Título: Behavioral Signal Processing: Enabling human-centered behavioral informatics

Ponente: Shrikanth Narayanan
Breve resumen: New sensing, communication and computing technologies provide data that carries crucial information about a person's intent, identity and trait but also underlying attitudes and emotions.
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Información extendida:

Behavioral Signal Processing: Enabling human-centered behavioral informatics

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The confluence of sensing, communication and computing technologies is allowing capture and access to data, in diverse forms and modalities, in ways that were unimaginable even a few years ago. These include data that afford the analysis and interpretation of multimodal cues of verbal and non-verbal human behavior to facilitate human behavioral research and its translational applications. They carry crucial information about a person's intent, identity and trait but also underlying attitudes and emotions. Automatically capturing these cues, although vastly challenging, offers the promise of not just efficient data processing but in tools for discovery that enable hitherto unimagined scientific insights, and means for supporting diagnostics and interventions.

Recent computational approaches that have leveraged judicious use of both data and knowledge have yielded significant advances in this regards, for example in deriving rich, context-aware information from multimodal signal sources including human speech, language, and videos of behavior. These are even complemented and integrated with data about human brain and body physiology.   This talk will focus on some of the advances and challenges in gathering such data and creating algorithms for machine processing of such cues. It will highlight some of our ongoing efforts in Behavioral Signal Processing (BSP)—technology and algorithms for quantitatively and objectively understanding typical, atypical and distressed human behavior— with a specific focus on communicative, affective and social behavior. The talk will illustrate Behavioral Informatics applications of these techniques that contribute to quantifying higher-level, often subjectively described, human behavior in a domain-sensitive fashion. Examples will be drawn from mental health and well being realms such as Autism Spectrum Disorders, Couple therapy, Depression and Addiction counseling.

Biography of the Speaker:
Shrikanth (Shri) Narayanan is Andrew J. Viterbi Professor of Engineering at the University of Southern California, where he is Professor of Electrical Engineering, and jointly in Computer Science, Linguistics, Psychology, Neuroscience and Pediatrics, and Director of the Ming Hsieh 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 Fellow of the Acoustical Society of America, IEEE, and the American Association for the Advancement of Science (AAAS).

Shri Narayanan is Editor in Chief for IEEE Journal on Selected Topics in Signal Processing, an Editor for the Computer, Speech and Language Journal and an Associate Editor for the IEEE Transactions on Affective Computing, the Journal of Acoustical Society of America, and the APISPA Transactions on Signal and Information Processing having previously served an Associate Editor for the IEEE Transactions of Speech and Audio Processing (2000-2004), the IEEE Signal Processing Magazine (2005-2008) and the IEEE Transactions on Multimedia (2008-2012). He is a recipient of several honors including the 2015 Engineers Council's Distinguished Educator Award, the 2005 and 2009 Best Transactions Paper awards from the IEEE Signal Processing Society and serving as its Distinguished Lecturer for 2010-11, and as an ISCA Distinguished Lecturer for 2015-16. With his students, he has received a number of best paper awards including a 2014 Ten-year Technical Impact Award from ACM ICMI and Interspeech Challenges in 2009 (Emotion classification), 2011 (Speaker state classification), 2012 (Speaker trait classification), 2013 (Paralinguistics/Social Signals), 2014 (Paralinguistics/Cognitive Load) and in 2015 (Non-nativeness detection). He has published over 650 papers and has been granted 17 U.S. patents.