# **Technical Program**

Fifteenth International Conference on Sensing Technology (ICST'15)

## December 5 to 7, 2022

## Macquarie University, Sydney

## Australia



## with supports from







### Venue:



### The conference will be held at 14SCO, T4 and T5 (12WW)

### **Internet access:**

**Network Name: Macquarie Events** 

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### Programme at a glance: All times are based in Sydney, Australia

Monday, December 5		
09:00-09:30	Opening Session @ 14 SCO T5	
09:30-10:00	Morning Tea	
10:00-10:50	Session: S1: Keynote#1 @ 14 SCO T5	
11:00-12:30	Session S2A: Capacitive Sensors @ 14 SCO T5 Session S2B: IOT and IIOT @ 14 SCO T4	
12:30-13:30	Lunch	
13:30-15:00	Session 3B: Sensors Data Processing @ 14 SCO T5 Session S3A: Bio, Chemical and Wearable Sensors @ 14 SCO T4	
15:00-15:30	Afternoon Tea	
15:30-17:00	Session S4A: Emerging Sensors-I via Zoom_Session #1 @ 14 SCO T5	
	Session S4B: Sensors for Robotic and Industrial Applications @ 14 SCO T4	
Tuesday, December 6		
09:30-10:00	Morning Tea	
10:00-10:50	Session S5: Keynote#2 @ 14 SCO T5	
11:00-12:30	Session S6A: Sensors for Novel Applications @ 14 SCO T5 Session S6B: Optical, Quantum and Space Sensors @ 14 SCO T4	

12:30-13:30	Lunch
13:30-15:00	Session S7A: <i>Emerging Sensors-II via Zoom Session#2</i> @ 14 SCO T5 Session S7B: <i>Where is ALL Water?</i> @ 14 SCO T4
15:00-15:30	Afternoon Tea
15:30-17:00	Session S8A: Emerging Sensors-III via Zoom Session#3 @ 14 SCO T5 Session S8B: Smart Sensing and Sensor Interfacing @ 14 SCO T4
18:30-22:00	Banquet Dinner at MGSM Hotel, Macquarie University

### Wednesday, December 7, 2022

9:30 - 10:00AM: Morning Tea

10:00AM to 12:00PM: @ 14 SCO T5

**Best PhD Thesis Award presentation** 

### **IEEE Sensors Council NSW Chapter event**

12:00 - 13:00PM: Lunch

13:00PM to 14:00PM: Field Trip

**Macquarie University Library Book Archival Robot** 

Macquarie University OptoFab Research Centre

14:30PM to 15:00PM @ 14 SCO T5

Award announcement and Closing Ceremony

### Monday, December 5, 2022

### 9:00 - 9:30AM: Opening Session

### 9:30 - 10:00AM: Morning Tea

### 10:00 - 10:50AM: Session: S1 Keynote#1 @14SCO T5

#### Chair: Prof. Subhas Chandra Mukhopadhyay, Macquarie University, Australia

**Speaker:** Prof Julien Epps, Head of the School of Electrical Engineering and Telecommunications, UNSW Sydney

**Title:** Understanding Human Tasks Using Wearable Physiological and Behavioural Sensors

Abstract: A day in your life can be described in terms of a series of broadly defined tasks: you begin a task, become loaded to some extent by the objects, movements, communication and/or mental challenges that comprise that task, then at some point you switch to a new task, and so on. However, existing methods for task load assessment are manual, post-hoc and subjective, and therefore impossible to scale for large numbers of users or to directly interface with computing systems. Recent activity in wearable sensing promises change, with the opportunity to position non-invasive near-field sensors directly where they are most useful for task analysis: near the eyes and mouth and fixed to the head. Head-mounted wearable sensors open up the prospect of continuous automatic analysis of physical and mental tasks and behaviour based on non-invasive signals such as speech, eye activity and body movement. This presentation focuses on key research problems and recent results, spanning the psychophysiological basis, feature extraction, feature variability, machine learning, and system design for continuous and robust automatic task analysis. Task analytics of this kind represent huge potential for individual users to empower themselves and interact more seamlessly with machines.

### 11:00AM - 12:30PM Session S2A: Capacitive Sensors @14SCO T5

## Chair: Dr. Satoshi Ikezawa, Tokyo University of Agriculture and Technology, Japan

**11:00 Micro Sized Interdigital Capacitor For Gases Detection Based On Graphene Oxide Coating** by Ignacio Vitoria (Public University of Navarre & Institute of Smart Cities, Spain); Dayron Armas, Carlos Coronel and Manuel Algarra (Public University of Navarre, Spain); Carlos Zamarreño (Public University of Navarra, Spain); Ignacio R. Matias (Universidad Pública de Navarra, Spain); Subhas Mukhopadhyay (Macquarie University, Australia)

**11:18 Capability Evaluation of Photothermal Frequency Modulation Technique for screening Defective of Surface-Mounted Capacitor** by Atsushi Yarai (Osaka Sangyo University, Japan)

**11:36 A Capacitive Cantilever-Based Flow Sensor** by Harija H (Indian Institute of Technology Madras, India); Kammula Sri Hari Charan (India); Boby George (Indian Institute of Technology Madras, India); Arun Tangirala (IIT Madras, India)

**11:54 RFID Enabled Humidity Sensing and Traceability** by Hafsa Anam, Subhas Mukhopadhyay, Iain B. Collings and Syed Muzahir Abbas (Macquarie University, Australia)

**12:12 A technology review on advanced soil water monitoring systems** by Waqas Ahmed Khan Afridi and Fowzia Akhter (Macquarie University, Australia)

### 11:00AM - 12:30PM Session S2B: IOT and IIOT @14SCO T4

Chairs: Dr. Fowzia Akhtar, Macquarie University, Australia and Dr. Tomohori Hu, NSSN, Australia

**11:00 Detecting Sensor Faults and Outliers in Industrial Internet of Things** by Anuroop Gaddam (Deakin University, Australia); Vinodha Govender (Worsley Alumina Pty Ltd, Australia)

**11:18 Coupled Monopole Antenna Array for IoT based Smart Home Devices and Sensors** by Ilyas Saleem (Macquaire University, Australia); Syed Muzahir Abbas and Subhas Mukhopadhyay (Macquarie University, Australia); Muhammad Ali Babar Abbasi (Queen's University Belfast & The Institute of Electronics, Communications and Information Technology (ECIT), United Kingdom (Great Britain))

**11:36 Wearable Sensors and Smart Clothing: Trends and Potentials** by Geethanjali Pai, Subhas Mukhopadhyay and Syed Muzahir Abbas (Macquarie University, Australia)

**11:54 Design, Development and Implementation of an IoT-enabled Sensing System for Agricultural Farms** by Brady Shearan, Fowzia Akhter and Subhas Mukhopadhyay (Macquarie University, Australia) **12:12 IoT-based Ambient Home Framework for Detecting and Classifying Smart Home Acoustic Events** by Sharnil Pandya (Linnaeus University, Sweden & Symbiosis Institute of Technology, India); Hemant Ghayvat (Linnaeus University, Sweden); Praveen Kumar Reddy (VIT, India); Thippa Reddy Gadekallu (Vellore Institute of Technology, India)

### 12:30PM - 13:30PM LUNCH

### 13:30 - 15:00PM Session S3A: Bio, Chemical and Gas Sensors @14SCO T5

Chair: Dr. Krishanthi Jayasundera, Macquarie University, Australia and Prof. Ignacio Matias, Public University of Navarra, Spain

**13:30 Fundamentals of bio-signal sensor design and development in medical applications** by Amir Shahbazi, Nasrin Afsarimanesh and Tele Tan (Curtin University, Australia); Ghobad Shafiei Sabet (DGUT-CNAM Institute Dongguan University of Technology, China); Gabriel Lee (St John of God Subiaco Hospital Western Australia, Australia)

**13:48 Integrated Platform for Microfluidics Based Cell Culture Applications** by Sohan Dudala, Satish Kumar Dubey and Arshad Javed (BITS Pilani, Hyderabad Campus & MEMS, Microfluidics & Nanoelectronics Lab, India); Aritz Ozcariz (Universidad Publica de Navarra Pamplona Spain, Spain); Ignacio R. Matias (Universidad Pública de Navarra, Spain); Sanket Goel (BITS Pilani, Hyderabad Campus, India)

**14:06 Wearable UV Detector for Real Time UV Index Monitoring** by Adnin Tazrih Natasha, Xiaohu Chen, Binesh Puthen Veettil and Noushin Nasiri (Macquarie University, Australia)

**14:24 Analysis of the SO Adsorption on Boron, Nitrogen and Phosphorous Doped Monolayer Silicene-A First Principle Study** by Sayan Kanungo (BITS PILANI HYDERABAD CAMPUS, BITS PILANI HYDERABAD CAMPUS & Materials Center for Sustainable Energy & Environment, India)

14:42 Microwave-assisted generation of secondary nanoparticles and flameassisted generation of an amorphous layer for improving NO2 gas sensing behaviors: A review by Sukwoo Kang, Ka Yoon Shin, Wansik Oum, Dong Jae Yu, Eun Bi Kim and Hyeong Min Kim (Hanyang University, Korea (South)); Alison Mirzaee (Shiraz University, Iran); Jin-Young Kim, Myung Sung Nam, Tae Un Kim and Myung Hoon Lee (Inha University, Korea (South)); Somalapura Bharath and Krishna Pawar (Hanyang University , Korea (South)); Sang Sub Kim (Inha University, Korea (South)); Hyoun Woo Kim (Hanyang University, Korea (South))

### 13:30 - 15:00PM Session 3B: Sensors Data Processing @14SCO T4

Chair: Dr. Ediz Cetin, Macquarie University, Australia

**13:30 AE-Sleep: An Adaptive Enhancement Sleep Quality System Utilizing Data Mining and Adaptive Model** by Thi Phuoc Van Nguyen (University of Southern Queensland, Australia); Minh-Son Dao (National Institute of Information and Communication Technology, Japan); Koji Zettsu (NICT, Japan)

**13:48 Semantically Processed Sensor Data in Health Care, Legislation Compliant, Ontologies** by Ollencio Rosario Jude D'Souza, Macquarie University, Australia

**14:06 Implementation of an Extrapolated Single-Propagation Particle Filter for Interference Source Localization using a Sensor Network** by Duc Dung Vu (Macquarie University, Australia); Sanat Biswas (IIIT Delhi, India); Alan Kan and Ediz Cetin (Macquarie University, Australia)

**14:24 A solution to polynomial unit commitment problems using nonlinear programming** by Takehito Azuma (Utsuminiya University, Japan)

**14:42 Space and Time data exploration of air quality based on PM10 sensor data in Greater Sydney 2015-2021** by Lakmini Wijesekara, Prathayne Nanthakumaran and Liwan Liyanage (Western Sydney University, Australia)

### 15:00 - 15:30PM: Afternoon Tea

### 15:30 - 17:00PM Session S4A: Emerging Sensors-I via Zoom\_Session #1 @14SCO T5

Chairs: Bansari Deb Majumder, Narula Institute of Technology, India and Sandeep Pirbhulal, Norwegian Computing Center, Norway

**15:30** An Insight into Anomalous Sensitivity Trends of Dielectric Modulated Field Effect Transistor Biosensors for DNA Detection by Sumeet Kalra (Indian Institute of Technology Delhi, India)

**15:48 Performance Analysis of Multiple Cavity Dielectric Modulated Tunnel FET Biosensor with High Detection Sensitivity** by Sumeet Kalra (Indian Institute of Technology Delhi, India)

**16:06 A Novel Carbon Paste Electrode for Convenient and Efficient Auditory Brainstem Response Acquisition: A Pilot Study** by Xin Wang and Qiong Tian (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China); Yangjie Xu (University of Luxembourg, Luxembourg); Mingxing Zhu (Harbin Institute of Technology, Shenzhen, China); Yingying Wang (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China); Yuchao He (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China); Shixiong Chen and Zhiyuan Liu (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China); Guanglin Li (SIAT, China)

**16:24 Vertical Trajectory Analysis using QR Code Detection for Drone Delivery Application** by Avishkar Seth (Macquarie University, Australia); Alice James (Macquarie University, NSW, Australia); Subhas Mukhopadhyay, Endrowednes Kuantama and Richard Han (Macquarie University, Australia)

**16:42 Thermal Li-Ion Battery Management with Distributed Sensors on Cooling Foil Shields** by Valentin Mateev and Iliana Marinova (Technical University of Sofia, Bulgaria)

## 15:30 - 17:00PM Session S4B: Sensors for Robotic and Industrial Applications @14SCO T4

Chair: Hyoun Woo Kim, Hanyang University, South Korea

**15:30 ShiroNeko, a stationmaster robot that operates an unmanned station** by Mikiko Sode Sode Tanaka, Momi Konishita, Kantaro Baba and Subaru Zahido (International College of Technology, Japan)

**15:48 3D printed mould-based flexible sensors for tactile sensing applications** by Aniket Chakraborthy, Suresh Nuthalapati, Rico Escher and Anindya Nag (Technische Universität Dresden, Germany)

**16:06 Integrated Compound-eye Alvarez Metalens Array for Apposition Image Acquisition** by Hyo Adegawa (Tokyo University of Agriculture and Technology, Japan); Katsuma Aoki (Tokyo University of Agriculture and Technology, Japan); Satoshi Ikezawa and Kentaro Iwami (Tokyo University of Agriculture and Technology, Japan)

**16:24 A standalone millimeter-wave SLAM system for indoor search and rescue** by Huyue Wang and Kevin I-Kai Wang (The University of Auckland, New Zealand)

### Tuesday, December 6, 2022

### 9:30 - 10:00AM: Morning Tea

### 10:00 - 10:50AM: Session S5: Keynote#2 @14SCO T5

#### Prof Antonio Tricoli, University of Sydney, Australia

#### Chair: Dr. Noushin Nasiri, Macquarie University, Australia

Title: Engineering Multi-Scale Materials for Miniaturized Chemical and Bio-Sensing

**Abstract:** Design and integration of multi-scale materials in devices is required for the engineering of miniaturized portable sensors with application ranging from medical diagnostics to environmental monitoring and safety. Despite progress, achieving the required high selectivity and sensitivity is a standing challenge for many emerging applications. Here, we will introduce the promising design concepts for the miniaturization of chemical and bio-sensors based on the careful integration of multiscale composite material structures. Examples of successful designs will be given along the detection of biomarkers in liquid and gaseous environments, demonstrating the importance of both material composition and multi-scale structure on the resulting performance.

## 11:00AM - 12:30PM Session S6A: Sensors for Novel Applications @14SCO T5

Chair: Vijayakumar Sreenath, Indian Institute of Technology Palakkad, India

**11:00 Interference Mitigation via NMF for Radio Astronomy Applications: A Feasibility Study** by Felipe Barboza da Silva (Macquarie University & Federal University of Rio de Janeiro, Australia); Ediz Cetin (Macquarie University, Australia); Wallace Alves Martins (University of Luxembourg, Luxembourg); John Tuthill (CSIRO, Australia)

**11:18 Development of Compact Actuator for Direct Measurement of Skin Displacement in Ultrasonic Haptics** by Daisuke Mizushima and Daiki Sato (Aichi Institute of Technology, Japan)

**11:36 A Novel Electromagnetic Sensor for Soil Carbon Detection** by Fowzia Akhter, Krishanthi P. Jayasundera, Anil Nair, Ignacio Vitario, Waqas Afridi, Brady Shearan and Subhas Mukhopadhyay (Macquarie University, Australia) **11:54 Measuring Mueller Matrices of 'Zesy002' Kiwifruit Peel and Pericarp Slices** by Damenraj Rajkumar (University of Otago & The New Zealand Institute for Plant and Food Research Limited, New Zealand); Rainer Kunnemeyer (University of Waikato, New Zealand); Andrew McGlone (The New Zealand Institute for Plant and Food Research, New Zealand); Jevon Longdell (University of Otago, New Zealand)

**12:12 A Multimodal Approach for Early-Stage Parkinson's Disease Detection with Intricate Handwriting Kinematics** by Hemant Ghayvat (Linnaeus University, Sweden); Dhyan Thakkar and Rebakah Geddam (Institute of Technology Nirma University, India); Pooja Shah (Nirma University, India); Shivani Desai (Institute of Technology Nirma University, India); Hitesh Chhinkaniwala (Adani Institute of Infrastructure Engineering, Ahmedabad, India)

## 11:00AM - 12:30PM Session S6B: Optical, Quantum and Space Sensors @14SCO T4

Chair: Sayan Kanungo, BITS PILANI HYDERABAD CAMPUS, BITS PILANI HYDERABAD CAMPUS & Materials Center for Sustainable Energy & Environment, India

**11:00 Optical performance and UV detection properties of ZnO nanofilms using FDTD simulation** by Zachary Stosic, Xiaohu Chen, David Payne and Noushin Nasiri (Macquarie University, Australia)

**11:18 Towards Wide-band Laser Heterodyne Radiometer for Space Applications** by Vu Hoang Thang Chau (Macquarie University, Australia); James Bevington (Interplanetary Exploration Institute, Australia); Yiqing Lu and Ediz Cetin (Macquarie University, Australia)

**11:36 Development of loop animated full-color metasurface hologram high color reproduction** by Hiroki Saito, Satoshi Ikezawa, Masakazu Yamaguchi and Kentaro Iwami (Tokyo University of Agriculture and Technology, Japan)

**11:54 Multi-sensing platform design with a grating-based nanostructure on a coverslip substrate** by Ignacio R. Matias (Universidad Pública de Navarra, Spain); Ignacio Del Villar (Public University of Navarre, Spain); Jose J Imas (Universidad Publica de Navarra, Spain); Carlos Zamarreño (Public University of Navarra, Spain); Subhas Mukhopadhyay (Macquarie University, Australia)

**12:12 Quantifying the Known Unknowns: Estimating Water Take with Optical Remote Sensing and High-Resolution LiDAR DEMs** by Robert Day and Ivars Reinfelds (NSW Natural Resources Access Regulator, Australia)

### 12:30PM - 13:30PM LUNCH

### 13:30 - 15:00PM Session S7A: Emerging Sensors-II via Zoom Session#2 @14SCO T5

Chairs: Prof. Boby George, Indian Institute of Technology Madras, India and Prof. Nagender Kumar Suryadevara, University of Hyderabad, India

**13:30 Performance evaluation of interdigitated electrodes for electrochemical detection of nitrates in water** by Kartikay Lal, Tinu Thomas and Khalid M Arif (Massey University, New Zealand)

**13:48 Admittance-type Multifunctional Sensor based system and its Controller Design** by Bansari Deb Majumder and Sanghamitra Layek (Narula Institute of Technology, India); Joyanta Kumar Roy (Eureka Scientech Laboratory, India)

**14:06 A Wearable Microwave Technique for Early Detection of Acute Respiratory Distress Syndrome (ARDS)** by Adarsh Singh (IIEST, India); Sreetama Gayen (IIEST, Shibpur, India); Debasis Mitra (Indian Institute of Engineering Science and Technology Shibpur, India); Partha Basuchowdhuri (Assistant Professor, India); Bappaditya Mandal and Robin Augustine (Uppsala University, Sweden)

**14:24 Performance Analysis of Split Gate Schottky Barrier Tunnel FET Biosensor** by Sumeet Kalra (Indian Institute of Technology Delhi, India)

## 13:30 - 15:00PM Session S7B: Where is ALL Water? @14SCO T4

Chair: Don McCallum, NSSN, NSW, Australia

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### 15:30 - 17:00PM Session S8A: Emerging Sensors-III via Zoom Session#3 @14SCO T5

Chairs: Sumeet Kalra, Indian Institute of Technology Delhi, India, Joyanta Kumar Roy, University of Calcutta & System Advance Technologies Pvt. Ltd., India

**15:30 Acoustic Sensing in Microfluidic Cell** by Valentin Mateev and Iliana Marinova (Technical University of Sofia, Bulgaria)

**15:48 Development of a new Line Illumination for Industrial Hyperspectral Imaging Systems** by Thomas Arnold and Tibor Bereczki (Silicon Austria Labs GmbH, Austria); Dirk Balthasar (Silicon Austria Labs GmbH, Germany)

**16:06 A Cognitive Digital Twin Architecture for Cybersecurity in IoT-based Smart Homes** by Sandeep Pirbhulal and Habtamu Abie (Norwegian Computing Center, Norway); Ankur Shukla and Basel Katt (Norwegian University of Science and Technology, Norway)

**16:24 Development of a compact IR-ATR sensor for sugar content measurement in liquid foods** by Thomas Arnold, Tibor Bereczki, Dominik Holzmann, Federico Pittino and Barbara Oliveira (Silicon Austria Labs GmbH, Austria); Frans Starmans and Jürgen Holzbauer (Philips Domestic Appliances Austria GmbH, Austria); Roland Waldner (Philips Consumer Lifestyle Klagenfurt, Austria)

**16:42 Causality assessment for IIoT sensing system and Digital Twin** by RK Sanayaima Singh and Nagender Kumar Suryadevara (University of Hyderabad, India)

### 15:30 - 17:00PM Session S8B: Smart Sensing and Sensor Interfacing @14SCO T4

#### Chair: Dr. Anindya Nag, TU Dresden, Germany

**15:30 Fabrication of Linear Polarization-Separating Silicon Metalens at Long-Wavelength Infrared** by Noe Ishizuka (Tokyo University of Agriculture and Technology, Japan); Jie Li (Tamron Company Limited, Japan); Wataru Fuji (Tamron Co Ltd, Japan); Satoshi Ikezawa and Kentaro Iwami (Tokyo University of Agriculture and Technology, Japan)

**15:48** An Efficient Inductance-to-Digital Converter Insensitive to Coil Resistance of Differential Type Inductive Sensors by Narayanan P P and Vijayakumar Sreenath (Indian Institute of Technology Palakkad, India); R Rahul Raja, V Sowbaranic Raj and Karthi Balasubramanian (Amrita Vishwa Vidyapeetham & Amrita School of Engineering Coimbatore, India)

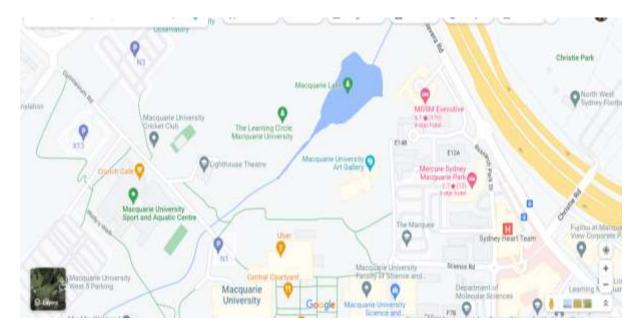
**16:06 Improved Interfacing Circuit for Planar Coil-Based Thin Angle Sensors** by A. S. Anil Kumar and Boby George (Indian Institute of Technology Madras, India); Subhas Mukhopadhyay (Macquarie University, Australia)

**16:24 A Novel Relaxation Oscillator based Single-Element Type Inductance-to-Time Converter** by Narayanan P P and Vijayakumar Sreenath (Indian Institute of Technology Palakkad, India); Venu Madhava Sai Jalakam and Kavya Preetha Sb (Amrita Vishwa Vidyapeetam & Amrita School of Engineering Coimbatore, India); Karthi Balasubramanian (Amrita Vishwa Vidyapeetham & Amrita School of Engineering Coimbatore, India)

### Tuesday, December 6 18:30 - 22:00PM

### **Banquet Dinner at MGSM Executive Hotel, Macquarie University**

### [Please note the venue is inside the university campus]



Wednesday, December 7, 2022

### 9:30 - 10:00AM: Morning Tea

10:00AM to 12:00PM: @14SCO T5

IEEE Sensors Council NSW Chapter event Best PhD Thesis Award presentation

12:00 - 13:00PM: Lunch

### 13:00PM to 14:00PM: Field Trip

Macquarie University Library Book Archival Robot Macquarie University OptoFab Research Centre

### 14:30PM to 15:00PM @14SCO T5

Award announcement and Closing Ceremony

### **Post Publications**

**#1: Special Issue "Selected Papers from the 15th International Conference on Sensing Technology"** 

MDPI Sensors https://www.mdpi.com/journal/sensors/special issues/SP15ICST

#2 A few selected papers will be asked to extend and submit for publication in the Smart Sensors, Measurement and Instrumentation series (SSMI) publishes new developments and advancements in the fields of Sensors. Instrumentation and Measurement technologies. The series focuses on all aspects of design, development, implementation, operation and applications of intelligent and sensors. sensor network. instrumentation and measurement smart methodologies. The intent is to cover all the technical contents, applications, and multidisciplinary aspects of the field, embedded in the areas of Electrical and Engineering, Robotics, Control, Mechatronics, Electronic Mechanical Engineering, Computer Science, and Life Sciences, as well as the methodologies behind them. Within the scope of the series are monographs, lecture notes, selected contributions from specialized conferences and workshops, special contribution from international experts, as well as selected PhD theses.

The link is -https://link.springer.com/bookseries/10617

#3 International Journal on Smart Sensing and Intelligent Systems (S2IS) is a rapid and high-quality international forum wherein academics, researchers and practitioners may publish their high-quality, original, and state-of-the-art papers describing theoretical aspects, system architectures, analysis and design techniques, and implementation experiences in intelligent sensing technologies. The journal publishes articles reporting substantive results on a wide range of smart sensing approaches applied to variety of domain problems, including but not limited to:

- Ambient Intelligence and Smart Environment
- Analysis, Evaluation, and Test of Smart Sensors
- Intelligent Management of Sensors
- Fundamentals of Smart Sensing Principles and Mechanisms
- Materials and its Applications for Smart Sensors
- Smart Sensing Applications, Hardware, Software, Systems, and Technologies
- Smart Sensors in Multidisciplinary Domains and Problems
- Smart Sensors in Science and Engineering
- Smart Sensors in Social Science and Humanity

The website of the journal is -<u>https://sciendo.com/pl/journal/IJSSIS</u>