

# CURRICULUM VITAE

(Last Update October 5, 2017)

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<http://www.bcp.psych.ualberta.ca/research/>

## PERSONAL DATA

<u>Name:</u>	Michael Robert William Dawson	<u>Occupation:</u>
<u>Birthdate:</u>	February 25, 1959	Professor,
<u>Citizenship:</u>	Canadian	University of Alberta,
		Department of Psychology,
		Edmonton, Alberta,
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## EDUCATION

- PhD (1986) in Psychology from the University of Western Ontario, London, Ontario. (Thesis: *Using relative velocity as a natural constraint for the motion correspondence problem*. Advisor: Z. Pylyshyn).
- M.A. (1983) in Psychology from the University of Western Ontario, London, Ontario. (Thesis: *The relationships between a contrast model of metaphor comprehension and multidimensional responses to metaphor*. Advisor: A. Katz).
- B.A. (Honors) (1981) in Psychology from the University of Western Ontario, London, Ontario. (Thesis: *Thinking aside -- an experimental study of incubation*. Advisor: A. Katz).

## HONOURS AND AWARDS

- 2007-2008 McCalla Professor, Faculty of Arts
- 2005-2006 Faculty of Arts Research Award for Full Professor
- 1999 Edmonton Public Schools District Service Parents And Community Award
- 1999 Graduate Students Association Academic Staff Award
- 1998 Department of Psychology Teaching Award, University of Alberta
- 1997-1998 Killam Annual Professor, University of Alberta
- 1982-1985 NSERC Postgraduate Scholarship
- 1981-1982 Ontario Graduate Scholarship
- 1981-1982 Special University Scholarship (U.W.O)
- 1981 R.B. Liddy Gold Medal In Psychology, University of Western Ontario

## ACADEMIC POSITIONS

- 1996 - pres: Professor, Department of Psychology, University of Alberta, Edmonton, Alberta
- 1991 - 1996: Associate Professor, Department of Psychology, University of Alberta, Edmonton, Alberta.
- 1987 - 1991: Assistant Professor, Department of Psychology and the Centre for Advanced Study in Theoretical Psychology, University of Alberta, Edmonton, Alberta.
- 1986 - 1987: Sessional Assistant Professor, York University, Toronto, Ontario.

## ADJUNCT POSITIONS

- 1992 - 2002: Adjunct Professor, Department of Philosophy, University of Alberta
- 1992 - 2002: Adjunct Professor, Department of Computing Science, University of Alberta
- 1992 - 1996: Member, Division of Neuroscience, University of Alberta

## PUBLICATIONS

### Under Review

### Accepted or In Press

1. Dawson, M.R.W. (Accepted for publication). Cognitive impenetrability. *Encyclopedia of Animal Cognition and Behavior*, edited by Jennifer Vonk and Todd K. Shackelford, Springer Publishing. (1499 words, submitted March 30, 2017; accepted for publication April 29, 2017).
2. Dawson, M.R.W. and Zielinski, J.A.Z (Accepted for publication). Key-finding by artificial neural networks that learn about key profiles. *Canadian Journal of Experimental Psychology*. (12,955 Words, 55 pages, submitted January 7, 2017. Revision submitted March 23, 2017. Accepted for publication April 3, 2017).
3. Dawson, M.R.W. (Accepted for publication). *Connectionist Representations of Tonal Music: Discovering Musical Patterns by Interpreting Artificial Neural Networks*. Athabasca University Press. (107,168 words, 286 pages, 86 figures, 34 tables, revised manuscript submitted June 6, 2016; accepted for publication January 31, 2017).
4. Dawson, M.R.W. (in press). Introducing connectionism. This chapter has been prepared for inclusion in the volume *Issues In Applying SLA Theories Toward Creative Teaching* being edited by Mitra Zeraatpishe, Akram Faravani, Hamid Reza Kargozari, and Maryam Azarnoosh. This volume is part of the *Issues In TEFL Series* to be issued by Sense Publishers, Rotterdam. (5268 words, submitted April 7, 2014, accepted for publication October 30, 2014).

### Books and Monographs

1. Dawson, M.R.W. (2013) *Mind, Body, World: Foundations of Cognitive Science*. Athabasca University Press, Edmonton.
2. Dawson, M.R.W., Dupuis, B., & Wilson, M. (2010). *From Bricks to Brains: The Embodied Cognitive Science of LEGO Robots*. Athabasca University Press, Edmonton.
3. Dawson, M.R.W. (2008). Connectionism and classical conditioning. *Comparative Cognition and Behavior Reviews*, 3 (monograph), 1-115. Retrieved from <http://psyc.queensu.ca/ccbr/index.html>
4. Dawson, M.R.W. (2005). *Connectionism: A Hands-On Approach*. Oxford, UK: Blackwell Publishers.
5. Dawson, M.R.W. (2004). *Minds And Machines: Connectionism And Psychological Modeling*. Oxford, UK: Blackwell Publishers.
6. Dawson, M.R.W. (1998). *Understanding Cognitive Science*. Oxford, UK: Blackwell Publishers.

### Reviews of My Own Work

1. Stafford, T. (2006). Book Review. Connectionism: A Hands-On Approach. *Connection Science*, 18, 307-308.
2. Macinnes, J. (2006). Michael R.W. Dawson. Connectionism: A Hands-On Approach. *Canadian Psychologist*, 47, 152-153.
3. Stafford, T. (2006). Book Review. Minds and Machines: Connectionism and Psychological Modeling. *Connection Science*, 18, 87-88.
4. Kalish, M., & Barousse, C. (2006). Michael R.W. Dawson, Connectionism: A Hands-On Approach, Blackwell (2005) ISBN 1 405 13074 1 (hbk)/1 405 12807 0 £50.00 (hbk)/£19.99 (pbk), (200 pp.). *Trends in Cognitive Sciences*, 10, 6-8.
5. Spurrett, D. (2004). Psychology as modeling. *Psychology In Society*, 30, 77-79. (Review of Dawson (2004) *Minds and Machines*).
6. Chow, S.L. (2002). Understanding cognitive science by Dawson M.R.W. *Canadian Psychology*, 43, 50-52.
7. Shapiro, L. (2000). Michael R.W. Dawson, Understanding Cognitive Science. *Minds and Machines*, 10, 440-444.
8. Cooper, R. (1999). A joint review of Ashcraft "Fundamentals Of Cognition", Reisberg "Cognition: Exploring The Science Of Mind", Gazzaniga, Ivry and Mangum "Cognitive Neuroscience: The Biology Of The Mind", and Dawson "Understanding Cognitive Science". *Times Higher Educational Supplement*, 1360, ix.

### Book Chapters

1. Dawson, M. R. W. (2014). Embedded and situated cognition. In L.A. Shapiro (ed) *The Routledge Handbook Of Embodied Cognition*. London, Routledge: 59-67
2. Dawson, M.R.W. (2009). Computation, cognition – and connectionism. In D. Dedrick and L. Trick (eds) *Cognition, Computation, and Pylyshyn*. Cambridge, MA: MIT Press. (pp. 175-199).
3. Dawson, M.R.W. & Pylyshyn, Z.W. (1988). Natural constraints in apparent motion. In Z.W. Pylyshyn (Ed.) *Computational Processes in Human Vision: An Interdisciplinary Perspective*. Norwood, N.J.: Ablex Publishing.

#### Book Reviews

1. Dawson, M.R.W. (2014). Review of Britt Anderson's *Computational Neuroscience and Cognitive Modelling*. *British Journal of Psychology*, 105, 436-438.
2. Dawson, M.R.W. (2001). Review of Hector J. Levesque and Gerhard Lakemeyer, *The logic of knowledge bases*. *Canadian Psychology*, 42, 321-323.

#### Reprinted Articles

1. Nickerson, C.M., Bloomfield, L.L., Dawson, M.R.W., Charrier, I., & Sturdy, C.B. (2007). Feature weighting in 'chick-a-dee' call notes of *Poecile atricapillus*. *Virtual Journal of Biophysics Research*, 12(4) (URL: <http://scitation.aip.org/dbt/dbt.jsp?KEY=VIRT02&Volume=14L&Issue=7>). Reprint of an article that appeared in *Journal of the Acoustical Society of America* 122, 2451-2458.
2. Nickerson, C., Bloomfield, L.L., Dawson, M.R.W., & Sturdy, C.B. (2006). Artificial neural networks that discriminate notes from the 'chick-a-dee' call of *Poecile atricapillus*: The effect of pitch transformations. *Virtual Journal of Biophysics Research*, 12(4) (URL: <http://scitation.aip.org/dbt/dbt.jsp?KEY=VIRT02&Volume=12L&Issue=40>). Reprint of article that appeared in *Journal of the Acoustical Society of America*, 120, 1111-1117.
3. Dawson, M.R.W., Charrier, I., & Sturdy, C.B. (2006). Using an artificial neural network to classify black-capped chickadee (*Poecile atricapillus*) call note types. *Virtual Journal of Biophysics Research*, 11(9) (URL: <http://scitation.aip.org/dbt/dbt.jsp?KEY=VIRT02&Volume=12&Issue=4>). Reprint of article that appeared in *Journal of the Acoustical Society of America*, 119, 3161-3172

#### Refereed Articles

1. Dawson, M.R.W. and Gupta, M.M. (2017). Probability matching in perceptrons: Effects of conditional dependence and linear nonseparability. *PLoS ONE* 12(2): e0172431 doi:10.1371/journal.pone.0172431
2. Hathaway, J. and Dawson, M.R.W. (2014). Giant steps in the interpretation of a musical PDP network. *Eureka*, 4, 24-29.
3. Pérez, A. and Dawson, M.R.W. (2014). A brick-sorting LEGO robot. *Eureka*, 4, 19-23.
4. Dupuis, B., and Dawson, M.R.W. (2013). Get out of the corner: Inhibition and the effect of location type and number on perceptron and human reorientation. *Learning & Behavior*, 41(4), 360-378.
5. Dupuis, B. and Dawson, M.R.W. (2013). Differentiating models of associative learning: reorientation, superconditioning, and the role of inhibition. *Journal of Experimental Psychology: Animal Behavior Processes*, 39(3), 273-286.
6. Dawson, M.R.W. (2013). A case study In Gantt charts as historiophoty: A century of psychology at the University of Alberta. *History of Psychology*, 16(2), 145-157
7. Dawson, M.R.W. & Dupuis, B. (2012) Equilibria of perceptrons for simple contingency problems. *IEEE Transactions On Neural Networks And Learning Systems*, 23(8), 1340-1344
8. Guillette, L. M., Bloomfield, L. L., Batty, E. R., Dawson, M. R. W., & Sturdy, C. B. (2011). Development of a contact call in black-capped chickadees (*Poecile atricapillus*) hand-reared in different acoustic environments. *Journal of the Acoustical Society of America*, 130(4), 2249-2256.
9. Dawson, M.R.W. (2011). Cognitive architecture. in P.C Hogan (Ed.) *The Cambridge Encyclopedia of the Language Sciences*. Cambridge University Press, Cambridge. (pp. 160-162).
10. Guillette, L.M., Farrell, T.M., Hoeschele, M., Nickerson, C.M., Dawson, M.R.W., & Sturdy, C.B. (2010). Mechanisms of call note type perception in black-capped chickadees (*Poecile atricapillus*): Peak Shift in a note type continuum. *Journal of Comparative Psychology*, 124, 109-115.
11. Dawson, M.R.W. (2010). Review of Philip Robbins and Murat Aydede (Editors) *The Cambridge Handbook of Situated Cognition*. *Canadian Psychologist*, 51, 69-71.
12. Guillette, L.M., Bloomfield, L.L., Batty, E.R., Dawson, M.R.W. & Sturdy, C.B. (2010). Black-capped (*Poecile atricapillus*) and mountain chickadee (*Poecile gambeli*) contact call contains species, sex, and individual identity features *Journal of the Acoustical Society of America*, 127, 1116-1123.

13. Dawson, M.R.W., Kelly, D.M., Spetch, M.L., & Dupuis, B. (2010). Using perceptrons to explore the reorientation task. *Cognition*, 114, 207-226.
14. Dawson, M.R.W., Dupuis, B., Spetch, M.L., & Kelly, D.M. (2009). Simple artificial neural networks that match probability and exploit, and explore when confronting a multiarmed bandit. *IEEE Transactions on Neural Networks* 20(8), 1368-1371.
15. Dawson, M.R.W., Kelly, D.M., Spetch, M.L., & Dupuis, B. (2008). Learning about environmental geometry: A flaw in Miller and Shettleworth's (2007) operant model. *Journal of Experimental Psychology: Animal Behavior Processes*, 34, 425-428
16. Yaremchuk, V., & Dawson, M.R.W. (2008). Artificial neural networks that classify musical chords. *Journal of Cognitive Informatics and Natural Intelligence*, 2(3), 22-30.
17. Nickerson, C.M., Bloomfield, L.L., Dawson, M.R.W., Charrier, I., & Sturdy, C.B. (2007). Feature weighting in 'chick-a-dee' call notes of *Poecile atricapillus*. *Journal of the Acoustical Society of America* 122, 2451-2458.
18. Dawson, M.R.W., & Boechler, P.M. (2007). Representing an intrinsically nonmetric space of compass directions in an artificial neural network. *Journal of Cognitive Informatics and Natural Intelligence*, 1, 53-65
19. Nickerson, C., Bloomfield, L.L., Dawson, M.R.W., & Sturdy, C.B. (2006). Artificial neural networks that discriminate notes from the 'chick-a-dee' call of *Poecile atricapillus*: The effect of pitch transformations. *Journal of the Acoustical Society of America*, 120, 1111-1117.
20. Dawson, M.R.W., Bloomfield, L.L., Charrier, I., & Sturdy, C. B. (2006). Statistical classification of black-capped (*Poecile atricapillus*) and mountain chickadee (*Poecile gambeli*) call notes. *Journal of Comparative Psychology*, 120, 147-153.
21. Dawson, M.R.W., Charrier, I., & Sturdy, C.B. (2006). Using an artificial neural network to classify black-capped chickadee (*Poecile atricapillus*) call note types. *Journal of the Acoustical Society of America*, 119, 3161-3172.
22. Lowry, R., & Dawson, M.R.W. (2005). Connectionist selectionism: A case study of parity. *Neural Information Processing: Letters & Reviews*, 9, 59-67.
23. Graham, R., & Dawson, M.R.W. (2005). Using artificial neural networks to examine event-related potentials of face memory. *Neural Network World*, 15, 215-227.
24. Dawson, M.R.W., Boechler, P.M., & Orsten, J. (2005). An artificial neural network that uses coarse allocentric coding of direction to represent distances between locations in a metric space. *Spatial Cognition and Computation*, 5, 29-67.
25. Dawson, M.R.W., & Spetch, M.L. (2005). Traditional perceptrons do not generate the overexpectation effect. *Neural Information Processing: Letters & Reviews*, 7(1), 11-17.
26. Boechler, P.M., & Dawson, M.R.W. (2005). The effects of spatial layout on relationships between performance, path patterns and mental representation in a hypermedia information search task. *Interactive Technology and Smart Education*, 2, 31-45.
27. Yaremchuk, V., Willson, L.R., Spetch, M.L., & Dawson, M.R.W. (2005). The implications of null patterns and output unit activation functions on simulation studies of learning: A case study of patterning. *Learning & Motivation*, 36, 88-103.
28. Medler, D.A., Dawson, M.R.W., & Kingstone, A. (2005). Functional localization and double dissociations: The relationship between internal structure and behavior. *Brain and Cognition*, 57, 146-150.
29. Valsangkar-Smyth, M.A., Donovan, C., Sinnott, S., Dawson, M.R.W., & Kingstone, A. (2004). Hemispheric performance in object-based attention. *Psychonomic Bulletin & Review*, 11, 84-91.
30. Graham, R. & Dawson, M.R.W. (2003). Artificial neural networks as analytic tools in an ERP study of face memory *Neural Information Processing – Letters and Reviews*, 1, 67-73
31. Crowder, N.A., Dawson, M.R.W., & Wylie, D.R.W. (2003). Temporal frequency and velocity-like tuning in the pigeon accessory optic system. *Journal of Neurophysiology*, 90, 1829-1841.
32. Dawson, M.R.W., & Zimmerman, C. (2003). Interpreting the internal structure of a connectionist model of the balance scale task. *Brain and Mind*, 4, 129-149.
33. Dawson, M.R.W. (2002). Computer modeling of cognition: Levels of analysis. In Nadel, L. (Ed.) *Encyclopedia of Cognitive Science* London, UK: Nature/Scientific American Publishing Group. (pp. 635-638)
34. Boechler, P.M., Dawson, M.R.W., & Boechler, K.R. (2002) An introduction to custom WebBrowsers for the qualitative study of hypertext navigation. *Journal of Educational Multimedia and Hypermedia*, 11, 221-235.
35. Boechler, P.M., Dawson, M.R.W. (2002). The effects of navigational tool information on hypertext navigation behavior: A configural analysis of page-transition data. *Journal of Educational Multimedia and Hypermedia*, 11, pp. 95-115.

36. Dawson, M.R.W., Boechler, P.M., & Valsangkar-Smyth, M. (2000). Representing space in a PDP network: Coarse allocentric coding can mediate metric and nonmetric spatial judgements. *Spatial Cognition and Computation*, 2, 181-218.
37. Leighton, J.P., & Dawson, M.R.W. (2001). A PDP approach to understanding Wason's selection task. *Cognitive Systems Research*, 2, 207-231.
38. Dawson, M.R.W., & Piercey, C.D. (2001). On the subsymbolic nature of a PDP architecture that uses a nonmonotonic activation function. *Minds And Machines*, 11, 197-218.
39. Dawson, M.R.W., Medler, D.A., McCaughan, D.B., Willson, L., & Carbonaro, M. (2000). Using extra output learning to insert a symbolic theory into a connectionist network. *Minds And Machines*, 10, 171-201.
40. Dawson, M. R. W., & Medler, D. A. (1999). The Dictionary of Cognitive Science: One approach to teaching students how to create their own WWW instructional materials. *International Journal of Educational Telecommunications*, 5, 65-78.
41. Dawson, M.R.W., & Thibodeau, M. (1998). The effect of adapting luminance on the latency of visual search. *Acta Psychologica*, 99, 115-139.
42. Dawson, M.R.W., Medler, D.A., & Berkeley, I.S.N. (1997). PDP networks can provide models that are not mere implementations of classical theories. *Philosophical Psychology*, 10, 25-40.
43. French, B.M., Dawson, M.R.W., & Dobbs, A. (1997). Neural networks staging of dementia severity. *Archives of Neurology*, 54, 1001-1009.
44. Dawson, M.R.W., & Medler, D.A. (1996). Of mushrooms and machine learning: Identifying algorithms in a PDP network. *Canadian Artificial Intelligence*, 38, 14-17.
45. Berkeley, I.S.N., Dawson, M.R.W., Medler, D.A., Schopflocher, D.P., & Hornsby, L. (1995). Density plots of hidden value unit activations reveal interpretable bands. *Connection Science*, 7, 167-186.
46. Dawson, M.R.W. (1995). Pure and applied research at the Biological Computation Project. *Canadian Artificial Intelligence*, Winter (No. 36), 17-22.
47. Dawson, M.R.W., Dobbs, A., Hooper, H.R., McEwan, A.J.B., Triscott, J., & Cooney, J. (1994). Artificial neural networks that use SPECT to identify patients with probable Alzheimer's disease. *European Journal of Nuclear Medicine*, 21, 1303-1311.
48. Dawson, M.R.W., & Shamanski, K.S. (1994). Connectionism, confusion and cognitive science. *Journal of Intelligent Systems*, 4, 215-262.
49. Dawson, M.R.W., Nevin-Meadows, N., & Wright, R.D. (1994). Polarity matching in the Ternus configuration. *Vision Research*, 34, 3347-3359.
50. Dawson, M.R.W., & Wright, R.D. (1994). Simultaneity in the Ternus configuration: Psychophysical data and a computer model. *Vision Research*, 34, 397-407.
51. Medler, D.A., & Dawson, M.R.W. (1994). Training redundant artificial neural networks: Imposing biology on technology. *Psychological research*, 57, 54-62.
52. Wright, R.D., & Dawson, M.R.W. (1994). To what extent do beliefs affect apparent motion? *Philosophical Psychology*, 7, 471- 491.
53. Dawson, M.R.W. & Schopflocher, D.P. (1992). Autonomous processing in PDP networks. *Philosophical Psychology*, 5, 199-219.
54. Dawson, M.R.W. & Schopflocher, D.P. (1992). Modifying the generalized delta rule to train networks of nonmonotonic processors for pattern classification. *Connection Science*, 4, 19-31.
55. Wright, R.D., & Dawson, M.R.W. (1992). Measurement of directional lever response reaction time with the Commodore 64. *Behavior Research Methods, Instruments & Computers*, 24, 541-544.
56. Dawson, M.R.W. (1991). The how and why of what went where in apparent motion: Modeling solutions to the motion correspondence process. *Psychological Review*, 98, 569-603.
57. Dawson, M.R.W. & Di Lollo, V. (1990). Effects of adapting luminance and stimulus contrast on the temporal and spatial limits of short-range motion. *Vision Research*, 30, 415-429.
58. Dawson, M.R.W. (1989). Apparent motion and element connectedness. *Spatial Vision*, 4, 241-251.
59. Dawson, M.R.W. & Wright, R.D. (1989). The consistency of element transformations affects the visibility but not the direction of illusory motion. *Spatial Vision*, 4, 17-29.
60. Dawson, M.R.W. (1988). Fitting the Ex-Gaussian equation to reaction time distributions. *Behavior Research Methods, Instruments, & Computers*, 20, 54-57.
61. Wright, R.D. & Dawson, M.R.W. (1988). Using hardware interrupts for timing visual displays and reaction-time key interfacing on the Commodore 64. *Behavior Research Methods, Instruments & Computers*, 20, 41-48.
62. Dawson, M.R.W. (1987). Moving contexts do affect the perceived direction of apparent motion in motion competition displays. *Vision Research*, 27, 799-809.

63. Wright, R.D., Dawson, M.R.W., & Pylyshyn, Z.W. (1987). Spatio-temporal parameters and the three-dimensionality of apparent motion: Evidence for two types of processing. *Spatial Vision*, 2, 263-272.
64. Dawson, M.R.W. & Harshman, R.A. (1986). The multidimensional analysis of asymmetries in alphabetic confusion matrices: Evidence for global-to-local and local-to-global processing. *Perception & Psychophysics*, 40, 370-383.

#### Papers in Refereed Conference Proceedings

1. Yaremchuk, V. and M. R. W. Dawson (2005). "Chord classifications by artificial neural networks revisited: Internal representations of circles of major thirds and minor thirds." *Artificial Neural Networks: Biological Inspirations - Icnan 2005, Pt 1, Proceedings 3696*: 605-610.
2. Boechler, P., Steffler, D., Dawson, M., & Mansour, J. (2005). Incidental Learning in Hypemedia Environments: The Impact of Individual Differences and Spatial Overviews. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2005* (pp. 3789-3794). Norfolk, VA: AACE.
3. Boechler, P., & Dawson, M. (2003). The effects of navigation tools on student performance and recall in a hypermedia information search task. In *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2003* (pp. 1534-1535). Norfolk, VA: AACE.
4. Dawson, M.R.W. (2002). From embodied cognitive science to synthetic psychology. In Wang, Y., Johnston, R.H., & Smith, M.R. (Eds) *Proceedings Of The First IEEE International Conference On Cognitive Informatics (ICCI'02)*. IEEE Computer Society: Los Alamitos, CA. (pp. 13-22).
5. Medler, D. A., McCaughan, D. B., Dawson, M. R. W., & Willson, L. (1999). When local isn't enough: Extracting distributed rules from networks. *Proceedings of the 1999 International Joint Conference on Neural Network* (pp. 305i - 305vi), Washington, DC.
6. McCaughan, D. B., Medler, D. A., & Dawson, M. R. W. (1999). Internal representation in networks of non-monotonic processing units. *Proceedings of the 1999 International Joint Conference on Neural Network* (pp. 304i - 304vi), Washington, DC.
7. Piercey, C. D., & Dawson, M.R.W. (1999). Coarse coding in value units: Subsymbolic implications of nonmonotonic networks. In M. Hahn and S.C. Stoness (Eds.) *Proceedings of the Twenty First Annual Conference of the Cognitive Science Society*. Mahwah, NJ: Lawrence Erlbaum Associates. (pp. 537-542).
8. Dawson, M.R.W. (1994). Why good psychophysics can lead to bad models, and why good models can lead to good psychophysics. In L. Ward (Ed.) *Fechner Day 94. Proceedings of the Tenth Annual Meeting of the International Society for Psychophysics*. Vancouver, Canada. (pp. 11-16, invited).
9. Dawson, M.R.W., Berkeley, I.S.N., Medler, D.A., & Schopflocher, D.P. (1994). Density plots of hidden value unit activations reveal interpretable bands and microbands. In B. MacDonald, R. Holte, & C. Ling (Eds.) *Proceedings of the Machine Learning Workshop at AI/GI/VI'94*. University of Calgary Department of Computer Science Research Report No. 94/539/08. (pp. iii-1 to iii-9, refereed).
10. Dawson, M.R.W., Kremer, S., & Gannon, T. (1994). Identifying the trigger features for hidden units in a PDP model of the early visual pathway. In R. Elio (Ed.) *Proceedings of the Tenth Canadian Conference On Artificial Intelligence*. Palo Alto, CA: Morgan Kaufman (pp. 115-119). (refereed).
11. Medler, D.A., & Dawson, M.R.W. (1994). Using redundancy to improve the performance of artificial neural networks. In R. Elio (Ed.) *Proceedings of the Tenth Canadian Conference On Artificial Intelligence*. Palo Alto, CA: Morgan Kaufman (pp. 131-138). (refereed).
12. Shamanski, K.S., & Dawson, M.R.W. (1994). Problem type by network type interactions in the speed and transfer of connectionist learning.. In B. MacDonald, R. Holte, & C. Ling (Eds.) *Proceedings of the Machine Learning Workshop at AI/GI/VI'94*. University of Calgary Department of Computer Science Research Report No. 94/539/08. (pp. iv-1 to iv-7, refereed).
13. Dawson, M.R.W., Shamanski, K.S., & Medler, D.A. (1993). From connectionism to cognitive science. In L. Goldfarb (Ed.) *Proceedings of the Fifth University of New Brunswick Symposium On Artificial Intelligence*, Fredericton, NB: UNB press (pp. 295-305). (refereed).
14. Dawson, M.R.W., Schopflocher, D.P., Kidd, J., & Shamanski, K.S. (1992). Training networks of value units. *Proceedings of the Ninth Canadian Conference on Artificial Intelligence*. (pp. 244-250, refereed).
15. Dawson, M.R.W. (1988). The cooperative application of multiple natural constraints to the motion correspondence problem. *Proceedings of the Seventh Canadian Conference on Artificial Intelligence* (pp. 140-147, refereed).
16. Dawson, M.R.W. & Pylyshyn, Z.W. (1986). Using relative velocity information to constrain the motion correspondence problem: Psychophysical data and a computational model. *Proceedings of the Sixth Canadian Conference on Artificial Intelligence* (pp. 117-123, refereed).

17. Dawson, M.R.W., Mazmanian, D.S., & Roberts, W.A. (1986). Towards a comparative psychology of cognitive content: Exploring tree preference asymmetries in humans, pigeons, and monkeys. *Proceedings of the Eighth Conference of the Cognitive Society*. Hillsdale, N.J.: Lawrence Erlbaum (pp. 627-638, refereed).

#### Published Commentaries

1. Dawson, M.R.W. (2001). Feature development, object concepts, and the scope slip. *Behavioral And Brain Sciences*, 24, 1147-1148.
2. Dawson, M.R.W., & Piercey, C.D. (1999). Better theories are needed to distinguish perception from cognition. *Behavioral And Brain Sciences*, 22, 374-375.
3. Medler, D.A., & Dawson, M.R.W. (1998, April). Connectionism and cognitive theory: Commentary on Green on connectionist-explanation [11 paragraphs] *Psychology [On-line serial]*, 9(11). Available FTP: Hostname: princeton.edu Directory: pub/harnad/Psychology/1998.volume.9 File: psych.98.9.11.connectionist-explanation.8.medler
4. Dawson, M.R.W. (1995). The problems and prospects of comparative and noncomparative theoretical psychology. *New Ideas In Psychology*, 13, 219-222. (Invited).
5. Dawson, M.R.W., & Berkeley, I. (1993). Making a middling mousetrap. *Behavioral and Brain Sciences*, 16, 454-455.
6. Dawson, M.R.W. (1992). FINSTs, tag-assignment, and the parietal gazetteer. *Behavioral and Brain Sciences*, 15, 730-731.
7. Dawson, M.R.W. (1990). Empirical issues in theoretical psychology: Comment on Kukla. *American Psychologist*, 45, 778-780.
8. Dawson, M.R.W. (1989). Constraining tag-assignment from above and below. *Behavioral and Brain Sciences*, 12, 400-402.

#### Published Abstracts

1. Dawson, M.R.W, Baerveldt, C., and Shillabeer, E. (2017). "Training Generalist Scientists: Joseph R. Royce, Ludwig von Bertalanffy, and Their Plan for the Core Seminar of a Theoretical Psychology Center". In *Conference Program and Abstracts – Cheiron: International Society for the History of the Behavioral and Social Sciences*. Program Chair: Young, J.L. (Pages 19-21).
2. 49th Annual Meeting
3. Mississippi State University (Starkville, MS)
4. June 22-25, 2017
5. Dawson, M.R.W. (2016). "How To Convert Historical Text Into A Gantt Chart". In *Book of Abstracts: Joint Meeting of the European Society for the History of the Human Sciences and the International Society for the History of Behavioral and Social Sciences*. Edited by Mariagrazia Proietto & Thiago Constâncio Ribeiro Pereira. Copyright 2016 by Psychologia Latina, Barcelona, Spain. (p. 36).
6. Dawson, M.R.W. (1990). Training networks of value units: Learning in PDP systems with nonmonotonic activation functions. *Canadian Psychology*, 31(4), 391.
7. Dawson, M.R.W. (1990). Solving the motion correspondence problem with an autoassociative connectionist network. *Canadian Psychology*, 31(2a), 204.
8. Dawson, M.R.W. (1988). The effect of similarity of shape and of topology on motion correspondence. *Canadian Psychology*, 29(2a), 176.
9. Dawson, M.R.W. & Schopflocher, D.P. (1991). Extending the generalized delta rule for connectionist learning: Solving problems of "hard learning" without hidden units. *Canadian Psychology*, 32(2a), 290.
10. Dawson, M.R.W. & Schopflocher, D.P. (1990). Making autonomous learning possible in connectionist networks. *Canadian Psychology*, 31(2a), 214.
11. Dawson, M.R.W. & Wright, R.D. (1986). The relationships between moving contexts and the perceived direction of apparent motion. *Canadian Psychology*, 27(2a), 150.
12. Dawson, M.R.W., Wright, R.D., & Conforto, D. (1987). Testing independence assumptions of feature-integration theory. *Canadian Psychology*, 28(2a), 129.
13. Harshman, R.A. & Dawson, M.R.W. (1986). Asymmetric processes in visual letter confusions as revealed by a new multidimensional scaling method. *Canadian Psychology*, 27(2a), 273.
14. Macquistan, A.D., & Dawson, M.R.W. (1990). The effect of heterogeneous distractor items in visual search. *Canadian Psychology*, 31(2a), 203.
15. Macquistan, A.D. & Dawson, M.R.W. (1991). The effects of form and location cuing on stimulus identification. *Canadian Psychology*, 32(2a), 298.

16. Wright, R.D. & Dawson, M.R.W. (1986). The effects of apparent distance and meaningfulness on the visibility and direction of apparent motion. *Canadian Psychology* 27(2a), 636.
17. Wright, R.D. & Dawson, M.R.W. (1987). Determinants of the speed of perceiving inside/outside spatial relations. *Canadian Psychology*, 28(2a), 679.

#### Technical Reports

1. Dawson, M.R.W. (June, 2015). A Compilation of Undergraduate Courses Offered by the Department of Psychology at the University of Alberta: 1909-10 to 2015-16. Document submitted for inclusion in University of Alberta Archives re Psychology. (Provided to Archivist James Franks on June 6, 2015; 107 pages, 45,317 words).
2. Dawson, M.R.W. (August, 1986). Using relative velocity as a natural constraint for the motion correspondence problem. *U.W.O. Centre for Cognitive Science Technical Memorandum No. 27*.
3. Dawson, M.R.W. & Harshman, R.A. (April, 1986). The multidimensional analysis of asymmetries in alphabetic confusion matrices: Evidence for global-to-local and local-to-global processing. *U.W.O. Department of Psychology Research Bulletin No. 643*.
4. Dawson, M.R.W. & Pylyshyn, Z.W. (September, 1985). The natural computation of motion correspondence. *U.W.O. Centre for Cognitive Science Technical Memorandum No. 20*.
5. Dawson, M.R.W. & Pylyshyn, Z.W. (December, 1985). Using relative velocity information to constrain the motion correspondence problem: Psychophysical data and a computational model. *U.W.O. Centre for Cognitive Science Technical Memorandum No. 20a*.
6. Dawson, M.R.W. & Wright, R.D. (July, 1986). The effects of apparent interelement distance and the consistency of movement on the visibility and direction of apparent motion. *U.W.O. Centre for Cognitive Science Technical Memorandum No. 24*.
7. Wright, R.D. & Dawson, M.R.W. (1987). Using hardware timing and interrupts on the Commodore 64. *U.W.O. Centre for Cognitive Science Internal Technical memorandum*.
8. Wright, R.D., Dawson, M.R.W., & Pylyshyn, Z.W. (August, 1986). Spatio-temporal parameters and the three-dimensionality of apparent motion: Evidence for two types of processing. *U.W.O. Centre for Cognitive Science Technical Memorandum No. 26*.

#### PRESENTATIONS

##### Colloquia

1. Dawson, M.R.W. (2016) "From Bricks to Brains: What Do Robot Bodies Tell Us About Human Minds?" Telus World of Science, *Dark Matters: Robotics* (March 10, 2016, invited).
2. University of Alberta, Department of Secondary Education, Doyal Nelson Lecture "Towards a more embodied approach to mathematics" (January 29, 2013, invited).
3. Universidad Diego Portales, La Facultad de Psicología, Centro de Estudios de la Argumentación y el Razonamiento, Santiago, Chile. "Teaching forward engineering with LEGO robots". (November 13, 2013, invited).
4. Universidad Diego Portales, La Facultad de Psicología, Centro de Estudios de la Argumentación y el Razonamiento, Santiago, Chile. "Introducing embodied cognitive science". (November 12, 2013, invited).
5. University of Alberta, Department of Philosophy. "Is the posterior perceptor an ace of Bayes?" (March 7, 2013, invited).
6. Simon Fraser University, Burnaby, Cognitive Science. "Connectionism, Cognitive Science, And Musical Chords". (October 7, 2004, invited).
7. University of New Brunswick, Fredericton, Department of Psychology. "Synthesis, emergence and analysis: From embodied cognitive science to synthetic psychology". (April 3, 2002, invited).
8. University of Calgary, Department of Psychology. "From rules to networks: A new wave reduction.". (October 7, 1998, invited).
9. University of Alberta, Super Saturday. "Why is the brain smarter than a computer?" (October 5, 1996, invited).
10. University of Alberta, Department of Psychology, Keynote Address, Joseph R. Royce Research Conference. "Factories: Case studies in synthetic psychology". (Presented February 2, 1996 invited)
11. University of Alberta, Department of Psychology Colloquium Series. "The Turing Tarpit, Connectionist goo, and other sticky problems in cognitive science." (November 3, 1995, invited.)
12. University of Alberta, Medical Physics Seminar. "Artificial neural networks that use SPECT to identify patients with Alzheimer's disease." Presented February 4, 1994 (invited).
13. University of Alberta, Department of Philosophy. "Finding predicates in your porridge: Interpreting connectionist goo". Presented November 8, 1993 (invited).



14. University of Western Ontario, Centre for Cognitive Science, Department of Psychology, and Department of Computer Science. "Connectionism, confusion, and cognitive science. Presented May 20, 1993 (invited).
15. University of Alberta, Grand Rounds, Department of Psychiatry. "Artificial neural networks". Presented March 22, 1993 (invited).
16. University of Alberta, Faculty of Education Instructional Fair. "The interactive neuroanatomy tutor". Computer display presented with D. Treit March 16 and March 17, 1993 (invited).
17. Carleton University, Cognitive Science Distinguished Lecture Series. "The how and why of what went where in apparent motion". Presented February 19, 1993 (invited).
18. Carleton University, Cognitive Science Distinguished Lecture Series. "Connectionism, cognitive science, and the biological computation project". Presented February 18, 1993 (invited).
19. University of Alberta, Department of Computer Science. "The how and why of what went where in apparent motion". Presented November 30, 1992 (invited).
20. University of Alberta, Division of Neuroscience. "Artificial neural networks". Presented November 19, 1992 (invited).
21. University of Alberta, presentation to NATO RSG10 group, Department of Linguistics "Training networks of value units." Presented October 21, 1992 (invited).
22. Simon Fraser University. "The how and why of what went where in apparent motion". Presented May 14, 1992 (invited).
23. Grant MacEwan Community college. "Vision in computers and humans: The motion correspondence example." Presented January 20, 1992 (invited).
24. University of Alberta, Cognitive Science Group. "The how and why of what went where in apparent motion". Presented in October, 1989.
25. York University, Department of Psychology. "Using relative velocity as a natural constraint for the motion correspondence problem". Presented in February, 1986 (invited).
26. McGill University, Department of Psychology. "Using relative velocity as a natural constraint for the motion correspondence problem". Presented in March, 1986 (invited).
27. York University Cognitive Science Colloquium Series. "Natural constraints in apparent motion". Presented October 17, 1986.
28. York Vision Group Seminar Series, York University. "Analyzing asymmetries in stimulus confusion matrices". Presented October 24, 1986.
29. University of Toronto, McLuhan Centre Program Cognitive Science Colloquium Series. "Natural computation of motion correspondence". Presented October 27, 1986 (invited).
30. University of Alberta, Centre for Advanced Study in Theoretical Psychology. "The how and why of what went where in apparent motion". Presented December 4, 1986 (invited).
31. University of Alberta, Centre for Advanced Study in Theoretical Psychology. "The promises and problems of intentional psychology". Presented December 5, 1986 (invited).

#### **Conference Presentations**

1. Baerveldt, C., Shillabeer, E., Richards, V., and Dawson M.R.W. (2017). Recovery and renewal: The Center for Advanced Study in Theoretical Psychology, 1965-1990. (Paper presented at the 17<sup>th</sup> Biennial Meeting of the International Society for Theoretical Psychology, Rikkyo University, Tokyo, Japan, August 22, 2017).
2. Dawson, M.R.W, Baerveldt, C., and Shillabeer, E. (2017). "Training Generalist Scientists: Joseph R. Royce, Ludwig von Bertalanffy, and Their Plan for the Core Seminar of a Theoretical Psychology Center". (Paper presented at the 49<sup>th</sup> annual meeting of Cheiron: International Society for the History of the Behavioral and Social Sciences. Starkville, Mississippi, June 23, 2017).
3. Han, J., & Dawson, M.R.W. (2017). "Generating music by predicting notes from Bach's Inventions" (Poster presented at the 31<sup>th</sup> Annual J.R. Royce Research Conference, Department of Psychology, University of Alberta, March 23 2017).
4. Dawson, M.R.W. (2016). "Structure-Process, Images, and Narratives". (Paper presentation at the joint conference of the European Society for the History of the Human Sciences (ESHHS) and the International Society for the History of Behavioral and Social Sciences (Cheiron), Barcelona, Spain, June 30, refereed).
5. Dawson, M.R.W. (2016). "How To Convert Historical Text Into A Gantt Chart". (Poster presentation at the joint conference of the European Society for the History of the Human Sciences (ESHHS) and the International Society for the History of Behavioral and Social Sciences (Cheiron), Barcelona, Spain, June 28, refereed).

6. Dawson, M.R.W. (2016). "Pylyshyn's patented procedure for producing PDP-promoting PhDs: A personal parable." (Talk presented at the Dr. Zenon W. Pylyshyn Retirement Conference, Rutgers University, May 20 2016, invited).
7. Koch-Hale, B.L., & Dawson, M.R.W. (2016). "Musical Intervals, Neural Networks, and Coarse Coding" (Poster presented at the 30<sup>th</sup> Annual J.R. Royce Research Conference, Department of Psychology, University of Alberta, March 11 2016).
8. Dawson, M.R.W. & Dupuis, B. (2016). Telus World of Science, *Dark Matters: Robotics*. "From Bricks to Brains: The Embodied Cognitive Science of LEGO Robots" (Poster, robot, and video display; March 10, 2016, invited).
9. Dawson, M.R.W. (2015). "Image processing of a Gantt chart to explore the history of a Canadian psychology department". (Poster presented at the 34<sup>th</sup> Annual Meeting of the European Society for the History of the Human Sciences, Angers, France, July 7).
10. Kersten, L., Dawson, M.R.W., & Hathaway, J. (2013). "Simple networks, complex music: An investigation into 'embodied' representations". (Paper presented at Embodied Music Cognition (EMuCog) Conference, Edinburgh, Scotland, July 23).
11. Dupuis, B., & Dawson, M.R.W. (2013). "Differentiating models of associative learning: Reorientation, superconditioning, and the role of inhibition". (Poster presented at the 12th International Conference on Cognitive Modelling, (ICCM 2013), Ottawa, ON, July 13).
12. Dawson, M.R.W. (2013). "Interpreting the internal structure of artificial neural networks can reveal new formalisms for musical cognition". (Poster presented at the 13th European Congress of Psychology, (ECP 2013), Stockholm, Sweden, July 12).
13. Dawson, M.R.W., & Hathaway, J. (2013). "Giant Steps In Interpreting PDP Networks For Jazz Progressions". (Poster presented at the 23<sup>rd</sup> annual meeting of the Canadian Society For Brain, Behavior, and Cognitive Science, Calgary, AB, June 8).
14. Dawson, M.R.W., Dupuis, B., & Jans, S. (2013). "Simple Neural Networks And Bayesian Inference: A Computational Account". (Poster presented at the 23<sup>rd</sup> annual meeting of the Canadian Society For Brain, Behavior, and Cognitive Science, Calgary, AB, June 8).
15. Dupuis, B. & Dawson, M.R.W. (2013). "Get Out Of The Corner: Inhibition and the Effect of Location type and Number on Perceptron and Human Reorientation". (Poster presented at the 23<sup>rd</sup> annual meeting of the Canadian Society For Brain, Behavior, and Cognitive Science, Calgary, AB, June 8).
16. Dawson, M.R.W., & Hathaway, J. (2013). "Giant Steps In Interpreting PDP Networks For Jazz Progressions". (Poster presented at the 27<sup>th</sup> Annual Joseph R. Royce Research Conference (Edmonton, AB, March 12).
17. Dawson, M.R.W., Dupuis, B., & Jans, S. (2013). "Simple Neural Networks And Bayesian Inference: A Computational Account". (Poster presented at the 27<sup>th</sup> Annual Joseph R. Royce Research Conference (Edmonton, AB, March 12).
18. Dupuis, B. & Dawson, M.R.W. (2013). "Get Out Of The Corner: Inhibition and the Effect of Location type and Number on Perceptron and Human Reorientation". (Poster presented at the 27<sup>th</sup> Annual Joseph R. Royce Research Conference (Edmonton, AB, March 12).
19. Dawson, M.R.W. (2011). Neural networks that use strange circles to encode musical harmony. Poster presented at the 26th Annual Meeting of the Canadian Society for Brain Behaviour and Cognitive Science (Winnipeg, MB, June 25).
20. Dupuis, B. & Dawson, M.R.W. (2011). Modules, maps, and the robots who shun them: a behaviour-based model of navigation. Paper presented at the 26th Annual Meeting of the Canadian Society for Brain Behaviour and Cognitive Science (Winnipeg, MB, June 25).
21. Sturdy, C.B., Dawson, M.R.W., Guillette, L.M., Nickerson, C.M., Farrell, T.M., Hoeschele, M., Bloomfield, L.L. and Charrier, I. Birds and models: Not as different as you might think. Paper presented at the 158th Meeting of the Acoustical Society of America (San Antonio, Texas, October 29 2009)
22. Dawson, M.R.W. (2008). Students use LEGO robots to learn about Posthumanism in cognitive science. DVD and poster presented at University of Alberta Festival of Teaching (Edmonton, January 24).
23. Guillette, L.M., Farrell, T.M., Hoeschele, M., Charrier, I., Dawson, M.R.W. & Sturdy, C.B. (2008). Mechanisms of Call Note Classification Redux. Paper presented at 15th Annual International Conference on Comparative Cognition (Melbourne, FA, March).
24. Dawson, M.R.W., Kelly, D.M., & Spetch, M.L. (2007). Using artificial neural networks to simulate the reorientation task. Poster presented at the 17<sup>th</sup> annual meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Victoria, BC, June 16).

25. Sturdy, C.B., Dawson, M.R.W., Nickerson, C., Bloomfield, L., & Charrier, I. (2007). Artificial neural networks, songbirds, and perception. Paper presented at the 17<sup>th</sup> annual meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Victoria, BC, June 16).
26. Sturdy, C.B., Dawson, M.R.W., Nickerson, C.M., Bloomfield, L.L., & Charrier, I.B. (2007). Using artificial neural networks to understanding songbird perception. Paper presented at the 14<sup>th</sup> annual meeting of the Comparative Cognition Society (Melbourne, Florida, March 16).
27. Nickerson, C.M., Bloomfield, L.L., Dawson, M.R.W., & Sturdy, C.B. (2006). The effect of pitch transformations on artificial neural networks that discriminate notes from the 'chick-a-dee' call of *Poecile atricapillus*. Poster presented at the 16<sup>th</sup> annual meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Saskatoon, Saskatchewan, June 23).
28. Sturdy, C.B., Dawson, M.R.W., & Charrier, I. (2006). Artificial neural network and statistical approaches to understanding natural vocal categories. Talk presented at the Annual International Conference on Comparative Cognition (Melbourne Beach, Florida, March 22, 2006).
29. Dawson, M.R.W. (2005). Computation and Cognition – and Connectionism. Invited address, Conference In Honour Of Zenon Pylyshyn (Guelph, Ontario, April 30, invited).
30. Medler, D.A., Dawson, M.R.W., & Kingstone, A. (2004). Functional localization and double dissociations: The relationship between internal structure and behavior. Poster presentation at the 15<sup>th</sup> Annual Meeting of Theoretical & Experimental Neuropsychology. (June 26, Montreal, PQ).
31. Graham, R., & Dawson, M.R.W. (2003). Artificial neural networks can differentiate between early latency event-related potentials elicited to remembered and novel faces. Poster presentation at the 10<sup>th</sup> Annual Meeting of the Cognitive Neuroscience Society, New York, NY.
32. Dawson, M.R.W. (2002). From embodied cognitive science to synthetic psychology. Keynote address, International Conference On Cognitive Informatics. (Calgary, August 19)
33. Dawson, M.R.W. (2002). What is cognitive science? And why should cognitive informatics care? Keynote address, International Conference On Cognitive Informatics. (Calgary, August 20)
34. Graham, R. & Dawson, M.R.W. (2002, June). The importance of peak analysis procedures in the examination of early event-related correlates of face memory. Poster presented at the 12th Annual Meeting of the Canadian Society of Brain, Behaviour and Cognitive Science, Vancouver, B.C.
35. Graham, R. & Dawson, M.R.W. (2002, April). Evidence for early event-related potential correlates of face memory as revealed by artificial neural networks. Poster presented at the 9th Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.
36. Graham, R., & Dawson, M.R.W. (2001). "Artificial neural networks as analytic tools in an event-related potential study of face memory " Poster presentation at the annual meeting of the Society of Brain, Behavior and Cognitive Science (Quebec City, June 24).
37. Piercey, C. D., & Dawson, M. R. W. (2001). The Referent Model of Lexical Decision: Simulations of the Ambiguity Effect. Poster presented at the 42<sup>nd</sup> annual meeting of the Psychonomic Society, November 15, 2001.
38. Piercey, C.D., Dawson, M.R.W., & Joordens, S. (2000). "It's alive: Instantiating the referent model of lexical decision." Poster presentation at the annual meeting of the Psychonomic Society (New Orleans, November 18).
39. Boechler, P.M. & Dawson, M.R.W. "How might PDP networks represent metric space?" (2000, July) Poster presentation at the meeting of the Society of Brain, Behavior and Cognitive Science, Cambridge, England.
40. Piercey, C. D., & Dawson, M. R. W. (1999). Coarse coding in value units: Subsymbolic implications for nonmonotonic networks. Poster presented at the Twenty First Annual Conference of the Cognitive Science Society. August 20, 1999.
41. Piercey, C.D., McCaughan, D.B., Medler, D.A., & Dawson, M.R.W. (1999) "Coarse coding of local features in value unit networks: A case study of the kinship problem". The Ninth Annual Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Edmonton, June 18)
42. Leighton, J., & Dawson, M.R.W. (1999). "Interpreting PDP networks trained to solve the Wason card selection task: Towards an inductive theory of a deductive problem". The Ninth Annual Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Edmonton, June 18)
43. McCaughan, D.B., & Dawson, M.R.W. (1999). "A geometric theory of banding in PDP networks that use nonmonotonic activation functions". The Ninth Annual Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Edmonton, June 18)
44. Willson, L., Valsangkar-Smyth, M., McCaughan, D.B., & Dawson, M.R.W. (1999). "Cluster analysis of PDP networks: Two rules for deciding how many clusters to extract". The Ninth Annual Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Edmonton, June 18)

45. Dawson, M.R.W., Medler, D.A., McCaughan, D.B., Willson, L., & Carbonaro, M. (1999). "From decision trees to PDP networks: A new wave intertheoretic reduction". The Ninth Annual Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Edmonton, June 18)
46. Zimmerman, C., & Dawson, M.R.W. (1999). "How a PDP network revealed a new theory of the balance scale task". The Ninth Annual Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science (Edmonton, June 18)
47. Zimmerman, C., McCaughan, D.B., Dawson, M.R.W. (1999). "Qualitative Vs. Quantitative Approaches To Artificial Neural Networks". The First International Interdisciplinary Conference On Advances In Qualitative Methods (Edmonton, February 20)
48. Piercey, C.D., McCaughan, D.B., Medler, D.A., & Dawson, M.R.W. (1999). "Interpreting Local Features In Networks Of Value Units". The First International Interdisciplinary Conference On Advances In Qualitative Methods (Edmonton, February 20)
49. Leighton, J., & Dawson, M.R.W. (1999). "Qualitative comparisons of networks: A case study". The First International Interdisciplinary Conference On Advances In Qualitative Methods (Edmonton, February 20)
50. McCaughan, D.B., & Dawson, M.R.W. (1999). "Towards a geometric theory of the interpretation of artificial neural networks". The First International Interdisciplinary Conference On Advances In Qualitative Methods (Edmonton, February 20)
51. Willson, L., Valsangkar-Smyth, M., McCaughan, D.B., & Dawson, M.R.W. (1999). "Extracting distributed rules from networks: Solving the stopping rule problem". The First International Interdisciplinary Conference On Advances In Qualitative Methods (Edmonton, February 20)
52. Dawson, M.R.W., Medler, D.A., McCaughan, D.B., Willson, L., & Carbonaro, M. (1999). "Extracting distributed rules from networks: A case study in theory translation". The First International Interdisciplinary Conference On Advances In Qualitative Methods (Edmonton, February 20)
53. Medler, D.A., Dawson, M.R.W., Kingstone, A., & Panasiuk, E. (1996). Relating behavioral dissociations with the internal structure of PDP networks: A lesioning study. Third Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.
54. Dawson, M.R.W., Dobbs, A., Hooper, R., Jackson, S.A., Duncan, M., Triscott, J., McEwan, A.J.B. (February 8, 1994). Classification of Alzheimer's and normal HMPAO SPECT images using neural networks. The Society of Nuclear Medicine symposium on Dedicated Instruments and Computer Processing Techniques for Cardiac and Brain Imaging, Seattle, WA.
55. Dawson, M.R.W. (August 7, 1994). Why good psychophysics can lead to bad models, and why good models can lead to good psychophysics. Tenth Annual Meeting of the International Society for Psychophysics. Vancouver, Canada. (invited).
56. Medler, D.A., Berkeley, I.S.N., Dawson, M.R.W., & Schopflocher, D.P. (1994). Finding featural interpretations within a connectionist network. Canadian Society for Brain, Behaviour, and Cognitive Science. Vancouver, BC.
57. Dawson, M.R.W., Schopflocher, D.P., Kidd, J., & Shamanski, K.S. (May, 1992). Training networks of value units. Presented at the Ninth Biennial Meeting of the Canadian Society for Computational Studies of Intelligence, Vancouver.
58. Dawson, M.R.W. & Schopflocher, D.P. (June 14, 1991). Modifying the generalized delta rule for connectionist learning: Solving problems of "hard learning" without hidden units. Poster presented at the annual meeting of the Canadian Psychological Association, Calgary.
59. Dawson, M.R.W. & Schopflocher, D.P. (June 16, 1991). Training networks of nonmonotonic processors to classify patterns using a modified generalized delta rule. Paper presented at the first annual meeting of the Canadian Society for Brain, Behaviour, and Cognitive Science, Calgary.
60. Macquistan, A.D. & Dawson, M.R.W. (June 16, 1991). The effects of form and location cuing on stimulus identification. Poster presented at the annual meeting of the Canadian Psychological Association, Calgary, Alberta.
61. Dawson, M.R.W. (May 31, 1990). Solving the motion correspondence problem with an autoassociative connectionist network. Poster presented at the annual meeting of the Canadian Psychological Association, Ottawa, Ontario.
62. Dawson, M.R.W. & Schopflocher, D.P. (May 31, 1990). Making autonomous learning possible in connectionist networks. Poster presented at the annual meeting of the Canadian Psychological Association, Ottawa, Ontario.
63. Macquistan, A.D. & Dawson, M.R.W. (May 31, 1990). The effect of heterogeneous distractor items in visual search. Poster presented at the annual meeting of the Canadian Psychological Association, Ottawa, Ontario.

64. Dawson, M.R.W. (June, 1988). The simultaneous application of multiple natural constraints to the motion correspondence problem. Paper presented at the seventh biennial meeting of the Canadian Society for Computational Studies in Intelligence, Edmonton, Alberta.
65. Dawson, M.R.W. (June, 1988). The effect of similarity of shape and of topology on motion correspondence. Paper presented at the annual meeting of the Canadian Psychological Association, Montreal.
66. Dawson, M.R.W., Wright, R.D., & Conforto, D. (June, 1987). Testing independence assumptions of feature-integration theory. Paper presented at the annual meeting of the Canadian Psychological Association, Vancouver, BC.
67. Wright, R.D. & Dawson, M.R.W. (June, 1987). Determinants of the speed of perceiving inside/outside spatial relations. Paper presented at the annual meeting of the Canadian Psychological Association, Vancouver, BC.
68. Dawson, M.R.W. & Harshman, R.A. (June, 1986). Multidimensional analysis of asymmetries in stimulus confusions. Paper presented at the Annual Meeting of the Psychometric Society, Toronto, Ontario.
69. Dawson, M.R.W., Mazmanian, D.S., & Roberts, W.A. (August, 1986). Towards a comparative psychology of cognitive content: Exploring tree preference asymmetries in humans, pigeons, and monkeys. Poster presented at the Eighth Annual Meeting of the Cognitive Science Society, Amherst, Mass.
70. Dawson, M.R.W. & Wright, R.D. (June, 1986). The relationship between moving contexts and the perceived direction of apparent motion. Paper presented at the annual meeting of the Canadian Psychological Association, Toronto, Ontario.
71. Harshman, R.A. & Dawson, M.R.W. (June, 1986). Asymmetric processes in visual letter confusions as revealed by a new multidimensional scaling method. Paper presented at the annual meeting of the Canadian Psychological Association, Toronto, Ontario.
72. Wright, R.D. & Dawson, M.R.W. (June, 1986). The effects of apparent distance and meaningfulness on the visibility and direction of apparent motion. Paper presented at the annual meeting of the Canadian Psychological Association, Toronto, Ontario.
73. Dawson, M.R.W. & Wright, R.D. (June, 1985). To what extent do beliefs affect apparent motion? Paper presented at the Annual Meeting of the Society for Philosophy and Psychology, Toronto, Ontario.

#### **Non-refereed Conference Presentations**

1. Dawson, M.R.W. (September 21, 1998). "Biological computation: Some applied issues". Presentation at the Alberta Hospital Edmonton and University of Alberta Forum: Current and Future Challenges. (Invited)
2. Dawson, M.R.W. (May 22, 1993). "Motion correspondence and tag-assignment". Presentation at the Institute for Robotics and Intelligent Systems Workshop, University of Western Ontario (invited).
3. Dawson, M.R.W. (September 26, 1987). The independent processing of visual features. Paper presented at the 2nd Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
4. Dawson, M.R.W. (April 29, 1990). Training networks of value units. Paper presented at the Banff Annual Seminar in Cognitive Science, Banff, Alberta (invited).
5. Dawson, M.R.W. (September 30, 1989). Using an autoassociation network to solve the correspondence problem. Paper presented at the 4th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
6. Dawson, M.R.W. & Harder, B. (September 30, 1989). Testing necessity of constraints on motion correspondence. Poster presented at the 4th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
7. Dawson, M.R.W. & Nevin-Meadows, N. (October 6, 1990). Tristability in the Ternus configuration, and its implications for the correspondence process in apparent motion. Poster presented at the 5th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
8. Dawson, M.R.W., Nicholson, W., & Macquistan, A. (September 30, 1989). Reaction time distributions for visual search. Poster presented at the 4th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
9. Dawson, M.R.W. & Pylyshyn, Z.W. (April, 1986). Natural constraints in apparent motion. Paper presented at the University of Western Ontario Workshop on Vision and Attention, London, Ontario.
10. Dawson, M.R.W. & Wright, R.D. (September 24, 1988). The effect of 'consistency' of line transformations on the quality and direction of apparent motion. Paper presented at the 3rd Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
11. Dawson, M.R.W. & Schopflocher, D.P. (October 6, 1990). Extending the backpropagation algorithm to work with a nonmonotonic activation function. Paper presented at the 5th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.

12. Dawson, M.R.W., Shamanski, K.S., & Medler, D.A. (August 13, 1993). From connectionism to cognitive science. Paper presented at the Fifth University of New Brunswick Artificial Intelligence Symposium, Fredericton, New Brunswick.
13. Macquistan, A.D., Dawson, M.R.W., & Nicholson, W. (September 30, 1989). Testing the predictions of the group scanning model for visual search through heterogeneous displays. Paper presented at the 4th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
14. Schopflocher, D.P. & Dawson, M.R.W. (September 30, 1989). Designing an autonomous pattern association network. Poster presented at the 4th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
15. Snyder, M.R., Valsangkar, M.A., & Dawson, M.R.W. (February 7, 1997). Constructing selectionism: A new role for connectionism -- Part I: Theory. Paper presented at the 11th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.
16. Valsangkar, M.A., Snyder, M.R., & Dawson, M.R.W. (February 7, 1997). Constructing selectionism: A new role for connectionism -- Part II: Experimental evidence. Paper presented at the 11th Annual Joseph R. Royce Research Conference, Department of Psychology, University of Alberta.

### GRANTS, AWARDS AND CONTRACTS

2009-2012	SSHRC Standard Research Grant, "Interpreting symbolic and subsymbolic regularities in artificial neural networks that classify musical stimuli" \$81,312 (\$26,512 for year one, \$26,400 for year two and \$28,400 for year 3)
2007-2012	NSERC Discovery Grant, "Artificial neural networks, contingency, and associative learning", \$24,745/yr
2007-2008	McCalla Professorship, Faculty of Arts, University of Alberta. "Exploring Stigmergy in Collections of Very Simple Robots" \$32,000
2002-2006	SSHRC Research Grant "Relating symbolic and subsymbolic theories of mind" \$105,000
2002-2007	NSERC Research Grant "Interpreting the internal structure of PDP networks" \$34,000/yr
1999	Canada Foundation For Innovation, Project No. 923, "Centre for Magnetic Resonance Evaluation of Human Function and Disease", \$4,080,000. (Dr. Peter Allen, Dept. of Biomedical Engineering, is principal investigator for this grant, I am one of 31 members of the research group that applied for these funds).
1998-2002	NSERC Research Grant "Using banded density plots to interpret the internal structure of PDP networks". \$28,600 1998; \$30,030 1999-2002
1996	Research contract with Dycor Industrial Research to explore the applicability of neural networks to FLAPS biological aerosol detecting system. \$10,000 (SPA 53-93903)
1994 - 1998	NSERC Research Grant "Investigating the psychological relevance of value unit networks". \$26,000/yr
1993 - 1994	NSERC Operating Grant: "Spatiotemporal processing in artificial neural networks". \$26,500/yr.
1993	NSERC Equipment Grant: "Artificial neural network laboratory. \$15,885.
1992 - 1993	University of Alberta Central Research Fund, Operating Grant: "Alzheimer's diagnosis using artificial neural networks." \$4,647.
1992	University Teaching Research Fund, Operating Grant, University of Alberta: "The interactive neuroanatomy tutor". \$9,989.90 (with D. Treit, Psychology)
1990 - 1993	NSERC Operating Grant: "Motion correspondence and tag-assignment". \$32,820.00/year.
1990	NSERC Equipment Grant: "Oscilloscopes for dichoptic presentation of animated displays". \$28,900.
1989	Province of Alberta STEP Grant for summer research assistant

1988	Province of Alberta STEP Grant for summer research assistant.
1987 - 1988	Central Research Fund, University of Alberta: "Computational vision and visual cognition laboratory", \$5,000.
1986 - 1989	NSERC Operating Grant: "Figural effects on motion correspondence processing". \$12,000/year.
1986 - 1987	Faculty of Arts Grant, York University: "The specification of places by visual cognition". \$1,300.
1986 - 1987	President's NSERC Fund, York University: "Computational studies of human vision". \$2,000.

## ADMINISTRATION

### Departmental

- 2008 – 2010 Member, Graduate Admissions Committee
- 2007 – pres Arts Library Representative
- 2006 – pres Manager, D.E. Smith Reading Room In Psychology
- 2006 Member, Ad Hoc Committee To Review Graduate Student Assessments
- 2004 - 2005 Member, Ad Hoc Committee On Graduate Evaluation And Timelines
- 2001 Chair, Search Committee, Synthetic Psychology
- 2001 Member, Search Committee, BCN
- 2000 – 2001 Member, Graduate Curriculum Committee
- 2000 Interim Director, Computational Psychology and Cognitive Systems Area (February)
- 2000 Member, Graduate Selection Committee (February)
- 2000 Member, Departmental Advisory Committee (February)
- 2000 Member, "Arm Twisting Committee"
- 1999 Member, Advisory Committee for FSO search
- 1998 - 1999 Member, Brain and Behavior Search Committee
- 1998 - 1999 Member, Cultural Aspects of Communication, Social Processes and/or Cognition Search Committee
- 1998 - 1999 Coordinator, Cognitive Neuroscience Seminar series
- 1997 - 1998 Member, Graduate Recruitment Committee
- 1997 - 1998 Member, Human Ethics Committee
- 1995 - 1997 Member, Cognitive Neuroscience Search Committee
- 1993 Chair, Cognitive Modeling Search Committee
- 1993 Chair, Cognitive Neuroscience Search Committee
- 1993 Member, Cognitive Aging Search Committee
- 1992 - 1993 Chair, Department of Psychology Computer Committee
- 1990 - 1991 Member, Long-Term Computer Needs Committee
- 1990 - 1992 Member, Chairman's Advisory Council, Department Of Psychology.
- 1988 - 1990 Member, Graduate Admissions Committee
- 1989 - 1990 Coordinator: Visiting Speaker Series, Theoretical Psychology Centre.
- 1988 - 1990 Member, Human Ethics Committee.
- 1983 - 1985 Member, Personnel Promotion And Tenure Committee, U.W.O.
- 1982 - 1983 Member, Undergraduate Affairs Committee, U.W.O.

### Faculty

- 2006 – 2007 Member, Dean's Advisory Selection Committee (Department of Linguistics, Quantitative Linguistics Position)
- 2006 - 2013 Member, Mactaggart Writing Award Adjudication Committee
- 2000 Member, Chair Selection Committee (Department of Psychology)
- 1998 - 1999 Member, Chair Selection Committee (Department of Psychology)
- 1998 - 1999 Member, Faculty of Arts Representative Council
- 1996 - 1997 Chair, University Ethics Committee (Department Of Psychology)
- 1993 - 1995 Member, Faculty Of Science Ethics Review Committee

- 1992 - 1994 Member, Ad Hoc Committee On Cognitive Science, Faculty Of Arts
- 1992 - 1993 Member, Faculty Of Arts Representative Council.
- 1990 - 1991 Member, Faculty Of Arts Representative Council.
- 1988 - 1989 Member, Faculty Of Arts Representative Council.

#### University

- 2005 Member, Selection committee for the Undergraduate Leadership Scholarship Competition
- 2004 Member, Selection committee for the Undergraduate Leadership Scholarship Competition

#### External

- 2013 - 2016 Member, Editorial Committee, Athabasca University Press

## PROFESSIONAL ACTIVITIES

### 2017

- Review of a manuscript for *Body and Society* (October 5, 2017)
- Review of a manuscript for *PLOS One* (August 30, 2017)
- Review of a manuscript for *Neural Computation* (June 29, 2017)
- Review of a manuscript for *Adaptive Behavior* (May 19, 2017)

### 2016

- Review of a book prospectus on embodied cognitive science for Routledge (November 21, 2016)
- Review of a manuscript for *Neural Networks* (June 6, 2016)
- Review of a manuscript for *PLOS One* (April 27, 2016)
- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEEETNNLS)* (April 17, 2016)
- Review of a paper for *The Spanish Journal of Psychology* (April 17, 2016)

### 2015

- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEEETNNLS)* (November 30, 2015)
- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEEETNNLS)* (August 21, 2015)
- Review of a book proposal for Routledge (August 19, 2015)
- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEEETNNLS)* (July 28, 2015)
- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEEETNNLS)* (July 22, 2015)
- Mentoring session for 21 Grade 3 and 4 students participating in DiscoverE Science Adventures Junior camp; presented activities involving "Science and Music" (July 21 2015).
- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEEETNNLS)* (April 16, 2015)
- Hosted two groups of undergraduates to a presentation about my research as part of an University of Alberta Undergraduate Research Initiative Cognitive Science Research Crawl (February 19, 2015)
- Review of a manuscript for *PLOS One* (February 6, 2015)
- Member of the [Student Union Honor Roll](#) for "instructors that have gone out of their way to save students money on academic materials and improve the quality of education for undergraduates" (January 28, 2014)

### 2014

- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEEETNNLS)* (December 17, 2014)
- Review of a manuscript for the *Canadian Journal of Experimental Psychology* (November 14, 2014)
- Guest presentation to Honors seminar course (PSYCO 309A) on my career trajectory: "How did I get here?" (November 12, 2014)
- Review of a manuscript for *PLOS One* (November 10, 2014)
- Review of a manuscript for *Philosophical Psychology* (October 31, 2014)
- Interviewed for an article published in Mashable; "Can animals experience the uncanny valley?"; <http://mashable.com/2014/10/24/uncanny-valley-animals/> ; (article appeared October 24 2014)



- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEE TNNLS)* (June 4, 2014)
- Performed a review of a paper submission to International Joint Conference On Neural Networks (IJCNN 2014) (February 10, 2014)
- Performed two reviews of paper submissions to International Joint Conference On Neural Networks (IJCNN 2014) (January 29, 2014)

### 2013

- Interviewed for an article on my visit to Universidad Diego Portales in Santiago by El Mercurio, Chile's national newspaper (appeared December 8, 2013, <http://impresa.elmercurio.com/pages/detail-view.htm?enviar=%2FPages%2FNewsDetail.aspx%3Fdt%3D2013-12-08%26NewsID%3D0%26BodyID%3D1%26Paginald%3D14%26SupplementID%3D0>)
- Interviewed for article on my visit to Universidad Diego Portales in Santiago, Chile (posted on University website November; <http://www.cear.udp.cl/2013/11/colegio-barrie-montessori-gana-1a-version-del-concurso-de-biomimetica-cear-udp/>)
- Review of a paper for *Topics In Cognitive Science* (July 25, 2013)
- Review of a paper for *Canadian Journal of Experimental Psychology* (June 18, 2013)
- Review of a paper for *Connection Science* (June 13, 2013)
- Review of a paper for *IEEE Transactions On Neural Networks And Learning Systems (IEEE TNNLS)* (March 21, 2013)
- Member of a television panel for Alberta Primetime (CTV2), topic: Does smart technology make us stupid? (March 20, 2013)
- Review of a paper for *International Joint Conference on Neural Networks (IJCNN 2013)* (March 11, 2013)

### 2012

- Review of a SSHRC Insight Grants application (December 30, 2012)
- Hosted Arturo Pérez, senior undergraduate psychology student at Universidad Diego Portales in Santiago, Chile, in my lab and house September 23 – December 23 2012
- Lab Tour, Exploring U of A Research, Women in Scholarship, Engineering, Science, and Technology (WISEST) (August 7, 2012)
- Review of a manuscript for *IEEE Transactions On Neural Networks And Learning Systems* (July 10, 2012)
- Guided a birdwatching tour for the International Society For The Study of Behavioural Development (ISSBD 2012); this involved 33 participants from 14 different countries (July 10, 2012)
- Review of a manuscript for 2012 International Joint Conference on Neural Networks (IJCNN 2012) (January 22, 2012)

### 2011

- Review of a Discovery Grant application for NSERC (December 20, 2011)
- Review of a Collaborative Research and Development Grant (CRD) application for NSERC (November 4, 2011)
- Review of a manuscript for *IEEE Transactions On Neural Networks* (May 12, 2011)
- Review of a manuscript for *Behavioral Processes* (March 8, 2011).
- Review of a manuscript for *IEEE Transactions On Neural Networks* (February 8, 2011)

### 2010

- Review of a manuscript for *Experimental Brain Research* (June 17, 2010)
- Guest lecture, PSYCO 300, "Theory and Embodiment" (March 16, 2010)
- Guest lecture, Science 100, "Robots and Synthetic Psychology" (March 12, 2010)
- Review of a manuscript for *IEEE Transactions On Neural Networks* (February 25, 2010)

### 2009

- Review of a manuscript for *Perception* (December 7, 2009; this was a review of a rebuttal to the article reviewed for this journal Sep. 15)
- Member of the Editorial Advisory Board of the Advances in Cognitive Informatics and Natural Intelligence (ACINI) Book Series (Resigned October 24, 2009)
- Member of the Editorial Board, International Journal of Cognitive Informatics and Natural Intelligence (IJCiNi) (Resigned October 24, 2009)

- Introductory remarks for performance of Enterprise String Quartet, "Musical meaning and string quartets" (September 22, 2009, invited)
- Review of a manuscript for *Perception* (September 15, 2009)
- Lab Tour, High School Teacher Appreciation, Women in Scholarship, Engineering, Science, and Technology (WISEST) (August 12, 2009)
- Reviewer for NSERC Brockhouse Prize (July 28, 2009)
- Lab Tour, Women in Scholarship, Engineering, Science, and Technology (WISEST) (July 13, 2009)
- Guest lecture, Science 100, "Robots and Synthetic Psychology" (March 6, 2009)
- Review of a manuscript for *International Journal of Cognitive Informatics and Natural Intelligence* (March 4, 2009)

#### 2008

- Review of research grant application for NSERC (December, 2008)
- Review of a manuscript for *Perception & Psychophysics* (October 27, 2008)
- Review of a manuscript for *Philosophical Psychology* (October 27, 2008)
- Review of a book manuscript on cognitive modeling for Sage Publications (July 3, 2008)
- Review of a manuscript for *Mathematical and Computer Modelling* (April 7, 2008)
- Reviewer for the 2008 International Conference On Cognitive Informatics (ICCI08) (Reviewed 1 paper, April 7, 2008)
- Review of a manuscript for *International Journal of Cognitive Informatics and Natural Intelligence* (January 31, 2008)
- Review of a manuscript for *Journal of Field Ornithology* (January 23, 2008)

#### 2007

- Member of the technical committee for 2008 IEEE World Congress on Computational Intelligence (WCCI 2008) (3 papers reviewed December, 2007)
- Review of a cognitive science textbook for Cambridge University Press (November 15, 2007)
- Review of a manuscript for *Journal of Experimental Psychology: Animal Behavior Processes* (November 2, 2007)
- Review of a computational modeling prospectus for Sage Publications (October 9, 2007)
- Review of a manuscript for *Behavioural Processes* (June 29, 2007)
- Review of a manuscript for *Philosophical Psychology* (May 15, 2007)
- Brief review of a cognitive science textbook prospectus for Cambridge University Press (April, 2007)
- Reviewer for the 2007 International Conference On Cognitive Informatics (ICCI07) (Reviewed 2 papers, April 2007)
- Reviewer for the 2007 International Joint Conference on Neural Networks (IJCNN 2007) (Reviewed 3 papers, February 2007)
- Member of the Editorial Advisory Board of the Advances in Cognitive Informatics and Natural Intelligence (ACINI) Book Series (2 year appointment starting February, 2007)

#### 2006

- Review of NSERC Discovery Grant application (December 1, 2006)
- Review of 1 manuscript for *Cognition* (November 14, 2006)
- Review of 2 manuscripts for *International Journal of Cognitive Informatics and Natural Intelligence* (August 15-16, 2006)
- Review of 4 manuscripts for *International Journal of Cognitive Informatics and Natural Intelligence* (May 1-15, 2006)
- Member, Program Committee, International Conference On Cognitive Informatics'06 (12 manuscripts reviewed, completed March 29, 2006)
- Review of book proposal, "Computer Programming for Behavioral Scientists", for Blackwell Publishers (March 27, 2006)
- Review of SSHRC Standard Research Grant application (February 17, 2006)

#### 2005

- Review of NSERC Discovery Grant application (December 9, 2005)
- Manuscript review, *Cognition* (October 12, 2005)

- Editorial Board Member, *International Journal of Cognitive Informatics and Natural Intelligence* (September 24, 2005)
- Reviewed an introductory cognition textbook (full manuscript) for Oxford University Press (September 23, 2005)
- Reviewed proposal for a textbook on attention for Sinauer Publishing (August 7, 2005)
- Manuscript review, *Neural Networks World* (for special issue: Biologically Inspired Computing and Computers in Biology) (April 4, 2005)
- Member, Program Committee, ICCI'05 (Reviewed 4 conference submissions, March 30, 2005)

#### 2004

- Evaluation of book proposal for Blackwell Publishers December 10, 2004
- Mentor, W.P. Wagner High School Mentorship Program
- External Examiner, Computing Science PhD Thesis, Simon Fraser University, Anne Marie Grbavec "Second-order generalization in neural networks", October 6, 2004
- Evaluation of neural network software module for Blackwell Publishers, July 26, 2004
- Program Co-Chair, From Biology To Computers And Back: International Conference On Biologically Inspired Computing And Computers In Biology (Supported by IEEE Systems, Man, and Cybernetics Society, conference to be held in Banff May 10-12, 2005).
- Manuscript review, *IEEE Transactions on Systems, Man, and Cybernetics (TSMCC)*, May 17, 2004
- Appraiser of the Cognitive Science Graduate Program at Carleton University for the Ontario Council On Graduate Studies (January, 2004)

#### 2003

- Reviewer for ICCI'03 conference (May 6, 4 manuscripts reviewed)
- Secretary and Board Member, Edmonton Science Outreach Network (Resigned February, 2003)
- Assistant coach, Southeast Storm U-14 Boys Tier 3 Select Indoor Soccer
- Reviewer for *Brain and Mind* (March 10, special issue on cognitive informatics)
- Reviewer for *Brain and Mind* (March 13, special issue on cognitive informatics)
- Reviewer for *Brain and Mind* (March 18, special issue on cognitive informatics)

#### 2002

- Chair, Paper session on representation, Society for Philosophy and Psychology, Edmonton (June 20)
- Secretary and Board Member, Edmonton Science Outreach Network
- Reviewer for SSHRC (1 research proposal, February 13)
- Reviewer for *Spatial Vision* (January 3)

#### 2001

- Reviewer for *Behavioral and Brain Sciences* (July 4)
- Member, Board Of Directors, Edmonton Science Outreach Network (April 11 -)
- Coordinator, Junior and Senior Engineering and Computing Judges, Edmonton Regional Science Fair (April 7)
- Coordinator, Science Fair Club, King Edward Elementary School (February – March)

#### 2000

- Reviewer for *Philosophical Psychology* (May 26)
- Reviewer for *Spatial Vision* (January 25)
- Reviewer for *Psychological Review* (January 23)
- Reviewer for SSHRC (January 6, 1 research grant application)
- Reviewer for NSERC (January 5, 1 research grant application)
- Reviewer for *Perception* (January 4)

#### 1999

- Coordinator, "Question Club", King Edward Elementary School
- Judge, Edmonton Regional Science Fair (March 20, 1999)
- Symposium organizer, "Qualitative Analyses Of Artificial Neural Networks", The First International Interdisciplinary Conference On Advances In Qualitative Methods (Edmonton, February 20)

- Reviewer for SSHRC (January 4, 1 research grant application, Philosophy)
- Reviewer for NSERC (January 4, 2 research grant applications, Computer Science)
- External reviewer of a promotion/tenure file (January 5, York University, Psychology)

1998

- Reviewer for *Dreaming* (July 27, two manuscripts)
- Judge, Canada Wide Science Fair (May 12 & 13; Co-captain Senior Computing Technology Divisional Award Team 3)
- Reviewer for *Perception* (April 30)
- Reviewer for *Vision Research* (April 1)
- Judge, Edmonton Regional Science Fair (March 21)
- Reviewer for NSERC (December, two research grant applications)
- Reviewer for SSHRC (February, one research grant application)
- Coordinator, "Question Club", King Edward Elementary School
- Member, "Inner Universe Planning Committee", Edmonton Space and Sciences Centre
- Member, Judging Sub-Committee, Canada Wide Science Fair, Edmonton'99

1997

- Reviewer for *Perception & Psychophysics* (November 5)
- Member of Judging Sub-Committee, "Computer Technology Coordinator", Canada Wide Science Fair 1999 (Beginning October 1997)
- Reviewer for *Vision Research* (May 7)
- Reviewer for SSHRC (1 grant)
- Reviewer for NSERC University-Industry Cooperative Grant competition (1 grant)
- Judge, Edmonton Regional Science Fair (March)
- Coordinator, "Question Club", King Edward Elementary School

1996

- External referee for Department of Psychology, Simon Fraser University, re Dr. Richard Wright's application for tenure and promotion to Associate Professor (November 12).
- Appraised Carleton University's proposed PhD program in cognitive science for the Ontario Council On Graduate Studies (September 16-18)
- Reviewed Deric Bownds' *The biology of mind* for MIT Press (September, invited)
- Judge, Edmonton Regional Science Fair (March)
- Coordinator, "Question Club", King Edward Elementary School

1995

- Judge, Edmonton Regional Science Fair (April)
- Coordinator, "Question Club", King Edward Elementary School. (The "Question Club" is a science club for students in grades 4, 5, and 6 that meets weekly. I create demonstrations that make students ask questions about their world, and then help them to come up with answers to these questions.)

1994

- Reviewer for *Perception* (February)
- Judge, Edmonton Regional Science Fair (April)
- Designed and presented "Computers in science display", King Edward Elementary School, November 22-26, 1994

1993

- Judge, Edmonton Regional Science Fair (April)

1992

- Reviewer for *Perception* (June)
- Reviewer for *Theory & Psychology* (October)
- Reviewer for NSERC (3 grants)
- Reviewer for *Psychological Research* (March)

- Guest Speaker, Psychology 560 (Memory & Cognition), March 31
- Guest Speaker, Linguistics 601 (Seminar in Phonology & Morphology), March 25
- Guest Speaker, Psychology career forum, Grant MacEwan Community College, March 9
- Professor address for Summer Orientation Seminars (SORSE), University of Alberta, August 28, 1992
- Lab Tour, WISEST program, July 29, 1992.

1991

- Reviewer for *American Psychologist* (August)
- Reviewer for *Psychological Research* (October)
- Reviewer for *Vision Interface'92* (December, 2 papers)

1990

- Reviewer for *Theory & Psychology* (July)
- Reviewer for *Journal of Visual Communication and Image Representation* (April)
- Reviewer for SSHRC (1 grant)
- Reviewer for NSERC (3 grants)
- Guest Speaker, Philosophy 365 (Philosophy of the Social Sciences), November 16

1989

- Reviewer for NSERC (1 grant)
- Professor address for Summer Orientation Seminars (SORSE), University of Alberta, August 19, 1989

1988

- Reviewer for *Spatial Vision* (March)
- Reviewer for *Canadian Journal of Psychology* (March)

1987

- Reviewer for *Spatial Vision* (November)
- Reviewer for *Canadian Journal of Psychology* (March)
- Moderator, Paper Session on Perceptual Processing, CPA Meeting, June, 1987.

**TEACHING**

<b>Undergraduate Courses</b>	<b>Graduate Courses</b>	<b>Undergraduate Independent Studies Students</b>
Introductory Psychology	Computation and Cognition	Tamara Brooks, 1987
Statistics	Critical Appraisal of the New Connectionism	Judy Shedden, 1988
Perception	Varieties of Connectionism: A Critical Survey	James Kidd, 1991-92
Cognitive Psychology	Advanced Perception	Miroslav Novak, 1992
Advanced Cognitive Psychology	Research In Cognitive Science	John Pappas, 1992
Topics in Theoretical Psychology	Advanced Topics In Cognitive Science	James Elding, 1992-93
Foundations of Cognitive Science	Independent Studies	Sarena Weil, 1992-93
Advanced Perception		Tim Gannon, 1992
Workshop on Artificial Neural Nets		Siobhan Neary, 1994
Minds and Machines		Michael McDonnell, 2005
		Sheldon Jans, 2013
		Joshua Hathaway, 2013
		Sayeed Devraj-Kizuk, 2014
		John Hoffman, 2014

		Brittany Koch-Hale, 2015
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Honors Supervision

- Dennis Conforto, *Preattentive search for single and multiple distinctive targets*, (BA, 1987).
- Matthew Duncan, *Modeling mental rotation in a Hopfield net*. (B.Sc., 1992)
- Tim Gannon, *A connectionist model of the early visual pathway*. (B.Sc., 1993)
- Tom Cervenka, *Autonomous delta-rule and backpropagation networks*. (B.Sc., 1995)
- Ferres Bissani (Co-supervised with Dr. L. Buchanan, 1997-98)
- Jasen Zielinski, *Neuronal regulation and gradient descent*. (B.Sc, 2016).

Graduate Supervision (Completed)Masters Degrees

- Andrew Macquistan *The effects of form and location cueing on target identification* (M.A., 1990).
- Kevin Shamanski *Linear separability and connectionist categorization: A study of speed and generalization of two connectionist networks*. (M.. Sc. 1994)
- David Medler *Training artificial neural networks: Imposing biology on technology*. (M.Sc. 1994).
- Brian Dupuis *The cognitive science of reorientation*. (M.Sc. 2012).

PhD Degrees

- Stefan Kremer. *A theory of grammatical induction in the connectionist paradigm*. (PhD in Computing Science, 1995; co-supervised with Renee Elio, Computing Science)
- Istvan Berkeley. *On connectionism*. (PhD in Philosophy, 1997; co-supervised with Jeff Pelletier, Philosophy)
- David Medler. *The crossroads of connectionism: Where do we go from here?* (PhD in Psychology, 1998).
- Jacqueline Leighton. *Reasoning according to the path of least resistance: Constraints from underlying reasoning processes*. (PhD in Psychology, 1999; co-supervised with Don Heth, Psychology)
- Corrine Zimmerman. *A network interpretation approach to the balance scale task*. (PhD in Psychology, 2000, co-supervised with Gay Bisanz, Psychology)
- Monica Valsangkar-Smyth. *Hemispheric processing in object-based selective attention* (PhD in Psychology, 2001, co-supervised with Alan Kingstone, Psychology, UBC)
- Leanne Willson. *Connectionist models of discrimination learning* (PhD in Psychology, 2001)
- Darren Piercey, *The referent model of lexical decision* (PhD in Psychology, 2002)
- Patricia Boechler, *Hypertext navigation tools as mechanisms for the investigation of hyperspace properties: Spatial and conceptual relations, metric space and mental representation* (PhD in Psychology, 2002)
- Paul Siakaluk, *Strategic control of semantic processing in visual word recognition*. (PhD in Psychology, 2002, co-supervised with Lori Buchanan)
- Reiko Graham, *Characterizing general and face specific ERP correlates of face memory*. (PhD in Psychology, 2002, co-supervised with Roberto Cabeza)
- Greg Sadesky, *Determining structure in test performance: an artificial neural network approach*. (PhD in Educational Psychology, 2007, co-supervised with Jacqueline Leighton)

Graduate Supervision (In Progress)

- Brian Dupuis, PhD

Graduate Supervision (Terminated)

- Vanessa Yaremchuk, PhD in Psychology (2004-2007)
- Michael MacIsaac, PhD in Psychology (1996-1998)
- Michael Snyder, PhD in Psychology (co-supervised with Don Heth, Psychology, 1996-1998)
- David McCaughan, PhD in Computing Science (co-supervised with Tony Marsland, Computing Science, 1998-2002)

First Year Project Supervision

- Christopher Peet, Psychology

Masters Committees

- M. Eals, 1987

- S. Winestock, 1987
- J. Saleh, 2011 - 2013
- L. Kersten (Philosophy) 2013 – 2014
- K. Kato 2013 – pres

#### PhD Committees

- Cameron Wild 1988 - 1993
- Josie Aubrey 1991 - 1992
- David Hall 1992 - 1994
- Karsten Loepelman 1992 – 1995
- Michael Carbonaro 1995 - 1997 (Education)
- Janice Snyder 1997 - 2000
- Mason Cash 1998 - 2000 (Philosophy)
- Anthony Chaston 1998 - 2002
- Christopher Peet 2000
- James Bachman 2011 – 2014 (Philosophy)
- Ulises Dominguez 2017 – pres
- Jason Schlauwitz 2017 – pres (Electrical and Computer Engineering)

#### PhD Candidacy Exam

- S. Hensch, Psychology, 1989
- S. Downes, Philosophy, 1991
- B. Giesbrecht, Psychology, 1999
- Michael Kiefe, Linguistics, 1999
- Adriel Lau, Electrical and Computer Engineering, 2005
- Ying Cui, Educational Psychology, 2006
- Seyed Mousavian, Philosophy, 2007
- Hassan Masoud, Philosophy, 2014
- Nicolas Bulot, Philosophy, 2014

#### External Examiner, DMus Recital

- F. Amorim (viola recital, Convocation Hall, January 26 2014)
- F. Amorim (viola recital, Convocation Hall, April 17 2014)

#### Graduate Thesis Examiner

- E. Howe, Philosophy. *Rational acceptability and coherence theories of justification*, (M.A., 1989).
- S. Winestock, Psychology. *The role of the frame reference in propositional representation of spatial displays*, (M.A., 1987).
- D. Perl, Computing Science. *ANNIE: An artificial neural network for image enhancement*. (M.Sc., 1992).
- A. Sharpe, Computing Science. *THINK: Thoughtful Hypotheses for incorporating new knowledge*. (MSc, 1993).
- Z. Fang, Mathematical Sciences. *Robust extrapolation designs for linear models*. (PhD, 1999).
- M. Kiefe, Linguistics. *The perception of spectrally and temporally distorted prevocalic stop consonants* (PhD, 2000).
- T. Aviran, Philosophy. *On content and truth-conditions*. (PhD, 2002).
- A.M. Grbavec, Computer Science, Simon Fraser University. *Second-Order Generalization in Neural Networks* (PhD, 2004).
- J. Stenberg, Philosophy. *Virtual Reality and McDermott's Model of the Mind*. (M.A., 2005).
- O. Ellefson, Humanities Computing. *A Posthuman Investigation: Assessing the Suitability of Consciousness to Digital Duplication*. (M.A., 2005)
- V. Kumar, Philosophy. *Knowing-How*. (M.A., 2007)
- Y Cui, Educational Psychology. *The Hierarchy Consistency Index: A Person-fit Statistic for the Attribute Hierarchy Method*. (Ph.D, 2007)

- A. Lau, Electrical and Computer Engineering. *Immune Programming*. (PhD, 2009)
- T. Murphy, Philosophy, *Cognitive homology: psychological kinds as biological kinds in an evolutionary developmental cognitive science* (M.A. 2012)
- J. McHan, Music. Examiner at Master's music recital (double bass), April 22 (M.A. 2013)
- H. Masoud, Philosophy. *The Epistemology of Natural Deduction*. (PhD, 2015)
- N. Bulot, Philosophy. *Tracking and Controlling Persons*. (PhD, September 21, 2105).

MSc Examination Chair

- K. Schall, Psychology, 2008

PhD Examination Chair

- E. Batty, Psychology, 2009
- J. Daniels, Psychology, 2007
- B. Giesbrecht, Psychology, 1999