

IEEE-EDS Chapter in New South Wales

Monday 25 Oct 2021, 2:00 pm – 3:00 pm.

Please register by clicking here: [Register](#)

Registered attendees will be sent a weblink via email prior to the webinar

Topic: **Multispectral Image Sensors using Metasurfaces**

Abstract: Since the first colour digital camera came on to the market in the 20th century, image sensor research has enjoyed a boom time. The image sensor is an essential part of any camera and serves to convert the optical signal to digital. This digital signal can be then further processed for colour reconstruction, resulting in a colour image. Multispectral cameras extend the concept of conventional colour cameras to capture images with multiple colour bands and with narrow spectral passbands. Images from a multispectral camera can extract significant amount of additional information way beyond the capability of the human eye or even a normal camera. Thus, they have important applications across a wide range of domains such as precision agriculture, forestry, medicine, and object identification and classification. In my talk, I will present how metasurfaces are opening up a range of new design possibilities in the domain of multi-spectral imaging systems and will connect our research to two start-ups came up from the multispectral research.



Dr. Ranjith R Unnithan is a Research Group Leader and Senior Lecturer at the Department of Electrical and Electronic Engineering at University of Melbourne. He is also Director of sensor research at Hort-Eye Pty Ltd. His research areas span novel multispectral image sensors, AR displays, sensor electronics for biomedical applications, drone-based sensors and applications, multispectral thermal image cameras and nanophotonic engineering. Ranjith successfully completed his PhD in Electrical Engineering from the University of Cambridge in November 2011. Following completion of his PhD, Ranjith worked as a postdoctoral researcher and project manager in the Electrical Engineering Department at the University of Cambridge on a Samsung Electronics project.

His career started as Scientist/Engineer at Indian Space Research Organization, Bangalore. He was involved in India's first mission to moon "Chandrayaan-1". He was awarded with Young Scientist award by His Excellency, The President of India for his contributions. Ranjith has a great passion for innovation and Entrepreneurship. Ranjith has won the Transurban Innovation Competition in 2017 and the news appeared in "The Australian." He won two innovation competitions from Cambridge University Entrepreneurs in 2011 that The Cambridge Elevator news reported his two ideas as "25 Cambridge technologies that could change the world." He also won CambridgeSens innovation awards both in 2009 and 2010. Ranjith received more than 25 grants and research contracts in the last six years from Government, industries and Defence. During 2017 – 2019, Ranjith has co-founded two start-up companies based on his research on imaging sensors. Ranjith received Dean's Research Excellence award and EMI Emerging Leader Award from University of Melbourne in 2019 and 2020 respectively.

For all inquiries related to this event, please contact Dr Yang Yang (yang.yang-1@uts.edu.au)