

Thomas G. Fikes

Curriculum Vitae
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Professional Address:

Department of Psychology
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BIOGRAPHICAL INFORMATION:

Birth Date: March 20, 1963
Birth Place: San Jose, California, USA
Marital Status: Married, 2 children

RESEARCH SKILLS AND INTERESTS:

Parallel Neural Systems for Implicit Learning: Contributions of the basal ganglia and hippocampus to perceptual category and skill learning in humans and rats. Integration of human and animal models. Human information processing studies; animal studies using lesion and pharmacological manipulations, behavioral methods.

Perceptual and Motor Systems: Manual reaching and functional interaction with visually presented objects. Human studies using reaction time/movement time, movement trajectory, and accuracy methods; various psychophysiological methods including SCR, EEG/ERP, EMG.

Physicalist Theories of Mind and Soul within a Christian Worldview: Implications of contemporary cognitive and behavioral neurosciences for Christian notions of mind, body, & soul; non-reductive neural and behavioral science.

Mathematical Modeling of Cognitive, Behavioral, and Brain Processes: Dynamical and stochastic systems modeling across a variety of cognitive, behavioral, and neural domains including categorization, motor control, and visual perception.

Computer Programming: Proficiency and experience in a variety of programming languages (emphasis in C, MATLAB, LabVIEW) and across a variety of platforms (primarily Macintosh). Emphasis on timing and control of peripheral devices for experimental control, modeling, parameter estimation, and statistical analysis.

EDUCATION:

1993 Ph.D., Psychology (Human Information Processing emphasis), University of California, Santa Barbara; Prof. Roberta L. Klatzky, Advisor.

Dissertation Title: *System Architecture Analysis for Reaching and Grasping* (Committee members R.L. Klatzky (co-chair), F.G. Ashby (co-chair), D. Brainard, G. Jacobs).

1987 B.A., Psychology, Cum Laude, California State University, Fresno; emphases in learning and biopsychology; graduate work in clinical and experimental psychology, hypnosis and memory.

RESEARCH EXPERIENCE:

Professor of Psychology and Neuroscience, Department of Psychology, Westmont College
September, 2006 - present.

Associate Professor, Department of Psychology, Westmont College
September, 2000 - August, 2006.

Assistant Professor, Department of Psychology, Westmont College
September, 1998 - August, 2000.

Visiting Assistant Professor, Department of Psychology, University of California, Santa Barbara.
National Science Foundation Research Opportunity Award to work with Principle Investigator F. G. Ashby on Perceptual and Cognitive Processes in Identification and Categorization (NSF grant SBR-9514427).
June - August, 1997.

Assistant Professor, Department of Psychology, University of Puget Sound.
September, 1993 - June, 1998.

Postdoctoral Fellow: National Institute of Health Traineeship in Mathematical Modeling, Cognitive Science Program, Indiana University; Prof. James T. Townsend, advisor. (NIH Grant #PHSPR32MH19879-01).
September, 1993 - August, 1994.

Research Assistantship: Roberta Klatzky and Jim Pellegrino, University of California, Santa Barbara. Manual interaction with real objects (Air Force Grant #AFOSR 870230).
September, 1989 - December, 1990.

Research Assistantship: Richard Ivry, University of California, Santa Barbara. Cerebellar involvement in perceptual timing in rats. (Office of Naval Research).
June, 1990 - September, 1990.

Research Assistantship: Aaron Ettenberg, University of California, Santa Barbara. Development and C-language programming of automatic data acquisition program for rat runways.
June 1991 - August, 1991.

Statistical Consulting: California State University, Fresno and University of California, Santa Barbara.
January, 1988 - June, 1993.

Computer Programming and Consulting: University of California, Santa Barbara and Indiana University.
September, 1989 - August, 1993.

TEACHING EXPERIENCE:

Full and Associate Professor, Westmont College
Behavioral Neuroscience; Sensation and Perception; History and Systems of Psychology;
General Psychology; Laboratories in Sensation and Perception, Behavioral
Neurosciences; Topics in Psychology: Cognitive Neuroscience and the Soul;
Neurobiology (Biology Department)
September, 2000 - present.

Assistant Professor, Westmont College

Behavioral Neuroscience; Sensation and Perception; Seminar in Cognitive Neuroscience; History and Systems of Psychology; General Psychology; Laboratories in Sensation and Perception, Behavioral Neuroscience
September, 1998 - August, 2000.

Assistant Professor, University of Puget Sound.

Cognitive Science; Sensation, Perception and Action; Biological Bases of Behavior; Laboratories in Biological Bases of Behavior, Sensation, Perception and Action; Perspectives on Behavior (senior seminar); Introductory Psychology.
September, 1993 - May, 1998.

Lecturer, Westmont College.

General Psychology, Physiological Psychology, Laboratory in Physiological Psychology.
September, 1989 - January, 1993.

Teaching Assistant, University of California, Santa

Methods in Experimental Psychology, Auditory Perception, Visual Perception, Laboratory in Perception, Design and Statistics, Cognition, Introduction to Psychology, Statistics.

March, 1988 - January, 1993.

Teaching Assistant, California State University, Fresno.

Laboratories in Physiological Psychology, Computers in Psychology.
January, 1986 - May, 1987.

PUBLICATIONS AND CONFERENCE PRESENTATIONS:

Paloutzian, R.F., Fikes, T.G., & Hutsebaut, D. (2003). A social cognition interpretation of neurotheological events. In R. Joseph (Ed.), *Neurotheology: Brain, Science, Spirituality & Religious Experience* (2nd ed), 189-194.

Fikes, T.G. (2001). Evolutionary Psychology as Computational Theory in the Cognitive Sciences. *Journal of Psychology and Theology*, 29, 340-360.

Fikes, T.G. (1997). Dynamical Systems Modeling for Arm Control and Other Information Processing Tasks. Paper presented at the Annual Interdisciplinary Conference, February, 1997, Jackson, WY.

Fikes, T.G. (1995) Spatial and Temporal Characteristics of Feedforward Reaching. Poster presented at the 36th Annual Meeting of the Psychonomic Society, November, 1995, Los Angeles, CA.

Fikes, T.G. & Townsend, J.T. (1995). Moving models of motion forward: Explication and a new concept. *Behavioral and Brain Sciences*, 18, 751-753.

Townsend, J.T. & Fikes, T.G. (1995). A beginning taxonomy of cognitive activation systems and application to continuous flow processes. *Indiana University Cognitive Science Research Report Series*, No. 131.

Klatzky, R.L., Fikes, T.G., & Pellegrino, J.W. (1995). Planning for hand shape and arm transport when reaching for objects. *Acta Psychologica*, 88, 209-232.

Beall, A.C., Loomis, J.M, Philbeck, J.W., and Fikes, T.G. (1995). Absolute motion parallax weakly

- determines visual scale in real and virtual environments. *SPIE* (2411), 288-297.
- Fikes, T.G., Klatzky, R.L., & Lederman, S.J. (1994). Effects of object texture on pre-contact movement time in human prehension. *Journal of Motor Behavior*, 26(4), 325-332.
- Townsend, J.T. & Fikes, T.G. (1994). Paper presented at the 35th Annual Meeting of the Psychonomic Society, November, 1994, St. Louis, MO.
- Kalish, M.L. & Fikes, T.G. (1994) The dynamics of learning and performance in blind reaching. Poster presented at the 35th Annual Meeting of the Psychonomic Society, November, 1994, St. Louis, MO.
- Fikes, T.G. & Townsend, J.T. (1994). A model taxonomy with application to perception-action systems. Paper presented at the 27th Annual Mathematical Psychology Meeting, August, 1994, Seattle, WA.
- Fikes, T.G., and Kalish, M. (1993). Feedforward connectionist models for controlling an arm. Paper presented at The 4th Annual Midwest Connectfest, November, 1993.
- Fikes, T.G., Klatzky, R.L., Pellegrino, J., Hebert, C., & Murdock, L. (1990). Tachistoscopic exposure of real objects for measurement of reaction time and movement time. *Behavioral Research Methods, Instrumentation, and Computers*, 22(3), 290-296.
- Coe, W.C., Basden, B.H., Basden, D., Fikes, T.G., Gargano, G.J., & Webb, M. (1989). Directed forgetting and posthypnotic amnesia: Information processing in social contexts. *Journal of Personality and Social Psychology*, 56(2), 189-198.
- Wakeman, E.A. & Fikes, T.G. (1989). Emotion and immune function: Effects of emotional imagery on salivary IgA. Paper presented at the Western Psychological Association, April, 1989.
- Fikes, T.G., Gargano, G.J., Webb, M., Coe, W.C., Basden, B.H. (1987). Directed forgetting and posthypnotic amnesia. Paper presented at the Western Psychological Association, April, 1987.

Honors Theses and Student Projects Supervised:

- Bednark, J. (2007). *Visual Attention: Using ERPs to Test Predictions Made by the Feature-Integration Theory of Attention*. Senior Honors Thesis, Neuroscience Program, Westmont College, Santa Barbara, CA.
- Bednark, J. (2006). *Event Related Potentials: Methods and Analysis of the P3*. Poster presented at the Summer Research Celebration, Westmont College, Santa Barbara, CA.
- Daugherty, A. (2006). *The Effects of Hippocampal Deficit on Performance of a Spatial Memory Task*. Poster presented at the Summer Research Celebration, Westmont College, Santa Barbara, CA.
- Phillips, A. & Fikes, T. (2006). *The Effects of Electrolytic Lesions of the Dorso Medial Caudate Nucleus on Visual Stimulus Control*. Poster presented at the Undergraduate Research Symposium, Westmont College, Santa Barbara, CA.
- Ramisch, J. (2005). *Development of Stimuli for a Rat Analog of the Wisconsin Card Sort Task*. Senior Honors Thesis, Department of Psychology, Westmont College, Santa Barbara, CA.

- Mitchum, K. (2005). *Fornix and Caudate Lesioned Rat Performance on a Visual Discrimination Task*. Senior Honors Thesis, Neuroscience Program, Westmont College, Santa Barbara, CA.
- Bocaletti, J. (2003). *Non-Selective Dopamine Antagonist Blocks Learning in a Stimulus-Response Task*. Senior Honors Thesis, Neuroscience Program, Westmont College, Santa Barbara, CA.
- Bostock, K. (2003). *The Effects of Hypoxia on the Striatum and Cerebellum: A Dual Task Experiment*. Senior Research Project, Neuroscience Program, Westmont College, Santa Barbara, CA.
- Rausch, E. (2002). *Single Dissociation Involving the Hippocampus and Striatum Using Auditory Stimuli*. Senior Honors Thesis, Neuroscience Program, Westmont College, Santa Barbara, CA.
- Bocaletti, J., Bostock, K., Pakhlevanyan, A., and Fikes, T. G. (2002). *Dorsal Striatum Lesions Impair Category Learning in Rats: Implications for a Dopaminergic Plasticity Model*. Poster presented at the 38th Western Regional Meeting of the American Chemical Society, Santa Barbara, CA.
- Rausch, E., Bocaletti, J., Pakhlevanyan, A., and Fikes, T. G. (2001). *Perceptual Categorization Learning in Rats: Different Roles of the Striatum and Hippocampus*. Poster presented at the Undergraduate Research Symposium, Westmont College, Santa Barbara, CA.
- Bostock, K. & Fikes, T. G. (2001). *Reinforcement and Category Learning in Rats: Implications for a Dopaminergic Plasticity Model*. Poster presented at the 37th Western Regional Meeting of the American Chemical Society. Santa Barbara, CA.
- Bocaletti, J., Wright, E., Pakhlevanyan, A., Fikes, T. G. (2001). *Circling behavior induced by apomorphine hydrochloride in substantia nigra-lesioned rats*. Poster presented at the Undergraduate Research Symposium, Westmont College, Santa Barbara, CA.
- Iden, S. and Fikes, T. G. (2000). *Category Learning and Habit Formation in Rats: The Role of the Caudate Nucleus*. Poster presented at the 29th Annual Western Psychology Conference for Undergraduate Research, Santa Clara, CA.
- Iden, S. (2000). *Category Learning and Habit Formation in Rats: The Role of the Caudate Nucleus*. Senior Honors Thesis, Neuroscience Program, Westmont College, Santa Barbara, CA.

CURRENT PROJECTS

- ***Soulish Bodies: Christian and Neuroscientific Conceptions of the Person*. Book manuscript under revision; under contract with Baker Academic.**
- ***Non-reductive Physicalism: Some Taxonomies and the Neurobiology of Category Learning*. Manuscript under revision for CCCU project surrounding Warren Brown's Fuller Integration Lectures (2005).**
- **EEG/Event Related Potential lab group. Early development of apparatus and procedures for human EEG/ERP studies of category learning and motor control/coordination.**
- **Neuropsychology of Category Learning lab group. Visual discrimination in rats using the radial arm maze and operant conditioning chambers; lesion studies on the role of the basal ganglia and hippocampal systems.**

PROFESSIONAL SOCIETIES:

- Cognitive Neuroscience Society (2004 - present)
- American Association for the Advancement of Science (2001 - present)
- American Psychological Association (2002-present)
- American Psychological Society (1989 - present)
- Behavioral and Brain Sciences (Associate, 1996 - present)

AWARDS AND HONORS:

- Bruce and Adaline Bare Teacher of the Year Award, Westmont College, Natural and Behavioral Sciences division (2003)

COMMITTEES & ADMINISTRATION:

2007-present	Faculty Council
2005-present	Long Range Planning Task Force
2004-2006	General Education Committee
2004-2006	Executive Committee of the Academic Senate
2003-present	Chair, Department of Psychology, Westmont College
2003-present	Academic Senate, Westmont College
2003-present	Science Executive Council, Westmont College
2002-2004	Salary and Benefits Committee, Westmont College
2002-2003	Ad hoc committee on Plagiarism, Westmont College
1999-2002	General Education Task Force, Westmont College.
1998-2000	Computer Technology Advisory Committee, Westmont College.
1998-2006	Co-Director, Neuroscience Program, Westmont College
1997-1998	Ad hoc committee to assess the use of student evaluations of faculty for tenure and promotion decisions, University of Puget Sound.
1996 - 1998	Curriculum Committee, University of Puget Sound.
1996	Campus Technology Planning Group, University of Puget Sound.
1992-1993	Lead Teaching Assistant, Department of Psychology, University of California, Santa Barbara.
1991-1993	Teaching Assistant Advisory Panel, Department of Psychology, University of California, Santa Barbara.
1991	15th Annual Mini-Convention of the Psychology Department of the University of California, Santa Barbara: Coordinator and Chairperson.
1990-1991	Graduate Affairs Committee, Graduate Student Representative, Department of Psychology, University of California, Santa Barbara.

AD HOC REVIEWING:

- Behavioral Research Methods, Instrumentation, and Computers
- Journal of Mathematical Psychology
- Journal of Experimental Psychology: Human Perception and Performance
- Perception & Psychophysics
- Behavioral and Brain Sciences
- National Science Foundation, Human Perception and Cognition
- Wadsworth Publishing Company/ ITP, Psychology division
- International Journal of the Psychology of Religion