2), 154-162. <https://doi.org/10.3758/mc.38.2.154>

- [43] Friedman, A., Vuong, Q.C., & Spetch, M.L. (2010). Facilitation by view combination and coherent motion in dynamic object recognition. *Vision Research*, 50(2), 202-210. <https://doi.org/10.1016/j.visres.2009.11.010>
- [42] Vuong, Q.C., Friedman, A., & Plante, C. (2009). Modulation of viewpoint effects in object recognition by shape and motion cues. *Perception*, 38(11), 1628-1648. <https://doi.org/10.1068/p6430>
- [41] 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(6), 594-607. <https://doi.org/10.1016/j.visres.2009.01.019>
- [40] Friedman, A. (2009). The role of categories and spatial cuing in global-scale location estimates. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 35(1), 94-112. <https://doi.org/10.1037/a0013590>
- [39] 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(1), 90- 99. <https://doi.org/10.3758/mc.37.1.90>
- [38] Friedman, A. & Waller, D. (2008). View combination in scene recognition. *Memory & Cognition*, 36(3), 467-478. <https://doi.org/10.3758/mc.36.3.467>
- [37] Twyman, A., Friedman, A., & Spetch, M.L. (2007). Penetrating the geometric module: Catalyzing children's use of landmarks. *Developmental Psychology*, 43(6), 1523-1530. <https://doi.org/10.1037/0012-1649.43.6.1523>
- [36] Spetch, M., & Friedman, A. (2006). Pigeons see correspondence between objects and their pictures. *Psychological Science*, 17(11), 966-972. <https://doi.org/10.1111/j.1467-9280.2006.01814.x>
- [35] Spetch, M., Friedman, A., & Vuong, Q. C. (2006). Dynamic object recognition in pigeons and humans. *Learning & Behavior*, 34(3), 215-228. <https://doi.org/10.3758/bf03192877>
- [34] 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(2), 333-346. <https://doi.org/10.1037/0278-7393.32.3.333>
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- [31] Friedman, A., Spetch, M. L., & Ferrey, A. (2005). Recognition by humans and pigeons of novel views of 3-D objects and their photographs. *Journal of Experimental Psychology: General*, 134(2), 149-162. <https://doi.org/10.1037/0096-3445.134.2.149>

- [30] 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(4), 468- 491. <https://doi.org/10.1037/1082-989x.8.4.468>
- [30a] Supplemental Material for Bidimensional Regression, *Psychological Methods*, 2003. Spreadsheet to compute bidimensional regressions. <https://doi.org/10.1037/1082.989x.8.4.468.supp>
- [29] 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(2), 343-349. <https://doi.org/10.3758/bf03202563>
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- [27] Spetch, M. & Friedman, A. (2003). Recognizing rotated views of objects: Interpolation versus generalization by humans and pigeons. *Psychonomic Bulletin & Review*, 10(1), 135-140. <https://doi.org/10.3758/bf03196477>
- [26] 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. <https://doi.org/10.3758/bf03196321>
- [25] Friedman, A. & Brown, N., & McGaffey, A. (2002). A basis for bias in geographical judgments. *Psychonomic Bulletin & Review*, 9(1), 151-159. <https://doi.org/10.3758/bf03196272>
- [24] Watson, B., Friedman, A. & McGaffey, A. (2001). Measuring and predicting visual fidelity. SIGGRAPH '01: Proceedings of the 28th annual conference on Computer graphics and interactive techniques (Los Angeles, August), 213-220. <https://doi.org/10.1145/383259.383283>
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- [22] Friedman, A. & Brown, N. (2000b). Updating geographical knowledge: Principles of coherence and inertia. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 26(4), 900-914. <https://doi.org/10.1037/0278-7393.26.4.900>
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- [18] 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(3), 114-127.
- [17] Gagne, C., Friedman, A., & Faries, J. (1996). Effect of priming on the comprehension of predicative metaphors. *Metaphor & Symbol*, 11(2), 125-143.
- [16] 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(3), 285-295. <https://doi.org/10.3758/bf03213293>
- [15] Friedman, A., & Pilon, D.P. (1994). Effects of distance between objects and distance from the vertical axis on shape identity judgments. *Memory & Cognition*, 22(5), 552-564. <https://doi.org/10.3758/bf03198394>
- [14] Hall, D.L., & Friedman, A. (1994). Shape discriminations of three-dimensional objects depend on the number and location of bends. *Perception & Psychophysics*, 56(3) 288-300. <https://doi.org/10.3758/bf03209763>
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- [11] 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(1), 60-68. <https://doi.org/10.1037/0096-1523.14.1.60>
- [10] 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(1), 81-92. <https://doi.org/10.1037/0096-1523.11.1.81>
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- [08] 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(3), 177-184. PMID: 3977133
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- [06a] Friedman, A., & Polson, M. C. (1983). Correction to Friedman and Polson, *Journal of Experimental Psychology: Human Perception and Performance*, 8(3), 391.
- [05] Friedman, A. (1979). Framing pictures: The role of knowledge in automatized encoding and memory for gist. *Journal of Experimental Psychology: General*, 108(3), 316-355. <https://doi.org/10.1037/0096-3445.108.3.316>
- [04] Friedman, A. (1978). Memorial comparisons without the "mind's eye." *Journal of Verbal Learning & Verbal Behavior*, 17(4), 427-444. [https://doi.org/10.1016/S0022-5371\(78\)90256-6](https://doi.org/10.1016/S0022-5371(78)90256-6)
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- [02] Friedman, A., & Bourne, L.E., Jr. (1976). Encoding the levels of information in pictures and words. *Journal of Experimental Psychology: General*, 105(2), 169-190. <https://doi.org/10.1037/0096-3445.105.2.169>
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Book Chapters

- Friedman, A., & Liebelt, L.S. (2017). On the time course of viewing pictures with a view towards remembering. Ebook: D.F. Fisher, R.A. Monty, & J.W. Senders (Eds.), *Eye movements*, Routledge, 2017. ISBN: 9781315437415. Print version: D.F. Fisher, R.A. Monty, & J.W. Senders (Eds.), 1981. *Eye movements: Cognition and visual perception* (pp. 137-155). Hillsdale, N.J.: Erlbaum. <https://doi.org/10.4324/9781315437415-12>
- 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. <https://doi.org/10.1037/10895-001>
- 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. https://doi.org/10.1007/978-3-642-57821-2_1
- Friedman, A., Polson, M.C., Spector, J.M. (1991) Designing an advanced instructional design advisor: Incorporating visual materials and other research issues, Vol. 4. MEI Associates Inc., Lexington, MA. <https://www.researchgate.net/publication/235026114>

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 1st 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.

Invited Presentations

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

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

January 29, 2010. *Location estimates in real-world space.* Presented 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.* Presented at the Department of Geography Colloquium Series, University of California, Santa Barbara, California.

February 20, 2009. *What do object and scene recognition have in common?* Presented at 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*. Presented at 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*. Presented at 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 “Frontiers of Behavioral Geography”, a symposium 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.

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.

March, 2004. *Reasoning with regions: Discovering geographical categories and assessing their effects on judgments about global locations*. Presented at the “Frontiers of Behavioral Geography” Symposium, 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, 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 the symposium on Large-Scale Spatial Cognition, at the meetings of the Cognitive Science Association for Interdisciplinary Learning, Hood River, Oregon.

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.

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 Expérimentale, 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, 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

Galati, A., Plastira, M.N., Friedman, A., Avraamides, M.N. (2021, November). *Beyond the physical divide of Greek-Cypriots and Turkish-Cypriots: Social and political variables shape geographical estimates*. Presented at the 62th Annual Meeting of the Psychonomic Society, A Virtual Conference, New Orleans, Louisiana.

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

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 were at some point in the Psychology program at the University of Colorado, Boulder, as either graduate students, post-docs, or visiting professors. They 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.

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.

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 1st National Obesity Summit of the Canadian Obesity Network, Kananaskis, Alberta.

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.

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, "Universal Mapping Project," at Geo-Nexus: Research in Geographic and Environmental Education, San Marcos, Texas.

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.

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.

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.

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.

Conference Posters

Nankoo, J.F., Sawalha, J., Wylie, D., Friedman, A., Vuong, Q., & Spetch, M. (2015, May). *The use of shape and motion cues for object perception in pigeons*. Poster presented at the Banff Annual Symposium in Cognitive Science, Banff, Alberta.

Carson, V., Kuzik, N., Hunter, S., Wiebe, S.A., Spence, J.C., Friedman, A., Tremblay, M.S., Slater, L., Hinkley, T. (2015, June). *Systematic review of sedentary behavior and cognitive development in early childhood*. Poster presentation at the 2015 Annual Meeting of the International Society for Behavioral Nutrition and Physical Activity (ISBNPA), Edinburgh, Scotland.

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.

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.

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 1st 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.

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.

Vuong, Q.C., Friedman, A., & Hof, A. (2005, November). *The role of motion variability in recognizing dynamic novel objects*. Poster presented at the 13th Annual Workshop on Object Perception, Attention, and Memory (OPAM), 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.
- 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.
- 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.
- 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., & Pilon, D. (1991, November). *Mental rotation and the gravitational upright.* Poster presented at the meetings of the Psychonomic Society, San Francisco, California.

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. OST84-0028.
- 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 Boulder.

Editorial Positions

2007 – 2018 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: Perception & Performance*

Ad Hoc Reviewing

Conferences

Cognitive Science Society

Conference on Spatial Information Theory (COSIT 2001)

Granting Agencies

Canada Council for the Arts

Natural Sciences and Engineering Research Council (Canada)

National Science Foundation (USA)

Israel Science Foundation

Journals

Acta Psychologica

American Educational Research Journal

Applied Cognitive Psychology

Canadian Journal of Experimental Psychology

Canadian Journal of Psychology, Child Development

Cognitive Psychology

Developmental Psychology

IEEE Transactions in Applied Perception

Field Methods

Journal of Experimental Psychology: Applied

Journal of Experimental Psychology: General

Journal of Experimental Psychology: Human Perception & Performance

Journal of Experimental Psychology: Human Learning & Memory

Journal of Memory & Language

Journal of Verbal Learning & Verbal Behaviour

Memory & Cognition

Perception & Psychophysics

Psychological Science

Psychonomic Bulletin & Review

Quarterly Journal of Experimental Psychology: Human Experimental Psychology

Spatial Cognition & Computation

Teaching & Mentoring

PhD Supervision & Committees

2014	Ruojing Zhang, Psychology
2014	Oliver Schweickhert, Psychology
2010	Eric Legge, Psychology
2003	Blaine Mullins, Psychology
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

M.A. & MSc Supervision & Committees

2014	Lei Zhang
2012	Ruojing Zhang
2011	Daniel Huntley, Computing Science
2010	Michael Parnes (Supervisor)
2009	Ryan van Kroonenburg
2008	Mathew Rangel, Fine Arts
2007	Ken Boyd, Philosophy
2006	Gail Moroschan
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 (Supervisor)
1988	Paul Bergen, Linguistics
1986	Jerome Yuzyk
1986	Paternela Scharf, Computing Science
1985	Gurminder Singh, Computing Science
1985	Jo-Anne LeFevre
1985	Eilen Thauberger, Nursing
1984	Bruce Galenza, Psychology (Supervisor)
1983	Chris Herdman, Psychology (Supervisor)

1981 Lew Stelmach
1980 Donna Murray

Non-thesis Graduate Research Supervision

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)

Undergraduate Honors & Independent Studies

2010 – 2012 Josh Hamaluik, Honors (Psy 390, 490)
2006 – 2008 Courtney Plante, Honors (Psy 390, 490)
2006 – 2007 Magda Piwowarczyk, Individual Research (Psy 496 A1, B1)
2005 – 2006 Alexandra Twyman, Individual Research (Psy 496 A1, B1);
 Co-supervised with M. Spetch.
2004-2005 Tom Marsh, Individual Research (Psy 496 A1, B1)
2002 Katherine Wiebe, Individual Research (Psy 496 B1)
2001 – 2002 Nolan Boucher, Individual Research (Psy 496 A1, B1)
2001 – 2002 Rachel Keaschuk, Individual Research (Psy 496 A1, B1)
1997 – 2009 Aaron McGaffey, Honors (Psy 390), Individual Research (Psy 497, Cmput 497),
 NSERC Summer Award
1997 – 1999 Marjorie Rabiau, Honors (Psy 390, 490)
1997 Teresa Dmytriw, Individual Resesarch (Psy 496)
1997 Nancy Ward, Individual Research (Psy 496)
1996 – 1998 Quoc Vuong, Honors (Psy 390, 490), NSERC Summer Award
1996 Jonathan Nieuwendyck, Individual Research (Psy 496)
1996 Suzanne Wong, , Individual Research (Psy 496)
1992 Marian Morry, NSERC Summer Award
1992 Siobhan Nearey, NSERC Summer Award
1991 Steven Ozar, Honors Thesis (Psy 490)
1991 Shauntelle Paul, Honors Thesis (Psy 490)
1990 Ben Mack, NSERC Summer Award
1989 – 1991 Christina Gagne, Honors thesis (Psy 490); NSERC Summer Award
1988 – 1989 Cory Harding, Individual Research (Psy 496-497)
1986 – 1988 Judy Shedden, Honors Thesis (Psy 599); NSERC Summer Award
1984 – 1985 Randall Kopach, Individual Research (Psy 496 – 497)
1984 – 1985 Brian Lake, , Individual Research (Psy 496 – 497)
1982 – 1983 Julie Lloyd, Individual Research (Psy 496 – 497)
1981 – 1982 Jeanette DeRosario, Individual Research (Psy 496 – 497)

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 Advanced Analysis of Variance and Experimental Design

Honors Psychology:

Writing for the Psychological Literature
Computer Models of Psychological Processes
Advanced Statistics and Experimental Design
Seminar in Advanced Cognitive Psychology (various topics. Including
attention, spatial cognition, spatial memory, perception, computer models,
psycholinguistics, visual information processing, language processing, memory)

Graduate Advanced Statistics and Experimental Design
Professional Issues and Ethics

Administrative Service

Faculty

1998 – 2005 Faculty of Arts Representative to Faculty of Science Council
2010 FEC Representative for W. Mou Tenure & Promotion
2006 – 2007 Faculty of Arts Selection Committee (for Cognitive Psychology Candidate)
2004 – 2005 Psychology Chair Review Committee
2000 Faculty of Arts Selection Committee (for Linguistics candidate)
1998 – 2002 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 for 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 (Cognitive Psych 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)

Department

2014 Carthy Chair Selection Committee
2010 – 2012 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 and 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
1991 – 1992	Coordinator for Introductory Psychology
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

Research Support

Operating Grants

2011 – 2017	<i>Spatial Cognition</i> . Natural Sciences and Engineering Research Council, Canada (NSERC), \$135,000.
2014 – 2015	Co-principal investigator, <i>Dose-response relationships between physical activity, sedentary behavior, and neuro-cognitive development among children of the early years</i> . ACCFCR/Norlien Foundation, \$30,000.
2009 – 2012	Co-Principal Investigator, <i>Pediatric weight management: Advancing the evidence in family-centred care</i> . Faculty of Medicine & Dentistry, U Alberta & Alberta Health Services, Emerging Team Grant. \$300,000.
2006 – 2011	<i>Spatial representation and reasoning about global-scale geography</i> , NSERC, \$110,000.
2001 – 2005	<i>Recognizing and categorizing familiar objects</i> . NSERC, \$110,000.
1996 – 2000	<i>Frames of reference in object recognition</i> . NSERC, \$80,845.
1992 – 1995	<i>Factors in mental rotation, object recognition, and metaphor comprehension</i> . NSERC, \$45,000.
1988 – 1991	<i>Divided attention, cerebral specialization, and spatial cognition</i> . NSERC, \$54,000.
1985 – 1988	<i>Multiple resources in cerebral specialization, divided attention, and mental rotation</i> . NSERC, \$50,085.
1984 – 1985	<i>A study of the value & use of graphics in educational applications with emphasis on Telidon graphics</i> . Gov't. of Canada Dept. of Communications, \$20,498.
1982 – 1985	<i>Limited capacity processing and cerebral specialization</i> . NSERC, \$45,000.
1979 – 1982	<i>Resource allocation in cerebral specialization</i> . U.S. Office of Naval Research; University of Alberta subcontract USD\$79,725.
1978 – 1979	<i>Resource allocation in cerebral specialization</i> . National Jewish Hospital & Research Center, Denver, Colorado. USD\$4,637.
1997 – 1998	<i>Frames of reference in object recognition</i> , NSERC, \$15,550.

Equipment & Infrastructure Grants

- 2001 – 2002 *Recognizing and categorizing familiar objects*, NSERC, \$17,589.
2000 – 2001 *University of Alberta Faculty of Arts Research Grant*, Lab Renovation, \$84,848.
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.
1989 University of Alberta, VP-CRF Equipment Grant, \$5,000.
1977 – 1978 *Levels of processing in cerebral specialization*. National Jewish Hospital and Research Center, \$6,960USD.

Miscellaneous 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.
1985 Travel Grant, NSERC,\$560.
1984 Travel Grant, Alberta Heritage Foundation for Medical Research, \$1,600.
1984 Co-Supervisor, NSERC Summer Canada Internship Program, \$5,274.
1983 Co-Supervisor, NSERC Summer Canada Internship Program, \$10,800.