

# **The Role of Advanced Computation, Predictive Technologies, and Big Data Analytics Related to Food and Nutrition Research: A Workshop**

## **Committee**

### **Rodolphe Barrangou**

#### **Co-Chair**

Rodolphe Barrangou, Ph.D., is the T. R. Klaenhammer Distinguished Professor at North Carolina State University. Dr. Barrangou is focusing on the characterization of CRISPR-Cas systems, and their applications in bacteria, especially for the study and development of probiotics, including for genotyping, phage resistance, screening, genome editing and antimicrobials. He spent 9 years in R&D and M&A at Danisco and DuPont, and has been at NC State since 2013. For his CRISPR work, he received several international awards, notably the Canada Gairdner International Award, and was elected to the National Academy of Sciences, the National Academy of Engineering, and the National Academy of Inventors. Dr. Barrangou earned a B.S. in Biological Sciences from Rene Descartes University, France, a M.S. in Biological Engineering from the University of Technology in Compiègne, France, a M.S. in Food Science from NC State, a Ph.D. in Genomics from NC State and an MBA from the University of Wisconsin-Madison. Dr. Barrangou is also the former Chairman of the Board of Caribou Biosciences, a co-founder of Intellia Therapeutics, Locus Biosciences, TreeCo, Ancilia Biosciences and CRISPR Biotechnologies, an advisor to Inari Ag, Invaio, Provacus, Felix Biotech, the IGI, and the Editor in Chief of the CRISPR Journal.

### **Sharon I. Kirkpatrick**

#### **Co-Chair**

Sharon Kirkpatrick, Ph.D., is Associate Professor in the School of Public Health Sciences at the University of Waterloo. Dr. Kirkpatrick's research focuses on the intersections between nutrition, human and planetary health, equity, and policy, using a systems thinking lens. Much of her work is aimed at improving methodologies for measuring dietary patterns to foster robust evidence on how these patterns influence human and planetary health and how to promote healthy and sustainable eating practices. She is a member of the Canadian Institutes of Health Research Institute of Nutrition, Metabolism, and Diabetes Institute Advisory Board and the Health Canada Nutrition Science Advisory Committee. Dr. Kirkpatrick is a registered dietitian and holds a PhD in Nutritional Sciences (2008) and MHS in Community Nutrition (2002) from the University of Toronto, a BAsc in Applied Human Nutrition (2000) from the University of Guelph, and a BKin in Kinesiology (1996) from McMaster University.

## **Becca Jablonski**

### **Member**

Becca Jablonski, Ph.D., is the co-Director of the Food Systems Institute at Colorado State University, an Associate Professor in the Department of Agricultural and Resource Economics, and a 2022-2023 US-UK Fulbright fellow. Her research investigates the roles of cities in leveraging food policies to achieve progress towards sustainable development (e.g., food and nutrition security, farm and ranch viability, regional economic development, and environmental sustainability), highlighting tradeoffs of different policy approaches and interventions. Importantly, she pays particular attention to the geographic dimensions of impacts. To do this, she undertakes disciplinary research, large scale quantitative modeling projects, and leads engaged community processes. She works at local, regional, national, and international scales. Among other honors, Dr. Jablonski won the 2020 Distinguished Extension/Outreach Program Award from the Applied Agricultural Economics Association, and the U.S. Department of Agriculture's Abraham Lincoln Award (the U.S. Secretary of Agriculture's Honor Award). She holds a PhD from Cornell University. She was a 2019 speaker/participant in the National Academies Food Forum Workshop on Innovations in the Food System: Shaping the Future of Food.

## **Anant Madabhushi**

### **Member**

Anant Madabhushi, Ph.D., is the Robert W Woodruff Professor of Biomedical Engineering; and on the faculty in the Departments of Pathology, Biomedical Informatics, and Radiology and Imaging Sciences at Emory University. He is also a Research Health Scientist at the Atlanta Veterans Administration Medical Center. Dr. Madabhushi has authored more than 475 peer-reviewed publications and more than 100 patents issued or pending. He is a Fellow of the American Institute of Medical and Biological Engineering (AIMBE), and the Institute for Electrical and Electronic Engineers (IEEE) and the National Academy of Inventors (NAI). His work on "Smart Imaging Computers for Identifying lung cancer patients who need chemotherapy" was called out by Prevention Magazine as one of the top 10 medical breakthroughs of 2018. In 2019, Nature Magazine hailed him as one of 5 scientists developing "offbeat and innovative approaches for cancer research". Dr. Madabhushi was named to The Pathologist's Power List in 2019, 2020, 2021 and 2022.

## **Carmen Tekwe**

### **Member**

Carmen Tekwe, Ph.D., is an associate professor of biostatistics in the Department of Epidemiology and Biostatistics at Indiana University in Bloomington. She was a postdoctoral fellow and an assistant professor of biostatistics at Texas A&M University prior to joining Indiana University in 2019. Her research interests include developing statistical methodology to better assess big data such as wearable-device-based measures, dietary intake surveys, and radiation risk assessments. She is the PI of an NIDDK-funded R01 focused on statistical methods for measurement error correction in device-based measures of physical activity and self-reported dietary intake. She recently served as a consultant to the Committee on Dietary Reference Intakes Working Group at the National Academy of Sciences, Engineering, and Medicine. She is a scientific committee member of The National Council on Radiation Protection and Measurements Scientific Committee 1-28. She currently serves as a member of the Scientific Leadership Council for the Institute for the Advancement of Food and Nutrition Sciences, an associate editor for *Statistics in Medicine*, and an ad hoc grant reviewer for the NIH. She received both her bachelor's and Master's degrees in statistics from the University of Florida and earned her doctoral degree in biostatistics from the University at Buffalo in 2011.

## **Diana Thomas**

### **Member**

Diana M. Thomas received her Ph.D. from the Georgia Institute of Technology in 1996. She then completed a National Research Council funded post-doctoral fellowship at the United States Military Academy and the Army Research Laboratory. In 2000, she joined the faculty of the Montclair State University where she was a professor of mathematics and the director of the Montclair State University Center for Quantitative Obesity Research. Dr. Thomas is currently a professor of mathematical sciences at the United States Military Academy at West Point. Dr. Thomas has been an active research mathematician for over 25 years with a focus on nutrition and obesity related modeling. She is an associate editor for the world's top ranked journal for original research in nutrition, the *American Journal of Clinical Nutrition* and co-edits the series "Best (but oft-forgotten) practices", which consists of methodologic commentaries or statistical tutorials. Dr. Thomas is currently the PI of the Artificial Intelligence, Data Engineering & Machine Learning (AIDE-ML) Center for the Nutrition for Precision Health Consortium which she serves as a co-chair for the Steering Committee. She has held governance positions in the Obesity Society, the American Society of Nutrition, and the Mathematical Association of America.