

Accelerating Behavioral Science Through Ontology Development and Use

Committee

Robert M. Kaplan

Chair

Robert M. Kaplan (NAM) is an adjunct professor of medicine-primary care and population health at Stanford University. His research interests include behavioral medicine, health services research, epidemiology, health outcome management, psychometrics and multivariate data analysis. He has served as chief science officer at the U.S. Agency for Health Care Research and Quality (AHRQ) and associate director of the National Institutes of Health, where he led the behavioral and social sciences programs. He is also a distinguished emeritus professor of health services and medicine at University of California, Los Angeles (UCLA), where he led the UCLA/RAND AHRQ health services training program and the UCLA/RAND CDC Prevention Research Center. Previously, he was professor and chair of the Department of Family and Preventive Medicine, at the University of California, San Diego. He is a past president of several organizations, including the American Psychological Association Division of Health Psychology, Section J of the American Association for the Advancement of Science (Pacific), the International Society for Quality of Life Research, the Society for Behavioral Medicine, and the Academy of Behavioral Medicine Research. He is a former editor-in-chief of Health Psychology and of the Annals of Behavioral Medicine. He has a Ph.D. in psychology from the University of California, Riverside.

Demba Ba

Member

Demba Ba is an associate professor of electrical engineering and bioengineering with Harvard University, where he directs the Computation, Representation, and Inference in Signal Processing group. His research interests lie at the intersection of high-dimensional statistics, optimization, and time-series analysis, with applications to neuroscience and multimedia signal processing. He has an interest in the connection between artificial neural networks and sparse signal processing, as a means to understand the principles of hierarchical representations of sensory signals in the brain, and to develop explainable AI. The aim of this research is to explain neural networks as inference algorithms in biologically-plausible mechanistic, generative, statistical models. Previously, he was a postdoctoral associate with the MIT/Harvard Neuroscience Statistics Research Laboratory, where he developed theory and efficient algorithms to assess synchrony among large assemblies of neurons. He has a Ph.D. in electrical engineering and computer science with a minor in mathematics from the Massachusetts Institute of Technology.

Lisa F. Barrett

Member

Lisa Feldman Barrett is a university distinguished professor at Northeastern University with appointments at the Massachusetts General Hospital (MGH) and Harvard Medical School. Her lab is developing a systems-level model of brain and body mechanisms to unify human affect, emotion, motivation, cognition and action. She takes a multidisciplinary approach, incorporating methods and concepts from a range of disciplines, including psychology, neuroscience, physiology, anthropology, philosophy, linguistics, evolutionary and developmental biology, computer science, engineering and the history of science. She is the recipient of a NIH Director's Pioneer Award for transformative research, the Mentor Award for Lifetime Achievement from the Association for Psychological Science (APS), and the Distinguished Scientific Contribution Award from the American Psychological Association (APA). She is an elected fellow of the American Academy of Arts and Sciences, the Royal Society of Canada, and a number of other honorific societies. She is also a former president of the APS. She has testified before the US Congress, is the Chief Science Officer for the Center for Law, Brain and Behavior at MGH, and actively engages in informal science education for the public via popular books, articles and public lectures. She has a Ph.D. in clinical psychology from the University of Waterloo.

Jiang Bian

Member

Jiang Bian is the director of the Cancer Informatics and eHealth Core program at the University of Florida where he is also an associate professor in biomedical informatics. His expertise and background is in data science working with heterogeneous data, information, and knowledge resources. His research focuses can be divided into three areas. One is data-driven medicine with applications of informatics techniques, including artificial intelligence and machine learning methods in medicine in order to solve big and heterogeneous data problems. He is focused on data-mining, including the social web, to provide insights into health-related behavior and health outcomes of various populations for development of interventions that promote public and consumer health. He is also focused on development of novel informatics methods, specifically systems to support clinical and clinical research activities, such as tools for semantic data integration, clinical trial eligibility criteria design, and cohort discovery. He has a Ph.D. in integrated computing from the University of Arkansas at Little Rock.

Katy Borner

Member

Katy Borner is the Victor H. Yngve distinguished professor of engineering and information science in the departments of intelligent systems engineering and information science at the Luddy School of Informatics, Computing, and Engineering. She is core faculty of the cognitive science program, and the founding director of the Cyberinfrastructure for Network Science Center at Indiana University. She is a fellow of the American Association for the Advancement of Science (AAAS), a Humboldt Research fellow, and an Association for Computing Machinery (ACM) fellow. She also serves as a curator of the international Places & Spaces: Mapping Science exhibit. Her research focuses on the development of data analysis and visualization techniques for information access, understanding, and management. She is particularly interested in the formalization, measurement, and systematic improvement of people's data visualization literacy; the study of the structure and evolution of scientific disciplines; the analysis and visualization of online activity; and the development of cyberinfrastructures for large-scale scientific collaboration and computation. She has a Ph.D. from the University of Kaiserslautern.

Bruce F. Chorpita

Member

Bruce F. Chorpita is a professor of psychology and professor of psychiatry and biobehavioral sciences at the University of California, Los Angeles. He is the lead developer for the intensive component of PRIDE, a project designed to develop, test, and disseminate effective treatments and training model for lay counselors to address anxiety, depression, and anger problems in adolescents in India. He is the principal investigator for the Reaching Families multisite trial and the lead author of the MATCH-ADTC protocol. Previously, he held a faculty position with the department of psychology at the University of Hawaii, and he served as the clinical director of the Hawaii Department of Health's Child and Adolescent Mental Health Division. His ongoing research is aimed at improving the effectiveness of mental health service systems for children through innovation in mental health treatment design, clinical decision-making, information-delivery models, and service system architecture. He received his Ph.D. in psychology from the University at Albany, State University of New York.

David Danks

Member

David Danks is L.L. Thurstone Professor of Philosophy & Psychology, and head of the Department of Philosophy, at Carnegie Mellon University (CMU). He is also the chief ethicist of CMU's Block Center for Technology & Society; co-director of CMU's Center for Informed Democracy and Social Cybersecurity (IDeaS); and an adjunct member of the Heinz College of Information Systems and Public Policy, and the Carnegie Mellon Neuroscience Institute. His research interests are at the intersection of philosophy, cognitive science, and machine learning, using ideas, methods, and frameworks from each to advance our understanding of complex, interdisciplinary problems. Danks has examined the ethical, psychological, and policy issues around AI and robotics in transportation, healthcare, privacy, and security. He has also done significant research in computational cognitive science, culminating in his *Unifying the Mind: Cognitive Representations as Graphical Models* (2014, The MIT Press), and he has developed multiple novel causal discovery algorithms for complex types of observational and experimental data. Danks is the recipient of a James S. McDonnell Foundation Scholar Award, as well as an Andrew Carnegie Fellowship. He received an A.B. in Philosophy from Princeton University, and a Ph.D. in Philosophy from the University of California, San Diego.

Karina W. Davidson

Member

Karina W. Davidson is senior vice president of research, dean of academic affairs, and head of a new center focused on behavioral and cardiovascular health research at the Feinstein Institute for Medical Research at Northwell Health. She is also the endowed Donald and Barbara Zucker professor in health outcomes in the Department of Medicine at the Zucker School of Medicine at Hofstra University/Northwell Health. Her research focuses on innovations in personalized trials to manage chronic disease and patient symptoms that incorporate patient preferences and values. She has identified important psychosocial risk factors for incident and recurrent cardiac events and mortality, and the physiological and behavioral mechanisms by which that risk is conferred. She has also conducted health care system research on providing better health care. She formed and is the past chair of the Evidence-Based Behavioral-Medicine committee, a task force charged by seven national and international societies with improving and implementing evidence-based principles within behavioral medicine. She has a Ph.D. in clinical health psychology from the University of Waterloo in Canada.

Catherine A. Hartley

Member

Catherine Hartley is an associate professor of psychology and neural science at New York University. Her research focuses on characterizing the changes in cognitive representations and computations that inform learning and decision-making across development, and how dynamic changes in brain circuits give rise to these processes. A goal of her research is to understand the costs and benefits associated with how individuals learn and make decisions at different developmental stages, as well as how specific learning and decision-making biases contribute to psychological vulnerability or resilience. She sits on the board of the Society for Neuroeconomics, the Social Affective Neuroscience Society, and the Flux Society, and is a fellow of the Association for Psychological Science. She received her B.S. in symbolic systems from Stanford University, her Ph.D. in psychology from New York University, and conducted her postdoctoral training at the Sackler Institute for Developmental Psychobiology at Weill Cornell Medicine.

Mark A. Musen

Member

Mark A. Musen (NAM) is a professor of biomedical informatics at Stanford University, where he is the director of the Stanford Center for Biomedical Informatics Research. He conducts research related to open science, data stewardship, intelligent systems, and biomedical decision support. His group developed Protégé, the world's most widely used technology for building and managing terminologies and ontologies. He is principal investigator of the National Center for Biomedical Ontology. He is a principal investigator of the Center for Expanded Data Annotation and Retrieval. He has chaired the Health Informatics and Modeling Topic Advisory Group for the World Health Organization (WHO)'s revision of the International Classification of Diseases (ICD-11) and directs the WHO Collaborating Center for Classification, Terminology, and Standards at Stanford University. He has been elected to the American College of Medical Informatics, the Association of American Physicians, the International Academy of Health Sciences Informatics, and the National Academy of Medicine. He is founding co-editor-in-chief of the journal Applied Ontology. He received his Ph.D. in medical information sciences at Stanford University.

Vimla L. Patel

Member

Vimla Patel is a senior research scientist and director of the Center for Cognitive Studies in Medicine and Public Health at the New York Academy of Medicine. Previously, she was a professor of medicine and the director of Cognitive Science Center at McGill University. Her early research focused on scientific foundations for medical and health education, particularly in cognitive foundations of medical decision-making. She is an elected fellow of the Royal Society of Canada (Academy of Social Sciences), the American College of Medical Informatics, and the New York Academy of Medicine, and she is a recipient of the Swedish Woman of Science award. She is an associate editor of the Journal of Biomedical Informatics and sits on the editorial boards of Intelligence-based Medicine and Advances in Health Science Education. She has a Ph.D. in educational and cognitive psychology from McGill University.

Frank Puga

Member

Frank Puga is an assistant professor in the Department of Acute, Chronic and Continuing Care at the University of Alabama at Birmingham (UAB). He investigated functional networks of information processing and sensory gating using animal models and Pavlovian learning paradigms. This work provided the foundation for his interest in biobehavioral research methods to understand contextual factors that impact stress and learned behavior. His post-doctoral training focused on neuroendocrine processes underlying stress and learned behavior in animal models. His current work at UAB focuses on aging and mental health. He is nationally known for his work in depression and anxiety among dementia caregivers. He received his Ph.D. in psychology from the University of Texas at Austin.

Carla Sharp

Member

Carla Sharp is a professor of psychology and interim associate dean for faculty and research at the University of Houston (UH). She also directs the Developmental Psychopathology Lab at UH. Her main research focus is on social cognition as it relates to disorders of interpersonal relatedness in children and adolescents, with a special interest in borderline personality disorder. Her books include Social Cognition and Developmental Psychopathology, and the Handbook of Borderline Personality Disorder in Children and Adolescents. She is currently focused on the metastructure of psychopathology to determine the cross-cutting value of social cognition in alternative models of personality pathology. She received her Ph.D. in clinical psychology from the University of Cambridge.

Timothy J. Strauman

Member

Timothy J. Strauman is a professor and former chair of the Department of Psychology and Neuroscience at Duke University and also professor of psychiatry and behavioral sciences in the Duke University School of Medicine. His research interests focus on the psychological and neurobiological processes of self-regulation, conceptualized in terms of a cognitive/motivational perspective, as well as on the relation between self-regulation and affect and how such processes might contribute to psychopathology. His lab's clinically focused research includes the development and validation of a new self-regulation - based therapy for depression, self-system therapy, and the use of neuroimaging techniques to examine the mechanisms of action of treatments for depression. He is a former president of the Academy of Psychological Clinical Science, a fellow of the Association for Psychological Science, a current member of the Board on Behavioral, Cognitive, and Sensory Sciences, and a founding fellow of the Academy of Cognitive Therapy. He has a Ph.D. in psychology from New York University.

Cui Tao

Member

Cui Tao is the Dr. Doris L. Ross professor of biomedical informatics and director of the Center for Biomedical Semantics and Data Intelligence at The University of Texas Health Science Center at Houston. Her background is in clinical informatics and computer science, and her research interests include ontologies, standard terminologies, semantic web, information extraction and integration, machine learning as well as applying these technologies to clinical and translational studies. She is a recipient of the Presidential Early Career Awards for Scientists and Engineers (PECASE), the highest honor bestowed by the United States Government on science and engineering professionals in the early stages of their independent research careers. She has Ph.D. in computer science from Brigham Young University.

James F. Woodward

Member

James F. Woodward is a distinguished professor in the Department of History and Philosophy of Science at the University of Pittsburgh. Previously, he was the J.O. and Juliette Koepfli professor of humanities at the California Institute of Technology and former president of the Philosophy of Science Association. His research covers a number of different areas, including theories of causation, explanation and inductive inference in general philosophy of science, philosophy of psychology, and philosophy of social science. His interests in psychology include the empirical psychology of causal learning and judgment; in this connection he is a participant in a multidisciplinary collaboration which explores the relation between formal theories of causal inference and the inferences adults and children actually make. He also maintains an interest in moral psychology and the empirical study of human behavior in morally significant situations. He has Ph.D. from the University of Texas at Austin.