



Thursday, 9 June

08:00 **Registration and Morning Coffee**

Main Hall

Chaired by: Ted Scully

09:00 **Welcome to ISSC 2022**

Lecture Hall IT1

Welcome

» Sean McSweeney

09:15 **Keynote #1 - Dr.Karen Weekes**

Lecture Hall IT1

10:00 **Keynote - Aoife Ni Mhuire - Machine Learning & AI**

Lecture Hall IT1

10:00 **Keynote- Professor Thomas Newe - Cyber Security**

Lecture Hall IT2

10:00 **Education and Training Programmes and opportunities in Manufacturing and Mechatronics in Europe.**

Lecture Hall IT3

10:45 **Track 1A - Machine Learning and AI**

Lecture Hall IT1

10:45 **FAIR Skin Lesion Classification Workflows using Transfer Learning**

» Mr. David Walshe, [Dr. Ruairí O'Reilly](#)

11:05 **Segmentation of Glioblastoma Via-Attention Neural Network**

» [Mr. WILLIAMS AYIVI](#), Prof. Liaoyuan Zeng, Mr. Sophyani Banaamwini Yussif, Ms. Judith Ayekai Browne, Mr. Victor Kwaku Agbesi, Mr. Francis Sam, Prof. Sean McGrath

10:45 **1B -Cyber Security**

Lecture Hall IT2

10:45 **Host-Based Intrusion Detection System for IoT using Convolutional Neural Networks**

» [Mr. Dominic Lightbody](#), Mr. Duc-Minh Ngo, Dr. Andriy Temko, Dr. COLIN MURPHY, Dr. Emanuel Popovici

11:05 **Fianán, Cuacha: Irish Cookie Banners**

» [Ms. Ashley Sheil](#), Prof. DAVID MALONE

11:25 **Tea and Coffee Break and Poster Session**

Main Hall

11:45 **Track 1C - Machine Learning & AI**

Lecture Hall IT1

11:45 **Hybrid Quantum Convolutional Neural Networks in TensorFlow Quantum**

» [Mr. Bishrelt Khurelsukh](#)

12:05 **Edge-enabled Federated Learning for Vision based Product Quality Inspection**

» [Dr. Sourabh Bharti](#), Dr. Alan McGibney, Mr. Tristan O'Gorman

12:25 **An Iterated Local Search Approach to the Container Pre-Marshalling Problem**

» [Mr. John Farrelly](#), Dr. Diarmuid Grimes



Continued from **Thursday, 9 June**

12:45 **An Ontology-Based System for Cancer Registry Data**
» [Ms. Shinead Casey](#), Dr. Pat Doody, Mr. Andrew Shields

11:45 **Track 1D - Signal Processing & AI**
Lecture Hall IT2

11:45 **Soft-Mask De-Mixing for Anechoic Mixtures**
» [Mr. Swarnadeep Bagchi](#), Dr. Ruairí de Fréin

12:05 **Equivalent Circuit Modelling of Fluxgate Sensors in Verilog-A**
» [Mr. Cian O'Donnell](#), Dr. Kafil Razeeb, Dr. Daniel O'Hare

12:25 **Re-Engineering of Undergraduate Analogue Electronics Laboratories during Covid-19**
» [Dr. Kevin McCarthy](#), Dr. COLIN MURPHY, Dr. Emanuel Popovici

12:45 **AI Techniques To Automatically Detect Standardized Functional Test Patterns From Wearable Sensor Data.**
» [Ms. Vini Vijayan](#), Dr. James Connolly, Dr. Joan Condell, Dr. Philip Gardiner, Dr. Nigel McKelvey, Dr. Finbar (Barry) O'Shea, Mr. Tom O'Dwyer, Ms. Megan O'Grady, Dr. Fiona Wilson

13:05 **Track 1B - Poster Teaser**
Lecture Hall IT2

13:25 **Lunch**
Main Hall

14:30 **Keynote - Dr. Deirdre Kilbane**
Lecture Hall IT1

14:30 **Keynote - Prof. John Ringwood - Control Signals**
Lecture Hall IT2

15:15 **Track 1E - Communications & Networks**
Lecture Hall IT1

15:15 **Smart Optical Beamforming for Next Generation Wireless Empowered Communications, Power Transfer, Sensing and Displays: Building on the Past**
» [Prof. Nabeel Riza](#)

15:35 **A New Method for Monitoring Local Channel Conditions in Wi-Fi Networks**
» [Ms. Luhan Wang](#), Prof. Mark Davis

15:55 **ML-Based Transmission Loss Estimation on Surveillance Radar Channels**
» [Mr. Roman Raekow](#), Ms. Julia Fichtner, Prof. Michael Kuhn, Dr. Bernd-Ludwig Wenning

15:15 **Track 1G - Control Systems**
Lecture Hall IT2

15:15 **Analysis of Geometric Deformations in Off-Road Vehicles Using Dynamic Reduction-Based Virtual Models**
» [Mr. Soumya Maulik](#), Mrs. Amruta Awasthi, Dr. Daniel Riordan, Prof. Joseph Walsh

15:35 **Artificial Pancreas Control for Diabetes using TD3 Deep Reinforcement Learning**
» Mr. Alan Mackey, [Dr. Eoghan Furey](#)

15:55 **Preliminary Investigations of the Validity and Interinstrument Reliability for Classification of Accelerometer Physical Activity Cut-Points Against Indirect Calorimetry in Healthy Adults**
» [Ms. Brid McDevitt](#), Dr. James Connolly, Mr. Damien Duddy, Dr. Ronan Doherty, Dr. Joan Condell



Continued from **Thursday, 9 June**

- 16:15 **Track 1H - Machine Learning & AI**
Lecture Hall IT1
- 16:15 **AVERT: An Automatic Verilog Testbench Generation Tool for Grammatical Evolution**
» [Mr. Jack McEllin](#), Dr. Richard Conway, Prof. Conor Ryan
- 16:35 **Extraction of Teletext Subtitles from Broadcast Television for Archival and Analysis**
» [Dr. David Laverty](#), Dr. John O'Raw
- 16:15 **1L -Signal Processing**
Lecture Hall IT2
- 16:15 **AFOM: ADVANCED FLOW OF MOTION DETECTION ALGORITHM FOR DYNAMIC CAMERA VIDEOS**
» [Ms. Ifeoluwapo Aribilola](#), Dr. Mamoon Asghar, Dr. Nadia Kanwal, Dr. Mohammad Samar Ansari, Dr. Brian Lee
- 16:35 **Automatic Speech Recognition for Irish: testing lexicons and language models**
» Dr. Mengjie Qian, Mr. Harald Berthelsen, [Mr. Liam Lonergan](#), Prof. Ailbhe Ní Chasaide, Dr. Andy Murphy, Ms. Claire O'Neill, Dr. Neasa Ní Chiaráin, Dr. Christer Gobl

Friday, 10 June

- 08:30 **Morning Tea and Coffee**
Main Hall
- 09:00 **Day 2 Welcome and Overview**
Lecture Hall IT1

- 09:15 **Keynote - Prof Huiru (Jane) Zheng - Machine Learning and AI**
Lecture Hall IT1
- 09:15 **Keynote - Prof. John Barrett - Cyber Physical Systems**
Lecture Hall IT2
- 10:00 **Track 2A - Machine Learning and AI**
Lecture Hall IT1
- 10:00 **FREQUENCY-CENTROID FEATURES FOR WORD RECOGNITION OF NON-NATIVE ENGLISH SPEAKERS**
» Mr. Pierre Berjon, Dr. RAJIB SHARMA, Dr. Avishek Nag, [Dr. Soumyabrata Dev](#)
- 10:20 **Generating Reality-Analogous Datasets for Autonomous UAV Navigation using Digital Twin Areas**
» [Mr. Thomas Lee](#), Dr. Susan Mckeever, Dr. Jane Courtney
- 10:40 **Load-Adjusted Prediction for Proactive Resource Management and Video Server Demand Profiling**
» [Mr. Obinna Izima](#), Dr. Ruairí de Fréin
- 11:00 **On the Application of Sentence Transformers to Automatic Short Answer Grading in Blended Assessment**
» [Ms. Abbirah Ahmed](#), Dr. Arash Joorabchi, Dr. Martin Hayes
- 10:00 **Session 2B - Cyber Physical Systems**
Lecture Hall IT2
- 10:00 **CMOS-Integrated High-Voltage Transformer for a Galvanically Isolated DC-DC Converter**
» [Dr. Pat Meehan](#), Dr. Karl Rinne



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- 10:20 **Zero-Power Wireless Strain and Permittivity Sensor**
» [Mr. kevin mcgee](#), Dr. Prince Anandarajah, Dr. David Collins
- 10:40 **An IoT System For Post-Myocardial Infarction Patients During Cardiac Rehabilitation (CR) In Indonesia**
» [Mr. sani salsabil](#), Dr. Sheila Fallon, Dr. Desmond Cawley, Dr. Paul Jacob
- 11:00 **Liquids Inspection via Visible to Near Infrared to Short-Wave Infrared Bands Linear High Dynamic Range Capability Smart CAOS Camera**
» [Prof. Nabeel Riza](#)
- 10:00 **ISCC Workshop**
Lecture Hall IT3
- 11:20 **Tea and Coffee**
Main Hall
- 11:40 **Track 2D - Signal Processing**
Lecture Hall IT1
- 11:40 **Wavelet Based Denoising and Cross Correlation for Identifying Features in CTG Traces**
» [Mr. Dovydas Kulcickis Gutas](#), [Prof. Liam Marnane](#)
- 12:00 **PRBS-based monitoring of flexible sensors for resource constrained systems**
» [Mr. Kevin Chubb](#), Dr. Richard Hayes, Dr. Damon Berry, Dr. Ted Burke
- 12:20 **Towards Image Processing-based Quantification of White Particles in Reconstituted Infant Formula**
» [Mr. Behrad Mozafari](#), Dr. Norah O'Shea, Dr. Mark Fenelon, Dr. Rudi Villing

- 12:40 **Drummistic Fingerprints: Unique Drummer Identification via the Application of Data Analytics & Machine Learning**
» [Mr. Curtis Cunningham](#), [Dr. Eoghan Furey](#), Ms. Juanita Blue
- 13:00 **Accessible Circuit Diagrams**
» [Ms. Emma Pender](#), Mr. John Healy
- 11:40 **Track 2E - Signals and Systems for Sustainability**
Lecture Hall IT2
- 11:40 **Open Source Instrument Platform for Time Synchronised Power System Measurements**
» [Dr. David Lavery](#), Mr. Andres Felipe Moreno Jaramillo, Dr. Aoife Foley
- 12:00 **Optimization for a PV network with partial control and communication loss using virtual loads**
» [Dr. Chi-Thang Phan-Tan](#), [Dr. Martin Hill](#)
- 12:20 **An Evaluation of Machine Learning Approaches for Milk Volume Prediction in Ireland**
» [Mr. Christian O'Leary](#), Dr. Conor Lynch
- 12:40 **Max-Cut Problem Implementation and Analysis on a Quantum Computer**
» [Mr. Ayaan Verghese](#), Mr. David Byron, Dr. Andreas Amann, Dr. Emanuel Popovici
- 13:20 **Closing Statements and Prize Giving**
Lecture Hall IT1