

Thomas G. Fikes, Ph.D.

Curriculum Vitae
August, 2024

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RESEARCH SKILLS, INTERESTS, & EXPERIENCE:

- Leadership and Organizational Psychology. Cooperation and collaboration, mood, trust, high-performing teams, equity and inclusion; evolution of cooperation. Consultant, coach, and instructor with Teibel Education Consulting's Online Leadership Program, 2021-present. Founding director of research & research manager for the Action Lab at Arizona State University's EdPlus, 2016-2022.
- Cooperation, and Collaboration. Positive psychology, evolutionary, psychological, and systems-theoretic approaches to cooperation, coordination, and conflict, particularly in relation to social and organizational systems. Development of new user interfaces and methods for classic economic games (Trust, Ultimatum, Dictator) and development of new economic games (e.g., risk pooling).
- Social, Cultural, & Cognitive Neuroscience. Interpersonal and social processes, particularly with respect to prosociality and inclusion; psychophysiology of parasympathetic nervous system activity (HRV algorithms). Cultural/Narrative approaches to human neuroscience and psychology, including implicit bias, equity, and inclusion. Human studies using EEG (spectral power and coherence) to study the mirror neuron system and its role in empathy, implicit bias, and leadership. EEG studies on phantom limb pain, colossal agenesis. Cognitive science of religion, psychology of emotion and mood. Diversity, equity, and inclusion.
- Learning Science/ Analytics & Data Science. Learning analytics, learning efficacy, digital teaching and learning. Large-scale projects using LMS, SIS, LTI and other data sources to assess the effectiveness of digital and in-person teaching and learning environments, to increase equity and inclusion, and to increase learning, engagement, retention, and success. Machine learning, predictive and causal modeling, data visualization. Proficiency in R, MATLAB, Python, SQL; R Shiny, Plotly, Tableau; additional experience in C, Javascript, D3, PHP, and others.
- 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.
- Theories of Mind and Soul in Christian and Buddhist Traditions: Implications of contemporary cognitive and behavioral neurosciences for 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, visual perception, and social/cultural psychology.
- Computer Programming: Proficiency and experience in a wide variety of programming languages (emphasis in R, MATLAB) and across a variety of platforms (Mac, Windows, Linux). Emphasis on user interfaces and timing and control of peripheral devices for experimental control, modeling using dynamical systems theory, parameter estimation, and statistical analysis (emphasis in ANOVA, regression).

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 & PROFESSIONAL EXPERIENCE:

Consultant, Executive/Leadership Coach & Principle, Pranna Consulting
June, 2021 – present.

Director of Research Operations, EdPlus Action Lab, Arizona State University
May, 2016 – September, 2022.

Independent Consultant and Programmer
August, 2014 – May, 2016.

Lab Manager Economic Game Design, Cooperation and Competition Laboratory (Athena Aktipis, Director) and The Human Generosity Project, Arizona State University
December, 2014 – present.

Professor of Psychology and Neuroscience, Department of Psychology, Westmont College
September, 2006 – August, 2014.

Visiting Research Professor, University of Otago, NZ
EEG and related signal processing work in collaboration with Professor Elizabeth Franz, motor control and neural coordination in callosal agenesis and phantom limb populations.
July, 2007 – December, 2007 & September, 2014 – December, 2014.

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:

Instructor, School of Social and Behavioral Sciences, Arizona State University
Introductory Psychology (ASU Online)

- March, 2021 – May, 2021.
Full and Associate Professor of Psychology and Neuroscience, 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, Emotion,
others; Neurobiology (Biology Department)
September, 2000 – August, 2014.
- 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 Barbara
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.

STUDY ABROAD PROGRAMS:

- Westmont in the Middle East, Mayterm Program.
Summer program teaching cultural/narrative psychology and the Israel-Palestine
conflict (Palestine, Israel, Syria, Jordan).
May - June, 2009.
- Westmont in the Jerusalem, Semester Program.
Summer program teaching cultural/narrative psychology and the Israel-Palestine
conflict (Palestine, Israel, Egypt, Jordan; Lebanon, Syria).
January - April, 2013 + May/June 2012.

PUBLICATIONS AND CONFERENCE PRESENTATIONS:

- Lenfesty, H., Mathew, S., Fikes, T., Ross, C. T., & Boyd, R. (2024). Third-party arbitration and forgiving strategies increase cooperation when perception errors are common. *Proceedings of the Royal Society B: Biological Sciences*, 291(2027), Article 20240861. <https://doi.org/10.1098/rspb.2024.0861>
- Ross CT, Fikes T, Lenfesty H, McElreath R. (2024). IPDToolkit: an R package for simulation and Bayesian analysis of iterated prisoner's dilemma game-play under third-party arbitration. *EcoEvoRxiv*. (doi:10.32942/X2M91P)
- Meaney, M. and Fikes, T. (2023) The Promise of MOOCs Revisited? Demographics of Learners Preparing for University. *Journal of Learning Analytics*, 10 (1), 113-132, *Special Section on Fairness, Equity, and Responsibility in Learning Analytics*.
<https://doi.org/10.18608/jla.2023.7807>
- Kent, C., Akanji, A., du Boulay, B., Bashir, I., Fikes, T. G.; et al. (2022). Mind the Gap: From Typical LMS Traces to Learning to Learn Journeys. In: Trajkovski, Goran; Demeter, Marylee and Hayes, Heather eds. *Applying Data Science and Learning Analytics Throughout a Learner's Lifespan*. IGI Global, pp. 1–26. <https://doi.org/10.4018/978-1-7998-9644-9.ch001>

- du Boulay, B., Fikes, T.G., Greenwood, J., Fourcier, L. (2022). .A Study in Student Data and Artificial Intelligence. Paper presented at *Ahead By Bett*, March 2022, London, UK.
- Meaney, M. and Fikes, T. (2022). Adding a Demographic Lens to Cluster Analysis of Participants in Entry-level Massive Open Online Courses (MOOCs). In *Proceedings of the Ninth ACM Conference on Learning @ Scale (L@S '22)*. Association for Computing Machinery, New York, NY, USA, 355–359. <https://doi.org/10.1145/3491140.3528306>
- Arcuria, P. Morgan, W. and Fikes, T.G. (2019). Validating the Use of LMS-Derived Rubric Structural Features to Facilitate Automated Measurement of Rubric Quality. In *Proceedings of the 9th International Conference on Learning Analytics & Knowledge (LAK19)*. Association for Computing Machinery, New York, NY, USA, 270–274. <https://doi.org/10.1145/3303772.3303829>
- Meaney, M. & Fikes, T. (2019). Early--adopter Iteration Bias and Research-praxis Bias in the Learning Analytics Ecosystem. In. *Companion Proceedings 9th International Conference on Learning Analytics & Knowledge (LAK19)*
- Kizilcec, R. & Fikes, T.G. (2019). Heterogeneous Effects of Adaptive Tutoring on Grades and Subsequent Outcomes: A Quasi-Experiment. Paper presented at National Council on Measurement in Education Computational Psychometric for Learning and Assessment in Virtual Environments, April 2019, Toronto, Ontario CA.
- Fikes, T. (2018). "Rethinking non-cognitive". Companion Proceedings 8th International Conference on Learning Analytics and Knowledge (LAK18).
- Wang, Y., Fikes, T. G., & Pettyjohn, P. (2018). Open Scale Courses: Exploring Access and Opportunity for Less-Educated Learners. In *2018 Learning With MOOCS (LWMOOCS)* (pp. 102-105). IEEE.
- Wang, Y., Cunningham, J., Arcuria, P., Fikes, T. & Pugliese, L. (2018). Exploring Non-Cognitive Reasons behind Success after Failure. *Companion Proceedings of the 8th International Conference on Learning Analytics & Knowledge*.
- Lenfesty, H. & Fikes, T. (2017). "From anxiety to neighborliness: Neural and cultural adaptations in the evolution of religious prosociality". *Religion, Brain, & Behavior*. 8(3). Pp. 301-306. DOI: 10.1080/2153599X.2017.1302982
- Lenfesty, H. & Fikes, T. (2017). "How does the evolution of the mammalian autonomic nervous system help to explain religious prosociality?" *Religion, Brain, & Behavior*. 7(4). Pp 305-308. DOI: 10.1080/2153599X.2016.1249925
- Fikes, T. G., Saad, C., Seymour, M., (2014). New Ways to Construct and Measure Implicit Attitudes. Paper presented at Annual Meeting of the American Psychological Association, August, 2014, Washington, DC.
- Saad, C., Fikes, T. G. (2014). Bicultural Identity Conflict and Implicit Identification. Paper presented at Annual Meeting of the American Psychological Association, August, 2014, Washington, DC.
- Fikes, T. G., Seymour, M.J., Youngberg, A.M., & Franz, E.A. (2012). Suppression of EEG μ -Rhythms During Phantom Limb Pain Therapy. Poster presented at Annual Meeting of the Cognitive Neuroscience Society, May, 2012, Chicago, IL.
- 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.

Publications in Preparation:

- Kizilcec, R. & Fikes, T. "Heterogeneous Effects of Adaptive Tutoring on Grades and Subsequent Outcomes: A Quasi-Experiment"

Student Theses and Projects Supervised:

- Meaney, M. (2021). Doctoral Dissertation, Cambridge University.
- Seymour, M. (2014). *Implicit Gender Bias, Empathy, and the Mirror Neuron System*. Senior Honors Thesis, Neuroscience Program, Westmont College, Santa Barbara, CA.
- Hochberger, W. (2011). *The N2 and Volitional Inhibition – A Neuroscientific Study of the "Free Won't"*. Senior Honors Thesis, Neuroscience Program, Westmont College, Santa Barbara, CA.
- Valenta, G. (2009). *As the Cube Turns: Examining Spontaneous Perceptual Reversals of Ambiguous Motion via Event-Related Potentials, Event-Related Desynchronization, and Event-Related Coherence*. Senior Honors Thesis, Neuroscience Program, Westmont College, Santa Barbara, CA.
- 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., Pahklevanyan, 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., Pahklevanyan, 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., Pahklevanyan, 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.

UNPUBLISHED RESEARCH PROJECTS (Significant and Recent):

- Third Party Adjudication and the Evolution of Human Cooperation (2017-present). Designed and implemented novel economic game based on trust game and Prisoner's Dilemma in iterative, multiplayer environment with third-party adjudicators.
- Dreamscape Learn pilot & long-term study design (2021-2022). Lead and director for pilot; overall design lead for multi-phase design-based research project. Part of larger design and implementation collaboration between ASU and Dreamscape for large scale virtual reality instruction for undergraduate in-person and online.
- Learning @ Scale (2021-2022). Consultant and senior research personnel for first phase of IES funded project to provide large scale networking and anonymized student and course data to researchers across and outside of ASU.
- ASU Online Efficacy study (2016-2018). Lead and director. Large scale study comparing comprehensive historical (2010-2017) ASU undergraduate student and course data, using descriptive and explanatory models to assess the impact of online modality on student learning and achievement, and to assess the impact of student demographic factors.
- Human Generosity Project (2016-2017). Novel economic game design and implementation to study cooperation in an evolutionary context. Funded by John Templeton Foundation, NSF.

PROFESSIONAL SOCIETIES:

- Society for Social Neuroscience
- Cognitive Neuroscience Society
- American Association for the Advancement of Science
- American Psychological Association
- American Psychological Society
- Behavioral and Brain Sciences

AWARDS AND HONORS:

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

ACADEMIC COMMITTEES & ADMINISTRATION:

2012-2014	Director, Center for Social Neuroscience, Westmont College
2012-2014	Academic Senate
2010-2011	Vice Chair of the Faculty
2007-2011	Faculty Council
2005-2010	Long Range Planning Task Force
2004-2006	General Education Committee
2004-2006	Executive Committee of the Academic Senate
2003-2010	Chair, Department of Psychology, Westmont College
2003-2010	Academic Senate, Westmont College
2003-2012	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:

- Journal of Infrastructure, Policy, and Development
- Journal for the Cognitive Science of Religion
- 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