

Spring school at Macquarie University, Sydney

Title: Smart Sensors, ML and AI: Remote Monitoring During Challenging Times

Organizer: Prof. Subhas Mukhopadhyay, Chair, IEEE Sensors Council New South Wales Chapter (Subhas.Mukhopadhyay@mq.edu.au)

Sponsors: IEEE Sensors Council, IEEE New South Wales Chapter, IEEE NSW Section, School of Engineering Macquarie University, NSW 2109, Australia

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<https://scholar.google.com/citations?user=bpwXxYEAAA&hl=en>

Introduction: The main focus of 2022 IEEE sensors council's spring school is on smart sensors based remote monitoring which includes health, city and environmental parameters. The lectures will concentrate on the applications of different sensors as well as intelligent computing (machine learning and AI) and applications of internet of things. The first day will have a series of lectures on the research trends of sensor, machine learning, artificial intelligence and internet of things today and in the future. **The 2nd day will be on hands-on experimental activities where the participants will make IoT based system starting from sensors, interfacing to embedded processor, wireless communication, uploading data to cloud, data visualization and machine learning.** The 2022 IEEE sensors council's Spring school, to be held on September 19-20, 2022 and will be hosted by School of Engineering, Macquarie University, Sydney, Australia.

Plan of the school: All are in Sydney (Australia) time

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September 19, 2022 (Room: Via zoom)			
Time	Name	Affiliation	Tentative Title
2:0pm to 2:15pm	Prof. Subhas Mukhopadhyay	DL, IEEE SC Macquarie University	Introduction of IEEE Sensors Council and the Spring School
2:15pm to 3:0pm	Prof. Subhas Mukhopadhyay	DL, IEEE SC Macquarie University	Smart sensors and IoT for Health, City and Environmental Monitoring
3:0pm to 4:0pm	Prof. Maryam Shojaei	DL, IEEE SC IIT- Bombay, Powai, Mumbai, India	Sub-100 ppm Auto-calibrated Fiftyfold Range Resistive Sensor Measurement ASIC and System
4:0pm to 5:0pm	Prof. Sanket Goel	AE, IEEE SJ BITS Pilani Hyderabad, India	IoT and ML Enabled Multiplexed Platform for Onsite Measurement of Water Quality Indicators
5:0pm to 6:0pm	Prof. Bobby George	AE, IEEE SJ IIT Madras, Chennai, India	Smart Electronic Interfacing Circuits for Capacitive Sensors
6:0pm to 7:0pm	Prof. Arokia Nathan	DL, IEEE SC	Ultra Low Power Sensor Interfaces for IoT

		University of Cambridge Cambridge, United Kingdom	
7:0pm to 8:0pm	Prof. Pantelis Georgiou	DL, IEEE SC Imperial College London, UK	Microchip Technology enabling Rapid Diagnostics for Infectious Diseases – From AMR to COVID-19
8:0pm to 9:0pm	Prof. Thomas Thundat	DL, IEEE SC Empire Innovation Professor University at Buffalo NY, USA	Delivering Electrical Power to Distributed MEMS Sensors for Battery-free Operation
September 20, 2022 (Room: 9WW 234/235/237, School of Engineering, Macquarie University)			
Time	Activities		
Morning Tea break 9:30am to 10:0am			
10:00am to 12:00pm	Basic introduction of IoT project. Arduino & Raspberry pi setup and programming it for sensor interfacing. Inter device communication and transmission of data.		
Lunch break 12:00pm to 1:0pm			
1:0pm to 2:30pm	Uploading data to cloud using LoRa and WiFi. Development of API.		
Afternoon Tea break 2:30pm to 3:0pm			
3:0pm to 4:0pm	Data Visualization and Machine learning		

Registration link for Day#1, September 19, 2022

<https://events.vtools.ieee.org/m/319410>

Registration link for Day#2, September 20, 2022

<https://events.vtools.ieee.org/event/register/319499>

Zoom link for Sep 19, 2022 02:00 PM Sydney

<https://macquarie.zoom.us/j/83659079311>

<https://macquarie.zoom.us/u/keo9ZPXEUk>