

Alinda Friedman

January 2026

Department of Psychology
 University of Alberta
 Edmonton, Alberta, Canada, T6G 2E9
 alinda@ualberta.ca | 780.492.5216
<https://apps.ualberta.ca/directory/person/alinda>

Education

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

Employment*University of Alberta Edmonton, Department of Psychology*

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

National Jewish Hospital & Research Center, Denver

1978-1979 Research Psychologist, Brain Sciences Laboratory
 1976-1978 Research Associate, Psychophysiology Laboratory

University of Colorado Denver, School of Medicine, Department of Psychiatry

1978-1979 Assistant Professor
 1977-1978 Instructor

Professional Affiliations [Current]

1978-pres American Psychological Association, Emeritus Fellow
 1989-pres Association for Psychological Science, Fellow
 1990-pres Canadian Society for Brain, Behaviour, & Cognitive Science
 1981-pres Cognitive Science Society
 1978-pres Psychonomic Society, Emeritus Fellow

Honors

2017 Raymond S. Nickerson Award for Best Paper in JEP: Applied, 2016, 22, 381-392.
 2004 Elected Fellow to the American Psychological Association (APA)
 2004 Elected Fellow to APA Division 3 (Experimental Psychology)
 2004 Dissertation featured in *Great Dissertations Mark 1*, APS Observer, 17(10)
 2000 JEP:G & JEP:LMC articles selected for APA Monitor, *Science Watch*, 31(7), 82.
 1998 Elected Fellow to the Association for Psychological Science
 1967-71 New York State Regents College Scholarship

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*

Peer Reviewed Publications

- [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., Rashquinha, 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>
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 46real-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>
- [33] Spetch, M., & Friedman, A. (2006). Comparative cognition of object recognition. *Comparative Cognition and Behavior Reviews*, 1, 12-35. <https://doi.org/10.3819/ccbr.2008.10002>
- [32] 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(6), 1054-1060. <https://doi.org/10.3758/bf03206443>
- [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: *Assessing the Configural Similarity and Accuracy of Cognitive Maps and Other Two-Dimensional Data Sets*. Journal Article published 2003 in *Psychological Methods*. <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>
- [28] 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(4), 265-285. [https://doi.org/10.1016/s0022-0965\(03\)00028-6](https://doi.org/10.1016/s0022-0965(03)00028-6)
- [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>
- [23] 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(2), 238-255. <https://doi.org/10.1037/0096-3445.130.2.238>
- [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>
- [21] Friedman, A. & Brown, N. (2000a). Reasoning about geography. *Journal of Experimental Psychology: General*, 129(2), 193-219. <https://doi.org/10.1037/0096-3445.129.2.193>
- [20] Watson, B., Friedman, A., & McGaffey, A. (2000). Using naming time to evaluate quality predictors for model simplification. *CHI '00: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (The Hague, April), 113-120. <https://doi.org/10.1145/332040.332414>
- [19] Brown, N.R., & Friedman, A. (1999). Assessing and improving geographical beliefs: A cognitive approach. *Research in Geographic Education*, 1, 1-13.
- [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>
- [13] Friedman, A., & Harding, C.A. (1990). Seeing versus imagining movement in depth. *Canadian Journal of Psychology*, 44(3), 371-383. <https://doi.org/10.1037/h0084258>
- [12] Polson, M.C., & Friedman, A. (1988). Task-sharing within and between hemispheres: A multiple resources approach. *Human Factors*, 30(5), 633-643. <https://doi.org/10.1177/001872088803000507>

- [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>
- [09] 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(1), 40-49. <https://doi.org/10.1037/0096-1523.11.1.40>
- [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
- [07] 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(5), 625-650. <https://doi.org/10.1037/0096-1523.8.5.625>
- [06] 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(5), 1031-1058. <https://doi.org/10.1037/0096-1523.7.5.1031>
- [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)
- [03] McDaniel, M., Friedman, A. & Bourne, L.E., Jr. (1978). Remembering the levels of information in words. *Memory & Cognition*, 6(2), 156-164. <https://doi.org/10.3758/bf03197441>
- [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>
- [02a] Friedman, A., & Bourne, L. E. (1976). Erratum to Friedman and Bourne. *Journal of Experimental Psychology: General*, 105(3), 253. <https://doi.org/10.1037/h0078228>
- [01] Friedman, A. (1976). Finding the relevant attribute with visual and auditory stimuli. *American Journal of Psychology*, 89(4), 601-616. <https://doi.org/10.2307/1421460>

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/publication235026114>

A Note About Research Funding

My research and I have been funded for about 54 years. The starting point was in 1969, when I was awarded a “work-study” placement with Dr Marvin Levine, who was researching human problem-solving. When I started working for him I had no idea what “human-problem solving” meant, but after a month or so I had no doubt that I’d found my life’s calling.

During the next five years, I was a grad student in Dr Lyle Bourne’s lab. In my first year, I ran, analyzed, wrote up, and published eight experiments (Friedman & Bourne, 1976, JEP:General). I was able to do this because I had a full-time Research Assistantship (RA); it would have been next to impossible to collect and analyze so much data if I had had to hold down a “regular” job. Thus, I began my career with a healthy respect for what grant funds could accomplish.

Two punctate events and one ongoing source of funding have had the most impact on my research career. The first event occurred in 1979, just *after* I learned that I had a job offer from the University of Alberta. Martha Polson and I were awarded a 2-year contract from the US Office of Naval Research. Fortunately, I was permitted to take my portion of the contract’s funds (\$80,000USD) to Alberta. I used them to buy a state-of-the-art minicomputer, which freed me from many mundane tasks (described elsewhere) and gave me that time to think and write. In addition, computerizing data collection eliminated or mitigated many potential sources of variance in the data.

The second event that strongly impacted my research career took place in 2000, when the newly elected Chair of my department toured all the labs and determined that my 1,000 square feet of lab space that had been state-of-the-art in 1979 was now a 1,000 square foot white elephant. He suggested that I apply for a Faculty of Arts “lab upgrade” grant. I did, and the \$85,000 CDN I received enabled me to redesign my lab space to accommodate 12 testing rooms and space for RAs, meetings, storage, etc. Renovating my lab’s infrastructure had a large and immediate positive impact on the research productivity of my students and me.

Third, I’ve had ongoing operating funds from the Natural Sciences and Engineering Research Council of Canada (NSERC) from 1982 through 2017. NSERC’s policies promote sanity in the research enterprise because the duration of their grants is between 3 and 5 years. Thus, I didn’t have to panic about writing a new grant while trying to understand the data collected during my current grant period.

Coda: Research should be judged by its quality and impact rather than by the often capricious amount of funding it has received. At the end of the day, it’s not about the money.