

## SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING  
COLLEGE OF DESIGN AND ENGINEERING

Website: <https://cde.nus.edu.sg/ece>

**Area: Integrated Circuits & Embedded System**

**Host: Dr Karim Ali Abdeltawwab Ahmed**

<b>TOPIC</b>	:	<b>Ultra-Low Power Vision Sensors To Make Invisible Visible</b>
<b>SPEAKER</b>	:	<b>Kalingage Udara Samurdhi Harshanga Graduate Student, ECE Dept, NUS</b>
<b>DATE</b>	:	<b>Friday, 27 May 2022</b>
<b>TIME</b>	:	<b>2.00PM to 2.30PM</b>
<b>WEBINAR</b>	:	<b>Join Zoom Meeting</b> <a href="https://nus-sg.zoom.us/j/85898897020?pwd=QWVhMTFvaU1wNlkrYWJhYmdwazBqUT09">https://nus-sg.zoom.us/j/85898897020?pwd=QWVhMTFvaU1wNlkrYWJhYmdwazBqUT09</a> <b>Meeting ID: 858 9889 7020</b> <b>Passcode: 699273</b>

### ABSTRACT

A standard image sensor mimics the front end of the biological visual sensor by detecting and encoding intensity and wavelength of light, which can be interpreted qualitatively as brightness and colour. Even though high-resolution image sensors are commonly available today, the performance is limited in terms of sensitivity, dynamic range, and power consumption when compared with the human visual system. Furthermore, phenomenon such as polarization enables some animals like crustaceans, arthropods, insects, and aquatic creatures to detect characteristics of light invisible to human eyes. These characteristics include details about the material and shape of the imaged object. At present, most of the research work is focused on embedding polarization on chip. However, the available polarization image systems use either bulky optical setups or wire grids, whose extinction ratios are limited due to the minimum metal pitch allowed in the standard CMOS process.

### BIOGRAPHY

Udara received her BTech (Hons) in Electronics and Communication Engineering from the Jawaharlal Nehru Technological University Anantapur and MSc (Hons) in Integrated Circuit Design Engineering from the Hong Kong University of Science and Technology. She is currently pursuing her PhD with the Green IC group at National University of Singapore. Her research interest is on design of ultra-low power intelligent vision nodes for sensing, selecting, and computing.

<https://cde.nus.edu.sg/ece/highlights/events/>