Department of **Materials Science & Engineering** seminar series 2019

SenSearch: A Predictive Sensor Search Engine for Performance Customization of Micro-pyramidal E-skin

Speaker: Yao Haicheng

Department of Materials Science and Engineering, Engineering, NUS, Singapore

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Venue: EA-06-03

Abstract

Skin-like sensing ability is important for the development of prosthesis and robotics. Recent research is interested in exploring electronic skin (e-skin) sensors to create similar sensing capabilities. Having predictable pressure-induced electro-mechanical response is paramount for advanced sensing functions. Moreover, various sensing demands require tunable performances in sensor designs. Therefore, the ability to customize tactile sensors with desirable performances is essential. In this work, we propose a - SenSearch - system to achieve the customization of micropyramidal tactile sensors through functional materials platforms. We carry out single-pyramid level investigations on effects of geometrical parameters and material properties on adjustable sensor performances. The investigations include numerical simulations, empirical characterizations and analytical solutions. The precise design of each micropyramid allows for the rapid optimization of sensor performances in relation to varying structures and materials properties. The provision of design guidelines of e-skin sensors is critical for applications such as robotic skins, advanced prosthetics and human-machine interface devices.

The speaker received his bachelor's degree in University of Electronic Science and Technology of China (UESTC). He is currently a PhD candidate in Department of MSE. His current research is focusing on designing flexible tactile sensors for robotics and human-machine interface applications.

ALL ARE WELCOME!

Host: A/P Xue Junmin