

# ISA Ireland Section 2023 Honours and Awards



*Munster Technological University  
Wednesday 13 December 2023*

e-mail: [info@isa.ie](mailto:info@isa.ie)  
<http://www.isa.ie>

## **About ISA Worldwide**

ISA – The International Society of Automation has 30,000 members in 95 countries. The ISA is a global, nonprofit, educational organisation connecting people and ideas in automation and control. The Society fosters advancement in the theory, design, manufacture and use of sensors, instruments, computers and systems for automation and control in a wide variety of applications. In addition to hosting the largest conferences and exhibitions for automation and control. ISA is a leading technical training organisation and a respected publisher of books and standards.

ISA also serves the professional development and certification needs of industry professionals and practitioners with its Certified Automation Professional (CAP), Certified Control Systems Technician® (CCST®), Certified Industrial Maintenance Mechanics (CIMM) programs and the Control Systems Engineers (CSE) license.

Born as the Instrument Society of America in 1945, in Pittsburgh, Pennsylvania, USA. The society grew out of the desire of 18 local instrument societies to form a national organization. Membership grew from 900 in 1946 to 6,900 in 1953 to 30,000 in 2004.

Recognising ISA's international reach and the fact that its technical scope had grown beyond instruments, in 2000, the ISA Council approved a legal name change to ISA -The Instrumentation, Systems and Automation Society. Today worldwide, ISA consists of 174 regular sections and 179 student sections.

### **ISA Ireland Section**

The Ireland Section, which is voluntary with a membership of over 180, received its charter in 1978. Its purpose is to bring together all personnel involved in the instrumentation and related disciplines in order to enhance their capabilities in instrumentation design, manufacture and use.

The sections calendar of events, for the coming year will see:

- Two Seminars and Three Technical Talks
- Plant Tours
- Annual Honours & Awards ceremony.

### **Today's Mission**

Maximize the effectiveness of ISA members and other practitioners and organizations worldwide, to advance and apply the science, technology, and allied arts of instrumentation, systems, and automation in all industries and applications. Identify and promote emerging technologies and applications. Develop and deliver a wide variety of high-value information products and services to the global community.

***Setting the Standard for Automation™***

## **Lord Mayor of Cork Councillor Kieran Mc Carthy**

I am delighted to be present here tonight to present the awards in this historical centre of education dating back to 1845. This occasion is intended to acknowledge and encourage excellence and achievement amongst those involved in, and those training for careers in automation, instrumentation and related areas of technology.

When people involved in such diverse areas of technology achieve excellence and in the process produce quality work, it is only right that we should publicly acknowledge such success.

I would like to wish the winners, their families, sponsors, and all present, a Joyful and Peaceful Christmas as we approach the season's festivities.



## **ISA Ireland President Mr. Patrick Bonner**

I would like to welcome you all here this evening, to our 42nd annual Honours and Awards Ceremony. We hold this annual ceremony to acknowledge and encourage excellence for those training for careers in Instrumentation, Systems and Automation.

This year we have five awards, four of which have been submitted by Third Level institutions and three industry awards. I would like to welcome the recipients and their families

We are delighted each sponsor is represented here this evening, this clearly shows the industry's awareness and support for promoting and awarding excellence.

I would like to thank Munster Technological University for allowing the use of this very elegant facility. I hope you all have a very relaxed and enjoyable evening as we celebrate excellence in our industry. I would like to wish you and your families a joyful Christmas and a prosperous new year.





## Apprenticeship Award

### Criteria:

To be awarded, on the nomination of Cork Training Centers and / or South East Technological University, to the best final year instrumentation Apprentice for notable academic and practical achievements in instrumentation.

### Recipient:

Ms. Deimante Lasukaite  
South East Technological University, Carlow.

### Nominated by:

Michael Kenny Lecturer at South East Technological University.



Deimante attended SETU Carlow for both Electrical Instrumentation Phase's 4 and 6 demonstrating academic excellence with credits (excess of 85%) in all modules.

Deimante was an outstanding student during her attendance – notable, both for her academic prowess and ability in the practical area. She demonstrated fantastic aptitude for, and awareness of, the main skills required in the instrument area and her exam results reflected her ability.

Whilst working in Eli-Lilly, she was working across both Cork plants and had a good exposure to a wide range of equipment both old and new. She was always willing to contribute to class discussions with regard to the operation of plant and equipment for the benefit of all the students in the class room.

In addition, Deimante was instrumental in assisting other students with their studies if they were encountering difficulties. She was a very polite and personable student at all times whilst attending SETU Carlow.



## Degree Award

### Criteria:

To be awarded, on any nomination, to the best final year Degree student specializing in any area of Instrumentation and Control.

### Recipient:

Mr. Conor Egan  
Technological University of Shannon (TUS).

### Nominated by:

Mr. James Mooney and Barry O'Reilly (Advisors),  
Technological University Shannon.



Conor performed research on the literature on the implementation of industrial automation and its effects on the productivity in industry and to create a simulation for a proposed robotic cell using the software: ABB Robotstudio and Pickmaster Twin Powerpac. The project objectives included;

- Performing an analysis on the simulation to get its effectiveness as a cell. E.g., the cycle time of the cell and how many containers it fills in a minute, and the flow rate of the associated conveyor belts using Pickmaster Twin Powerpac.
- Determining if one place operation of 10 items into the club tray box or 2 places of 5 items into the club tray box is the most efficient option.

A simulation was carried out to test the Pick Rate of a loading cell for Oral B Toothbrush Heads. The simulation was set up to be configured and programmed to reach the specifications of the loading cell. The Ships in Own Container (SIOC) recipe was configured to keep the box within the working range of the gluing head while not stopping the outfeed conveyor and reaching an acceptable Pick Rate.

It was decided that the Club Tray 5 x 2 Pick recipe would be chosen over the Club Tray 10 Pick as it achieved a higher Pick Rate while not stopping the centre conveyor, whereas the Club Tray 10 Pick recipe did stop the centre conveyor. An analysis was carried out that provided the Pick Rate data for each recipe. These Pick rates were 14, 13 and 16 completed containers per minute for the SIOC, Club Tray 10 Pick and the Club Tray 5 x 2 Pick recipes respectively.

The flow of generated parts on Conveyor 1 and Conveyor 2 were calculated for each recipe. The results of these calculations were 486, 810 and 513 items generated per minute for the SIOC, Club Tray 10 Pick and Club Tray 5 x 2 Pick recipes respectively. Conveyor 1 and Conveyor 2 all have the same assigned speed in each recipe and therefore, generate the same number of items per minute

## Honour's Degree Award

### Criteria:

To be awarded, on any nomination, to the best final year Degree student specializing in any area of Instrumentation and Control.

### Recipient:

Mr Ishka O Cathluain  
Dublin City University (DCU) .

### Nominated by:

Associate Professor Dr Paul Swift, Dublin City University (DCU)



The primary aim of Ishkas thesis was to produce a working 3D-printed ellipsometer based on the paper “Optical measurements on a budget: A 3D-printed ellipsometer” that can be used to obtain the optical constants of a variety of surfaces and thin films. The ellipsometer design was modified and fabricated using a 3D printer and was tested and compared to a commercial instrument to determine its performance.

When light hits a surface, the state of polarisation of the light can change via reflection, refraction, transmission, or scattering. Measurement of this change in polarisation is known as ellipsometry and can yield the optical properties of the material.

A Rotating Angular Ellipsometer was 3D printed using an Ultimaker 2+ printer. The Ellipsometer design was adapted using 3D modelling software to fit a silicon photodiode and a small laser. The Ellipsometer components were assembled. Utilising the Brewster's angle the p and s orientations of the polarisers were determined. Measurements were then taken of laser intensity through the two polarisers as a function of polariser angle to ensure the linearity of the detector.

A thin gold film was deposited on a glass slide using evaporation deposition. This sample, along with several others, were then measured using the 3D printed ellipsometer with fixed angle of incidence ellipsometry and variable angle of incidence ellipsometry. Python code was then written to create theoretical plots of the ellipsometry angles as a function of angle of incidence. Code was also written to compute, from the intensity measurements, the ellipsometry angles for both fixed and variable angle of incidence measurements.

Overall the results indicated the viability of using a 3D printed instrument in taking both readings for complex refractive indices and film thicknesses. The following opportunities for improvement were identified. Firstly adapting the ellipsometer to accommodate a larger range of incident angle would increase the accuracy of the fitted model and hence provide more accuracy in the optical constants measured. Further improvements could be made in choosing a laser wavelength for the ellipsometer that is associated with the largest variation in the ellipsometer angles for the sample in question. The more the theoretical 23 model differs as a function of angle of incidence the more precision can be obtained in fitting the correct model.



## Post Graduate Award

### Criteria:

To be awarded, on the nomination of any third-level institution, to the best Post Graduate student awarded PhD / Bsc in Instrumentation / Applied Physics in Ireland.

### Recipient:

Mr. André Fagundes Martins  
Technological University of the Shannon (TUS) in collaboration with Polytechnic of Leiria (Portugal) within the RUN-EU European University

### Nominated by:

Dr John Cosgrove, Director of Smart Manufacturing, department of Electrical & Electronic Engineering, Technological University Shannon.



The research work conducted in this project connects legacy factory floor equipment through standardized data interoperability protocols into a Digital Twin for production planning and optimization applications. The broad interest area for this research is the application of the Industry 4.0 paradigm to existing industrial processes, encompassing the problems of applying new technologies to different types and generations of industrial devices as they are integrated into the overall management information system of an industrial production facility or company while providing for tools for automated predictive maintenance and virtual commissioning.

The project focused on interoperability between devices, systems, and human beings through standardized and agnostic communication protocols and the flexibility of integration and reorganization. The use of Asset Administration Shells and Skill-based Engineering allows the equipment to be provided with a standard and unified interface in accordance with the RAMI4.0 reference model.

Access to the process data history is available in a standardized way, agnostic to the implementation and technologies associated with the databases, also benefiting from the security inherent to the OPC UA protocol. Dashboards were developed to allow tabular or graphical visualization of process and device data, facilitating monitoring and identifying trends or anomalies.

A dynamic simulation environment for the production system was developed in ABB RobotStudio, which included an injection cell, a quality control cell, and a welding cell. At the cell controller level, the same servers developed to interact with the equipment were used, allowing a more reliable Digital Twin of the cells. In this way, the execution of production orders in a simulation environment is identical to that of the real system, given the implementation based on OPC UA servers. The simulation was developed to be dynamic, allowing the number of injection cells to vary and verifying that the monitoring and command systems can adapt to this change, towards a true Plug-and-Produce system and, thus, an agile production system. With this development, it will be possible in the future to automatically generate and evaluate production recipes in simulation, thus contributing to a more informed decision before applying it to the factory floor.

## Automation Champion Award

### Criteria:

To be awarded to a person in recognition of their contribution to the advancement of Instrumentation, automation, IT or Industrial systems and / or technology in Ireland.

### Recipient:

Mr. Gerry O'Callaghan, Caltech

### Nominated by:

Mr. Gerry Beecher, Pfizer Ireland



Gerry started his training in Dunlops in 1971 and left in 1976 to go travelling. He joined Fords in Dagenham for several years. Gerry returned home to join Klockner-Moeller as a technical representative for the Munster region, providing customer support to industry and consulting engineers.

After several years, he joined Legrand as a sales manager responsible for sales & marketing. There was a lot of travel involved and time spent away from home. Having a young family; Paul (now in Chicago) and Eoin (now in Melbourne), as well as being away from home a lot, Gerry decided to take the plunge and start his own business.

Gerry is always willing to provide and supply guidance to help people in any way he could. In 1998 when Denis Kennedy & Redmond Anthony started ICS, Gerry gave them their first order and office space until they got up and running. 25 years later with over 50 people employed they are still there.

Gerry set up Caltech as he saw a niche in the market for control, automation & hazardous area solutions for industry in the Munster area. Caltech now provides these solutions all over Ireland as well as Germany, Holland, Sweden & Finland. After 15 years Gerry knew he needed a new culture and level of expertise to bring Caltech to the next level and a succession plan was put in place. Gerry persuaded Mark Farrell to join the company as operations manager & a short time later Jim Farrell as technical manager. Within a short time frame the company saw a rapid increase in turnover, expansion of our customer base and product diversity which enabled Caltech to offer the optimum solution. There was also a great emphasis put on training and staff encouraged to partake in nighttime courses which were funded by the company. In 2022 Mark & Jim took the ownership of Caltech as Gerry felt after 51 years in the industry it was time to hand over the reins.

Some memorable improvements in industry or supported by colleagues.

Having worked through the 1980'S when Cork from having a very strong industrial base in the 1960'S/1970'S was now an industrial blackspot. Companies like Dunlops, Fords, Verolme Dockyard, Irish Steel & all the supporting industries closing. Unemployment was so high and money so scarce that even the Cork City Council had no lights on in some streets.

Attending night classes in the RTC you were acutely aware of the work and effort of the lecturers, people like Niall Shanahan & colleagues were putting into upskilling people. The big catalyst for change was when EMC decided to open a factory in Cork as opposed to other locations. It was the courses RTC put on and their willingness to change course content to



suit EMC requirements that signalled the beginning of the resurgence. One cannot underestimate the parts played by RTC & ISA had in attracting the great industries we have in Cork today.

Gerry reflects that when he started working in 1971 it's hard to believe that Din Rail had not been invented. The speed of technical evolution is challenging and digitalisation is rapidly changing the way we live. The question is how will people live in the future? The needs for the global society of the future creates great opportunities for engineers in how a sustainable society can be created by using renewable resources. Most of the leading engineering companies like Phoenix, ABB & Schneider are investing significant amount of funding in the "All Electric Society Concept". The challenges of the future are Cyber Security & also the impact of AI on the industry & society and how well prepared we are to deal with these challenges.

## ISA IRELAND SECTION OT CYBERSECURITY CONFERENCE 2023, MULLINGAR 21st NOVEMBER 2023

### Conference Partners & Platinum Sponsor



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## ISA IRELAND SECTION OT CYBER SECURITY EXHIBITORS 2023



**Donal Óg Cusack**  
Conference Chairperson  
OT Security Chair Cyber Ireland



**Patrick Bonner**  
President  
ISA Ireland Section



**Eoin Byrne**  
Chairperson  
Cyber Ireland

## **BOB SHINE - ISA Ireland Section Student Endowment Fund**

Bob Shine has been a dedicated supporter of instrumentation and control in Ireland for many years, even before the founding of ISA Ireland Section 45 years ago. He served his apprenticeship and went on to study at night the City and Guilds examinations while working in Irish Refining.

Bob was one of the developers of the course curriculum within the Irish training board then called ANCO more recently named FAS and during that time he both develop and delivered these courses in Automation and Control.



Bob has continued his keen interest and support of students in the Control and Automation industry across Ireland to this day. The endowment is used to Award \$2,500 annually on the recommendation from the ISA Ireland Section to a student studying a curriculum which includes Automation and Control component subjects in any Third Level Educational Institution based in the Republic of Ireland.



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## ISA IRELAND SECTION PRESIDENTS

Year	Name	Year	Name
1977 / 1979	Mr. Fred Gilroy	2002 / 2003	Mr. Alan Edwards
1979 / 1980	Dr. Liam McDonnell	2003 / 2004	Mr. Peadar Walsh
1980 / 1981	Mr. Maurice Radford	2004 / 2005	Mr. Martin Almond
1981 / 1983	Mr. John Power	2005 / 2006	Mr. Kevin Dignam
1983 / 1984	Mr. Malachy Hanley	2006 / 2007	Mr. Brian Nolan
1984 / 1985	Mr. Eoin O'Riain	2007 / 2008	Mr. Jim Long
1985 / 1986	Mr. Harvey Makin	2008 / 2009	Mr. Michael Meade
1986 / 1987	Mr. Frank Maher	2009 / 2010	Mr. Kevin McCarthy
1987 / 1988	Mr. Brendan Barry	2010 / 2011	Mr. David O'Brien
1988 / 1989	Dr. Liam McDonnell	2011 / 2012	Mr. John Downey
1989 / 1990	Mr. Fred Gilroy	2012 / 2013	Mr. Kieran Coughlan
1990 / 1991	Dr. Eamon Cashell	2013 / 2014	Mr. Liam O'Brien
1991 / 1992	Mr. Ger Dullea.	2014 / 2015	Mr. Alan Bateman
1992 / 1994	Mr. John Lotty	2015 / 2016	Mr. Alan Bateman
1994 / 1995	Mr. Robert Shine	2016 / 2017	Mr. John Murphy
1995 / 1996	Mr. John Farrell	2017 / 2018	Mr. John Murphy
1996 / 1997	Mr. Aidan Howard	2018 / 2019	Mr. Edmund Cuffe
1997 / 1998	Mr. Billy Walsh	2019 / 2020	Mr. Edmund Cuffe
1998 / 1999	Mr. Declan Lordan	2022 / 2021	Mr. Rory Moloney
1999 / 2000	Mr. Brian Curtis	2022 / 2023	Mr. Rory Moloney
2000 / 2001	Mr. Eamon Creech	2023 / 2024	Mr. Patrick Bonner



This historic photo of ISA Ireland Presidents was taken at the 30th Anniversary of Charter Dinner held on 8th November 2008.

Seated Left to Right: Éamonn Creech (2000), Billy Walsh (1997), Brian Nolan (2006), Mick Meade (2008), Stephen Adderson, US Embassy, Tim Feldman, ISA Headquarters, Peadar Walsh (2003).

Back Row: LtoR: John Lotty (1992, 1993), Declan Lordan (1998), Brian Curtis (1999), Brendan Barry (1987), Bob Shine (1994), Liam McDonnell (1979, 1988), Jim Long (2007), Harvey Makim (1985), John Power (1981), Frank Maher (1986), Eoin Ó Riain (1984), Alan Edwards (2002), Kevin Dignam (2005), Martin Almond (2004).



## **Honours & Awards 13th December 2023 Program of Events**

*Munster Technological University, Administration Centre, Council Room (2nd Floor)*

**18:00** Arrival of Lord Mayor Councillor Kieran Mc Carthy

**18:10** Past President Mr David O'Brien will begin proceedings.

**18:15** Formal opening by Lord Mayor Councillor Kieran Mc Carthy

**18:20** Response from the President of ISA Ireland Section Mr. Patrick Bonner.

**18:25** Presentation of Awards.

Apprenticeship Award	Ms. Deimantes Lasukaite, South East Technological University
Degree Award	Mr. Conor Egan, Dublin City University (DCU)
Honours Degree Award	Mr. Ishka Ó Cathluain, Dublin City University (DCU)
Post Graduate Award	Mr. André Martins, Technological University Shannon (TUS)
Automation Champion Award	Mr. Gerry O'Callaghan, Caltech

**18:55** Response from the Winner of Automation Champion Award, Mr. Gerry O'Callaghan,

**19:01** Photographs of Award winners with the Lord Mayor.

**19:15** Photographs of Sponsors with the Lord Mayor.

**19:30** Reception.

**20:30** Close of Honours and Awards Reception.

The Ireland section of ISA has conducted an annual Honours & Awards programme since 1980. This programme is intended to acknowledge and encourage excellence amongst those involved in, and those training for careers in Automation, Instrumentation and related areas of technology.



Thanks to our H&A Chairman Mr. Aidan O Connell, Munster Technological University, our Nominations Review Board and ISA Ireland Section Committee members.

A special thanks and appreciation to our education centres for the time and effort of the lecturers and students for submitting nominations.

**South East Technological University  
Technological University Dublin  
Technological University of the Shannon  
Dublin City University  
Atlantic Technological University  
Trinity College Dublin**

**Dundalk Institute of Technology  
South East Technological University  
University College Dublin  
University College Cork  
University College Galway**