Toward Trustworthy Human-centered Behavioral Machine Intelligence

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Converging technological advances in sensing, machine learning and computing offer tremendous opportunities for continuous contextually rich yet unobtrusive multimodal, spatiotemporal characterization of an individual's behavior and state, and of the environment within which they operate. This in turn is enabling novel possibilities for understanding and supporting various aspects of human-centered applications notably in psychological health and well-being. This talk will highlight some of the advances in behavioral machine intelligence—technology and algorithms for quantitatively and objectively understanding typical, atypical and distressed human behavior—with a specific focus on communicative, affective and social behavior. Examples will be drawn from health diagnostics and treatment use cases for domains such as autism spectrum disorder, relationship distress, addiction, depression and workplace behavior. It will also discuss the challenges and opportunities in creating trustworthy signal processing and machine learning approaches that are inclusive, equitable, robust, safe and secure e.g., with respect to protected variables such as gender/race/age/ability etc.

Biography of the Speaker:

Shrikanth (Shri) Narayanan is University Professor and Niki & C. L. Max Nikias Chair in Engineering at the University of Southern California, where he is Professor of Electrical & Computer Engineering, Computer Science, Linguistics, Psychology, Neuroscience, Pediatrics, and Otolaryngology—Head & Neck Surgery, Director of the Ming Hsieh Institute and Research Director of the Information Sciences Institute. Prior to USC he was with AT&T Bell Labs and AT&T Research. His research focuses on human-centered information processing and communication technologies. He is a Guggenheim Fellow, member of the European Academy of Sciences and Arts, and a Fellow of the National Academy of Inventors, the Acoustical Society of America, IEEE, ISCA, the American Association for the Advancement of Science (AAAS), the Association for Psychological Science, the Association for the Advancement of Affective Computing (AAAC) and the American Institute for Medical and Biological Engineering (AIMBE). He is a recipient of several honors including the 2015 Engineers Council's Distinguished Educator Award, a Mellon award for mentoring excellence, the 2005 and 2009 Best Journal Paper awards from the IEEE Signal Processing Society and serving as its Distinguished Lecturer for 2010-11, a 2018 ISCA CSL Best Journal Paper award, and serving as an ISCA Distinguished Lecturer for 2015-16, Willard R. Zemlin Memorial Lecturer for ASHA in 2017, and the Ten Year Technical Impact Award in 2014 and the Sustained Accomplishment Award in 2020 from ACM ICMI. He has published over 1000 papers and has been granted eighteen U.S. patents. His research and inventions have led to technology commercialization including through startups he co-founded: Behavioral Signals Technologies focused on the telecommunication services and AI based conversational assistance industry and Lyssn focused on mental health care delivery, treatment and quality assurance. He served as the inaugural Vice President–Education for the IEEE Signal Processing Society 2020-22.