



**IEEE Circuits and System Society CAS Distinguished Lecture
IEEE SSCS/CASS Atlanta Joint Chapter Seminar**

Title: Large Area Conformable Electronic Skin

Speaker: Professor Ravinder Dahiya

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Abstract: The miniaturization led advancements in microelectronics over 50 years have revolutionized our lives through fast computing and communication. Recent advances in the field, pursued through More than Moore technology, are propelled by applications such as robotics, wearable systems, and healthcare. Often, these applications require electronics to conform to 3D surfaces and this calls for new methods to realize devices on unconventional substrates such as plastics. The sensitive electronics systems on large areas and possibly stretchable substrates will open new avenues for advances such as robots with conformable electronic skin. This lecture will present various approaches (over different time and dimension scales) to obtain distributed electronics and sensors on flexible and conformable substrates, especially in context with tactile or electronics skin. The lecture will begin with recent developments such as using off-the-shelf sensors and electronic components on flexible printed circuit boards to obtain large area tactile skin for robots and wearable systems. This will be followed by various other alternatives (e.g. printing of nanowires, and ultra-thin chips, etc.) currently being explored for tactile skin. The lecture will also discuss how the field and associated technologies may evolve in the future with new emerging applications such as internet of things, smart cities and mobile health.

Speaker Biography: Dr. Ravinder Dahiya is Reader and EPSRC (Engineering and Physical Science Research Council) Fellow in the School of Engineering at University of Glasgow, UK. He is Director of Electronics Systems and Design Centre (ESDC) in the University of Glasgow. He is the leader of Bendable Electronics and Sensing Technologies (BEST) group, which conducts fundamental research on high-mobility materials based flexible electronics and electronic skin, and their application in robotics, prosthetics and wearable systems. His multidisciplinary research interests include Flexible and Printable Electronics, Electronic Skin, Robotic Tactile Sensing, and Wearable Electronics. He has published more than 150 research articles, 4 book (3 at various publication stages) and 9 patents (including 7 submitted). He has led many international projects including those funded by European Commission, EPSRC, The Royal Society and The Royal Academy of Engineering. He is the Distinguished Lecturer of IEEE Sensors Council and is on the Editorial Boards of Scientific Reports, IEEE Transactions on Robotics and IEEE Sensors Journal. He has been guest editor of 5 Special Journal Issues. He was General Chair of IEEE PRIME 2015 and is the Technical Program Chair (TPC) for 2017 and 2018 IEEE Sensors Conferences in Glasgow and N. Delhi respectively.

Dr. Dahiya holds prestigious EPSRC Fellowship. In past, he received Marie Curie Fellowship and Japanese Monbusho Fellowship. He was awarded with the University Gold Medal and received 2 best paper awards and 2 second best paper awards (as co-author) in IEEE international conferences. He received International Association of Advanced Materials (IAAMM) Medal for the year 2016, the 2016 Microelectronic Engineering Young Investigator Award, and 2016 IEEE Sensor Council Technical Achievement Award. In 2016 he was included in list of Scottish 40UNDER40.

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Twitter: @RavinderSDahiya

TEDx talk: 'Animating the Inanimate World' (<https://www.youtube.com/watch?v=h7yY7ExYAB4>)

Seminar Time: 1:30PM-3:00PM on March 17th 2017 **Seminar Location:** TSRB 509, Georgia Tech

Organizer: Dr. Hua Wang, IEEE SSCS/CASS Atlanta Joint Chapter Chair, Assistant Professor, School of ECE, Georgia Technology. Email: hua.wang@ece.gatech.edu. Phone: (404) 385-6003