CURRICULUM VITA

Neil E. Berthier

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Educational Background:

- Attended University of Massachusetts, Amherst, Ma. from September 1975 to November 1980. M.S. May, 1978, Ph.D. February, 1981. Psychology, with concentration in Neurobiology of Learning and Memory, Advisor J.W. Moore.
- Attended Virginia Polytechnic Institute and State University, Blacksburg, Va. from September 1971 March, 1975. B.S. June 1975 with Distinction in Psychology.
- Student in January 1982 Neurobiology course at the Marine Biological Laboratory, Woods Hole, Ma.

Professional Positions:

- Emeritus Professor, September 2017 to present.
- Professor, September 2000 to 2017, Department of Psychology, University of Massachusetts, Amherst Ma.
- Associate Professor, September 1992 to August 2000, Department of Psychology, University of Massachusetts, Amherst Ma.
- Senior Postdoctoral Research Associate, August 1990 to September 1992, Department of Computer and Information Science, University of Massachusetts, Amherst Ma.
- Faculty, Neuroscience and Behavior Program, University of Massachusetts, Amherst, Ma. July 1987 to present.

- Senior Postdoctoral Research Associate, November 1983 to August 1990, Department of Psychology, University of Massachusetts, Amherst Ma.
- Assistant Research Neurobiologist, January 1981 to November, 1983, Department of Psychiatry, Mental Retardation Research Center, Neuropsychiatric Institute, UCLA Medical Center, Los Angeles, Ca.

Professional Specialties and Memberships:

Perceptual and motor development in human infants, quantitative models of motor control, interaction of neural maturation and experience in development, computational and cognitive neuroscience, artificial neural network models, motor learning, brain stem and cerebellar control of movement, computational models of learning and memory.

- Member of the Society for Research in Child Development,
- International Society for Infant Studies
- Association for Psychological Science
- Fellow, Association for Psychological Science

Professional Activities and Consulting:

- Member NSF HCP Instrumentation Review Panel, 1999.
- Member NSF SBER Instrumentation Review Panel, 1997.
- Member ICIS Motor and Sensorimotor Behavior Review Panel, 1997, 2001, 2009.
- Member SRCD Motor and Sensorimotor Review Panel, 2002, 2004, 2006, 2012.
- Associate Editor of *Child Development*, 2004-2008.
- Associate Editor of *Developmental Psychology*, 2009 to 2013.
- *Ad Hoc* reviewer for NSF research proposals and for *Journal of Neuroscience Methods*, *Experimental Brain Research*, *Animal Learning and Behavior*, *Journal of Experimental Psychology: Human Perception and Performance*, *Journal of Motor Behavior, Child Development, Psychological Science, Cognitive Science, Journal of Experimental Child Psychology, British Journal of Developmental Psychology, Journal of Cognitive Development, Neuroscience Letters, Journal of Neurophysiology, Infant Behavior and Development, Developmental Science, Psychology Review, Journal of Experimental Psychology: Learning, Memory, and Cognition, Developmental Psychobiology, Journal of Applied Developmental Psychology, Infancy.*

- Symposium speaker at North American Society for Physical Activity and Sport, 1996; "The Growing Mind," A Centennial Observation of Jean Piaget's Birth, Geneva, 1996; International Conference on Infancy Studies, 1998; Neural Control of Movement, 1998; IX European Conference on Developmental Psychology, Sept 1999, NSF DARPA conference on Development and Learning, ICIS 2000, World Congress on Motor Development and Learning, Amsterdam, The Netherlands, CoSY, Paris, France, 2007.

Grant History:

- Brain Stem and Cerebellar Components of Conditioning. Co-PI (J. Moore, PI) NSF 8/1/85-7/31/88.
- Cerebro-Cerebellar Interactions in the Planning and Execution of Arm Movement. An individual grant-in-aid for training submitted to the McDonnell-Pew Program in Cognitive Neuroscience (A.B. Barto, J.C. Houk, Mentors). 8/1/90-7/31/92.
- Movement Planning in Infants. PI, National Science Foundation, 7/15/94-7/1/97, $128,626.
- Reaching and Cognition in Infancy. Co-Pi (R. K. Clifton, PI). NICHD. 8/1/95-7/31/99. $270,809 DC.
- Developmental Motor Control in Real and Artificial Systems. PI, National Science Foundation, 9/97-8/00, $625,000, DC+IC.
- A Facility for Cross Disciplinary Research on Sensorimotor Development in Humans and Machines. Co-PI (R. Grupen, PI) National Science Foundation, 7/97-6/02, $920,598, DC+IC.
- Reaching and Cognition in Infancy. Co-PI (R. K. Clifton, PI), NIH, funded.
- Learning in Premature Infants, PI, Baystate Collaborative, 9/1/00-8/31/00, $18,300.
- Development of Reaching in Human Infants, PI, NSF BCS 0214260 9/15/02-9/14/05, $200,824 .
- ITR: Machine and Human Development, Learning and Teaching, Co-PI, (P. Utgoff, PI) NSF, not funded, $3,325,938 requested.
- Equipment supplement to "Development in Reaching in Human Infants, PI 8/01/04-9/15/05, $40,000.
- The transition to reasoning-based planning in children, NSF, submitted 1/2011, not funded.

Presentations and Abstracts:

1. Berthier, N.E., Spinelli, D.N., Solomon, P.R. & Moore, J.W. (1977). Fiber-sparing lesions of the central nervous system produced by cyanide. Presented by Moore at the European Brain and Behavior Society's workshop on the Cerebral Commissures. Rotterdam.

2. Moore, J.W., Yeo, C. & Berthier, N.E. (1978). Brain mechanisms of Pavlovian inhibition. Presented at the Annual meeting of the Psychonomic Society, San Antonio.

3. Berthier, N.E. & Moore, J.W. (1980). Multiple unit activity of the abducens nerve in the anesthetized and paralyzed rabbit. *Society for Neuroscience Abstracts*, **6**, 427.

4. Berthier, N.E., Betts, B. & Woody, C.D. (1981). Rapid eyeblink conditioning: response topography. *Society for Neuroscience Abstracts*, **7**, 750.

5. Desmond, J.E., Berthier, N.E. & Moore, J.W. (1981). Brain stem elements essential for the classically conditioned nictitating membrane response of rabbit. *Society for Neuroscience Abstracts*, **7**, 650.

6. Moore, J.W., Berthier, N.E. & Desmond, J.E. (1981). Brain stem electrophysiological correlates of the classically conditioned nictitating membrane response in rabbit. *Society for Neuroscience Abstracts*, **7**, 358.

7. Desmond, J.W., Berthier, N.E. & Moore, J.W. (1981). Rabbit nictitating membrane response: Neural elements essential for conditioned but not unconditioned responding. Eastern Psychological Association, New York.

8. Berthier, N.E., Betts, B. & Woody, C.D. (1982). Discrimination conditioning of eyeblink with aversive brain stimulation. *Society for Neuroscience Abstracts*, **8**, 315.

9. Berthier, N.E. & Woody,, C.D. (1983). Current-voltage relationships of pericruciate cortical neurons of awake cats using a computer assisted method. *Society for Neuroscience Abstracts*, **9**, 680.

10. Berthier, N.E. & Moore, J.W. (1986). Cerebellar Purkinje cell activity related to the classically conditioned nictitating membrane response. *Society for Neuroscience Abstracts*, **12**, 1418.

11. Desmond, J.E., Blazis, D.E.J., Moore, J.W. & Berthier, N.E. (1986). Computer simulations of a classically conditioned response using neuron-like adaptive elements: response topography. *Society for Neuroscience Abstracts*, **12**, 516.

12. Berthier, N.E., Barto, A.G. & Moore, J.W. (1988). Linear systems analysis of cerebellar deep nuclei cells during performance of classically conditioned eyeblink. *Society for Neuroscience Abstracts*, **14**, 1239.

13. Moore, J.W., Desmond, J.E. & Berthier, N.E. (1989). Adaptively timed conditioned responses and the cerebellum: a neural network approach. *Society for Neuroscience Abstracts*, **15**, 506.

14. Berthier, N.E. & Moore, J.W. (1990). Orbicularis oculi and extraocular muscle activity during unconditioned and conditioned eye blinks in rabbit. *Society for Neuroscience Abstracts*, **16**, 916.

15. Barto, A.G., Berthier, N.E., Singh, S.P. & Houk, J.C.(1990). Network model of the cerebellum and motor cortex that learns to control planar arm movements. *Society for Neuroscience Abstracts*, **16**, 1223.

16. Berthier, N.E., Barto, A.G.& Houk, J.C. (1991). A network model of the cerebellum that uses a trained set of pattern generators to control a single degree-of-freedom joint. *Society for Neuroscience Abstracts*, **17**, 1382.

17. Berthier, N.E. (1994). Infant reaching strategies: Theoretical considerations. *Infant Behavior and Development*, **17**, 521.

18. McCall, D., Robin, D., Clifton, R.K., Berthier, N.E. (1994). Vision and early reaching. *Infant Behavior and Development*, **17**, 795.

19. Berthier, N.E. (1995). Decomposition of infant reaches into submovements. *Society for Research in Child Development Abstracts*, pp. 297.

20. Berthier, N.E., McCarty, M.E. (1996). Speed of infant reaching during the first year: Confirmation of a prediction. *Infant Behavior and Development*, **19**, 531.

21. Berthier, N.E. (1996). Learning to reach. Invited symposium talk presented at the annual meeting of the North American Society for Physical Activity and Sport. Ontario, Canada.

22. Berthier, N.E. (1996). Learning to reach. Invited symposium talk presented at the "The Growing Mind," A Centennial Observation of Jean Piaget's Birth, Geneva, Switzerland.

23. Berthier, N.E. & Robin, D.J. (1997). Mid-reach corrections to shifting targets by seven-month-old infants. Poster presented at SRCD, Washington, D.C.

24. Engelbrecht, S., Berthier, N., Barto, A. & Fernandez, J. (1998). The minimun-time principle reconsidered. Paper presented at NEST, Providence, RI.

25. Berthier, N.E., Clifton, R.K. & Bertenthal, B.I. (1998). Why infants don't look the way they reach. Symposium talk presented at the International Conference on Infancy Studies, Atlanta, GA.

26. Berthier, N.E. (1998). Intermittent control and infant reaching. Symposium talk presented at Neural Control of Movement, Key West, FL.

27. O'Sullivan, L.P. & Berthier, N.E. (1999). Attentional processes in the planning and execution of a reach. Poster presented at SRCD, Albuquerque, NM.

28. Johnson, R.L., Sylvia, M.R., Clifton, R.K., & Berthier, N.E. (1999). A transparent screen can facilitate infants' planning a reach. Poster presented at SRCD, Albuquerque, NM.

29. Berthier, N.E. (1999) Development of reaching in young infants: Neural and experiential factors. Symposium presentation at the IXth European Conference on Developmental Psychology, Spetses, Greece.

30. Berthier, N.E. & Clifton, R.K. (2000). Spatial reasoning in the guidance of action. Symposium presentation for the International Conference on Infancy Studies, Brighton, UK.

31. Poirier, C., Berthier, N., Clifton, R.K., Evans, M., Cheries, E. (2000). Where's the ball? Young children's reasoning about unseen events. Poster presented at the International Conference on Infancy Studies, Brighton, UK.

32. Johnson, R., Sylvia, M., Clifton, R.K., Berthier, N. (2000). Give me a minute: Integrating action with object knowledge under relaxed time connstraints. Poster presented at the International Conference on Infancy Studies, Brighton, UK.

33. O'Sullivan, L.P., Johnson, R., Cannon, E., Berthier, N.E. (2001). Visual attention during reaching in 6 and 9 month olds. Poster presented at SRCD, Minneapolis, MN.

34. Butler, S.C., Sylvia, M., Berthier, N.E., & Clifton, R.K. (2001). Motivation and children's reasoning about unseen events. Poster presented at SRCD, Minneapolis, MN.

35. Berthier, N.E. (2001). Learning to reach. Symposium presentation at the World Congress on Motor Development and Learning, Amsterdam, The Netherlands.

36. Butler,S.C., O'Sullivan,L.P., Shah, B.L.,& Berthier, N.E. (2001). Learning and Retention in Preterm Infants. Poster presented at the Pediatric Academic Societies' Annual Meeting, Baltimore, MD

37. Mash, C.W., Clifton, R.K., & Berthier, N.E. (2002) Two-year-olds' understanding of event outcomes when looking and reaching. Symposium presented at the International Conference on Infancy Studies, Toronto, CA.

38. Johnson, R.L., Berthier, N.E. (2002). Visually guided reaching in 15-month-old infants. Poster presented at the International Conference on Infancy Studies, Toronto, CA.

39. Mash, C.W., Clifton, R.K., & Berthier, N.E. (2002). Two-year-olds' event reasoning and object search. Poster presented at the International Conference on Infancy Studies, Toronto, CA.

40. O'Sullivan, L.O., Butler, S.C., Berthier, N.E., Clifton, R.K., & Shah, B.L. (2002). Motherese: Implications for its importance to preterm infants. Poster presented at the International Conference on Infancy Studies, Toronto, CA.

41. Berthier, N.E., Carrico, R. & Smith, G. (2005). Vision and the control of grasping in one-year-olds. Presented at the Biennial Meeting of the Society for Research in Child Development.

42. Berthier, N.E. (2005). The development of reach kinematics over the first two years of life. Presented at the Biennial Meeting of the Society for Research in Child Development.

43. Price, I. & Berthier, N.E. (2006). The effect of attention-to-action on visuospatial reasoning, Presented at the International Conference for Infancy Studies, Kyoto Japan.

44. Berthier, N.E. & Carrico, R. (2007). Hand transport and grasp in infancy: Effect of target size and vision. Presented at the Biennial Meeting of the Society for Research in Child Development.

45. Nelson, R. & Berthier, N.E. (2007). Hand preference and hand performance in 11-month-olds. Presented at the Biennial Meeting of the Society for Research in Child Development.

46. Berthier, N.E. (2007). Development of reaching in infancy. Invited talk, 1st Paris Encounter in Perception and Performance, Paris, France.

47. Berthier, N.E. (2007). Computational considerations in development of infant reaching. Invited talk, CoSy Meeting of Minds, Paris, France.

48. Nelson, E., Konidaris, G., and Berthier, N.E. (2008). Using real-time motion analysis to measure handedness in infants, International Conference on Infancy Studies, Vancouver, BC, Canada.

49. Berthier, N.E. (2008). Commentary on Manual Action in Infancy. International Conference on Infancy Studies, Vancouver, BC, Canada.

50. Price, I.L. & Berthier, N.E. (2009). A correlational investigation of door task performance. Society for Research in Child Development, Denver.

51. Carrico, R.L. & Berthier, N.E. (2009) Visual Information and Object Size in Infant Reaching. Society for Research in Child Development, Denver.

52. Berthier, N.E., Boucher, K., & N. Weisner. (2010) Prefrontal cortical development and manual search in two tasks. International Conference on Infancy Studies, Baltimore, MD

53. Nelson, E., Berthier, N., Locantore, A., & Novak, M. (2009). The interaction between hand preference and hand performance: Data from rhesus monkeys and human infants. American Society of Primatologists, San Diego, CA. Abstract published in American Journal of Primatology, 71(Suppl 1), 49.

54. Nelson, E., Braun, M., Berthier, N., Novak, M., Suomi, S., & Novak, M. (2010). Specialization for reaching in 5-month-old rhesus monkeys: Evidence from 2-D motion analysis. *Developmental Psychobiology*, 52, 711.

55. Nelson, E.L., Braun, M.C., Berthier, N.E., Novak, M.F., Suomi, S.J. & Novak, M.A. (2010). Left hand specialization for reaching in 5-month-old rhesus monkeys: Evidence from 2-D motion analysis. Poster presentation given at the 43rd meeting of the International Society on Developmental Psychobiology, San Diego, California USA.

56. Berthier, N.E. (2013). Binomial mixtures of toddler behavior. Poster at Society for Research in Child Development, Seattle, WA.

57. Ficco, L., Lewis, B.J., Berthier, N.E. (2014). Hormonal contraceptives should, but may not, influence cognition. Cognitive Neuroscience Society, Boston, MA.

58. Hartstein, L. & Berthier, N. (2015) The Role of Memory in the Model Room Task. Society for Research in Child Development, Philadelphia, PA.

59. Hartstein, L.E., Agrawal, V., Nelson, E., & Berthier, N.E. (2016). Hand preference in relation to hand skill at 2 years. Presented at International Congress of Infancy Studies, New Orleans.

60. Hartstein, L.E. & Berthier, N.E. (2017). Light color temperature positively impacts preschoolers' cognitive performance. Society for Research in Child Development, Austin TX.

Publications:

1. Powell, G.M., Berthier, N.E. & Moore, J.W. (1979). Efferent neuronal control of the nictitating membrane in rabbit (*Oryctolagus cuniculus*): A reexamination. *Physiology & Behavior*, **23**, 299-308.

2. Berthier, N.E. & Moore, J.W. (1980). Role of the extraocular muscles in rabbit (*Oryctolagus cuniculus*) nictitating membrane response. *Physiology & Behavior*, **24**, 931-937.

3. Berthier, N.E. & Moore, J.W. (1980). Spatial differential conditioning of the nictitating membrane response in hippocampectomized rabbits. *Physiological Psychology*, **8**, 451-454.

4. Berthier, N. E. & Moore, J.W. (1980). Disrupted conditioned inhibition of the rabbit nictitating membrane response following mesencephalic lesions. *Physiology & Behavior*, **25**, 667-673.

5. Moore, J.W., Desmond, J.E. & Berthier, N.E. (1982). The Metencephalic basis of the conditioned nictitating membrane response. In Conditioning: Representation of Involved Neural Functions. C.D. Woody (Ed.), New York: Plenum.

6. Berthier, N.E. & Moore, J.W. (1983). The nictitating membrane response: An electrophysiological study of the abducens nerve and nucleus and the accessory abducens nucleus in rabbit. *Brain Research*, **258**, 201-210.

7. Kim, E.H-J., Woody, C.D. & Berthier, N.E. (1983). Rapid acquisition of conditioned eyeblink responses in cats following pairing of an auditory conditioned stimulus with glabella tap unconditioned stimulus and hypothalamic stimulation, *Journal of Neurophysiology*, **49**, 767-779.

8. Woody, C.D. , Kim, E.H-J. & Berthier, N.E. (1983). Effects of hypothalamic stimulation on unit responses recorded from neurons of sensorimotor cortex of awake cats during conditioning, *Journal of Neurophysiology*, **49**, 780-791.

9. Berthier, N.E. & Woody, C.D. (1984). An essay on latent learning. In The Neuropsychology of Memory. N. Butter & L.R. Squire (Eds.), New York: Gilford.

10. Berthier, N.E. (1984). The role of the extraocular muscles in the rabbit nictitating membrane response: a re-examination. *Behavioral Brain Research*, **14**, 81-84.

11. Moore, J.W., Desmond, J.E., Berthier, N.E., Blazis, D.E.J., Sutton, R.S. & Barto, A.G. (1985). Connectionistic learning in real time: Sutton-Barto adaptive element and classical conditioning of the nictitating membrane response. *Proceedings of the Cognitive Science Society Conference*, **7**.

12. Berthier, N.E. & Moore, J.W. (1986) Cerebellar Purkinje cell activity related to the classically conditioned nictitating membrane response, *Experimental Brain Research*, **63**, 341-350.

13. Blazis, D.E.J., Desmond, J.E., Moore, J.W. & Berthier, N.E. (1986). Simulation of the classically conditioned nictitating membrane response by a neuron-like adaptive element: A real-time variant of the Sutton-Barto model. *Proceedings of the Cognitive Science Society Conference*, **8**.

14. Moore, J.W., Desmond, J.E., Berthier, N.E., Blazis, D.E.J., Sutton, R.S., & Barto, A.G. (1986). Simulation of the classically conditioned nictitating membrane response by a neuron-like adaptive element: response topography, neuronal firing, and interstimulus intervals, *Behavioral Brain Research*, **21**, 143-154.

15. Berthier, N.E., Desmond, J.E. & Moore, J.W. (1987). Brain stem control of the nictitating membrane response. In Classical Conditioning III. I. Gormezano, W.F. Prokasy & R.F. Thompson (Eds.), Hillsdale, N.J.: Lawrence Erlbaum Associates.

16. Berthier, N.E. (1987). Review of Learning and Memory: A Biological View, *Quarterly Review of Biology*, **62**, 347.

17. Berthier, N.E. & Woody, C.D. (1988). In-vivo properties of neurons of the precruciate cortex of cats. *Brain Research Bulletin*, **21**, 385-393.

18. Moore, J.W. & Berthier, N.E. (1988). Cerebellar and brain stem substrates of the classically conditioned nictitating membrane response. In Cerebellum and Behavioural Plasticity. M. Glickstein, D.H. Yeo and J. Stein (Eds.), New York: Plenum.

19. Moore, J.W., Desmond, J.E. & Berthier, N.E. (1989). Adaptively timed conditioned responses and the cerebellum: A neural network approach. *Biological Cybernetics*, **62**, 17-28.

20. Moore, J.W., Berthier, N.E. & Blazis, D.E.B. (1990). Classsical eye-blink conditioning: Brain systems and implementation of a computational model. In Learning and Computational Neuroscience: Foundations of Adaptive Networks. M. Gabriel and J. Moore (Eds.), Cambridge, Mass.: MIT Press.

21. Berthier, N.E. & Moore, J.W. (1990). Activity of cerebellar deep nuclear cells during classical conditioning of nictitating membrane extension in rabbits. *Experimental Brain Research*, **83**, 44-54.

22. Berthier, N.E., Barto, A.G. & Moore, J.W. (1991). Linear systems analysis of the relationship between firing of deep cerebellar neurons and the classically conditioned nictitating membrane response in rabbit. *Biological Cybernetics*, **65**, 99-105.

23. Berthier, N.E., Singh, S.P., Barto, A.G. & Houk, J.C. (1992). A cortico-cerebellar model that learns to generate distributed motor commands to control a kinematic arm. In J.E. Moody, S.J. Hanson, R.P. Lippmann (Eds.), **4**, San Mateo, CA: Morgan Kaufmann, 611-618.

24. Berthier, N.E. (1992). Muscle activity during unconditioned and conditioned eye blinks in the rabbit. *Behavioural Brain Research*, 4**8** , 21-28.

25. Berthier, N.E., Singh, S.P., Barto, A.G. & Houk, J.C. (1993). Distributed representation of limb motor programs in arrays of adjustable pattern generators. *Journal of Cognitive Neuroscience,* **5**, 56-78.

26. Clifton, R.K., Rochat, P., Robin, D.J. & Berthier, N.E. (1994). Multimodal perception in the control of infant reaching. *Journal of Experimental Psychology: Human Perception and Performance*, **20**, 876-886 DOI: `http://dx.doi.org/10.1037/0096-1523.20.4.876`.

27. Berthier, N.E., Clifton, R.K., Gullapalli, V., McCall, D. & Robin, D. (1996). Visual information and the control of reaching. *Journal of Motor Behavior*, **28**, 187-197 DOI: `http://dx.doi.org/10.1080/00222895.1996.9941744`.

28. Robin, D., Berthier, N., & Clifton, R.K. (1996). Infants' predictive reaching for moving objects in the dark. *Developmental Psychology*, **32**, 824-835 DOI: `http://dx.doi.org/10.1037/0012-1649.32.5.824`.

29. Berthier, N.E. (1996). Learning to reach: A mathematical model. *Developmental Psychology*, **32**, 811-823 DOI: `http://dx.doi.org/10.1037/0012-1649.32.5.811`.

30. Berthier, N.E. (1997). Analysis of reaching for stationary and moving objects in the human infant. In J. Donohoe (Ed.) Neural Network Models of Cognition-Biobehavioral Foundations, 283-301 DOI:`http://dx.doi.org/10.1016/S0166-4115(97)80101-X`.

31. Berthier, N.E. & Robin, D.J. (1998). Mid-reach corrections to shifting targets by seven-month-old infants. *Journal of Motor Behavior*, **30**, 290-300 DOI: `http://dx.doi.org/10.1080/00222899809601345`.

32. Berthier, N.E., Clifton, R.K., McCall, D., & Robin, D. (1999). Proximodistal structure of early reaching in human infants. *Experimental Brain Research*, **127**, 259-269 DOI: `http://dx.doi.org/10.1007/s002210050795`.

33. Loukopoulos, L., Englebrecht, S. & Berthier, N.E. (2001). Planning of reach-and-grasp movements: Effects of validity and type of object information. *Journal of Motor Behavior,33,* 255-264 DOI: `http://dx.doi.org/10.1080/00222890109601911`.

34. Berthier, N.E., DeBlois, S., Poirier, C.R., Novak, M.A., & Clifton, R.K. (2000). Where's the ball? Two- and three-year-olds reason about unseen events. *Developmental Psychology* , **36**, 394-401 DOI: `http://dx.doi.org/10.1037/0012-1649.36.3.394`.

35. Berthier, N.E., Barto, A.G., & Schlesinger, M. (2000). Learning and Dynamics. Proceedings of NSF DARPA conference on development and learning.

36. Berthier, N.E., Bertenthal, B.I., Seaks, J.D., Sylvia, M.R., Johnson, R.L. & Clifton, R.K. (2001). Using object knowledge in visual tracking and reaching. *Infancy, 2,* 257-284 DOI: http://dx.doi.org/10.1207/S15327078IN0202_9.

37. Butler, S.C., Berthier, N.E., & Clifton, R.K. (2002). Two-year-olds' search strategies and visual tracking in a hidden displacement task, *Developmental Psychology*, 38, 581-590 DOI: http://dx.doi.org/10.1037/0012-1649.38.4.581.

38. Keen, R., Carrico, R.L., Sylvia, M.R., & Berthier, N.E. (2003). How infants use perceptual information to guide action, *Developmental Science, 6,* 221-231 DOI: http://dx.doi.org/10.1111/1467-7687.00274.

39. Mash, C, Keen, R., & Berthier, N.E. (2003). Visual access and attention in two-year-olds' event reasoning and object search. *Infancy*, 4, 371-388 DOI: http://dx.doi.org/10.1207/S15327078IN0403_04.

40. O'Sullivan, L.P. & Berthier, N.E. (2003). Attention during looking and reaching in 7.5 month-old infants. *Developmental Psychobiology , 42, 292-300* DOI: http://dx.doi.org/10.1002/dev.10102.

41. Englebrecht, S., Berthier, N.E., & O'Sullivan, L.P. (2003). The undershoot bias-A stochastic optimal control strategy. *Psychological Science*, 14, 257-261 DOI: http://dx.doi.org/10.1111/1467-9280.03431.

42. Keen, R.E. & Berthier, N.E. (2005) Continuities and discontinuities in infants' representation of objects and events. In R. Kail (Editor) Advances in Child Development and Behavior, New York: Elsevier. pp 243-279 DOI: http://dx.doi.org/10.1016/S0065-2407(04)80009-0.

43. Mash, C., Novak, B., Berthier, N., & Keen, R.. (2006). What do two-year-olds understand about hidden -object events? *Developmental Psychology,* 42, 263-271 DOI: http://dx.doi.org/10.1037/0012-1649.42.2.263.

44. Berthier, N., Rosenstein, M., & Barto, A. (2005). Approximate optimal control as a model for motor learning. *Psychological Review*, 112, 329-346 DOI: http://dx.doi.org/10.1037/0033-295X.112.2.329.

45. Berthier, N. & Keen, R. (2006). Development of reaching in infancy. *Experimental Brain Research,* 169, 507-518 DOI: http://dx.doi.org/10.1007/s00221-005-0169-9.

46. Carrico, R.L. & Berthier, N.E. (2008). Vision and precision reaching in 15 month-old infants. *Infant Behavior & Development,* 31, 62-70 DOI: http://dx.doi.org/10.1016/j.infbeh.2007.07.005.

47. Keen, R., Berthier, N., Sylvia, M.R., Butler, S., Prunty, P., & Baker, R.K. (2008). Toddlers' use of cues in a search task. *Infant and Child Development,* 17, 249-267 DOI: http://dx.doi.org/10.1002/icd.550.

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