13ᵗʰ – 15ᵗʰ September 2023
Great Hall,
Swansea University
Bay Campus, Fabian Way
Swansea, Wales
SA1 8EN

https://attend.ieee.org/istas-2023/

(An in-person conference including daily keynote presentations, panel sessions, workshops, author presentations, and networking events)

(Maent y gynhadledd yma yn cael i gynnal wyneb-i-wyneb. Maent yn cynnwys prif gyflwyniadau dyddiol, sesiynau panel, gweithdai, cyflwyniadau awduron, a digwyddiadau rhwydweithio.)

Conference Program

Dear ISTAS23 Delegate,

IEEE ISTAS 2023 takes place at Swansea University, Wales from 13 - 15 September. IEEE ISTAS 2023 is the flagship conference of IEEE Society on Social Implications of Technology (SSIT). The theme of IEEE ISTAS 2023 is "Technology and Analytics for Global Development". For more details on registration, please click here

The IEEE ISTAS 2023 Program incorporates a mix of keynote presentations, interactive panels, paper sessions and professional development workshops, which are aligned with SSIT's Technical Activities.

IEEE ISTAS 2023 is Technical Co-sponsored by IEEE Region 8, IEEE UK and Ireland Section, IEEE UK and Ireland SSIT Chapter and IEEE UK and Ireland Education Chapter.

IEEE ISTAS 2023 is Supported by the School of Management, Swansea University and IEEE Humanitarian Technologies Board.

Kindly note that this is a draft schedule and is subject to change. Author presentations are scheduled Short Papers (SP) for 10 minutes followed by a 5 minute Q&A, and Full Paper (FP) for 15 minutes followed by a 5 minute Q&A.

We look forward to being your host, and showcasing the best of Welsh culture, hospitality, and breath taking scenery.

Regards
Conference Chairs
- Dr. Denis Dennehy, Swansea University
- Prof. Yogesh Dwivedi, Swansea University
- Prof. Samuel Fosso Wamba, TBS Education

Technical Program Chairs
- Miriam Cunningham, IST-Africa Institute | Chair, IEEE UK and Ireland SSIT Chapter
- Dr. Ransome Bawack, Audencia Business School
- Dr. Silvia Masiero, University of Oslo

Rhaglen Y Gynhadledd

Croeso i ISTAS23,

Mae'r cynhadledd IEEE ISTAS yn cymryd lle ym Mhrifysgol Abertawe rhwng 13^{eg} ac 15^{fed} Medi 2023. Mae IEEE ISTAS 2023 yn cynhadledd canolog i IEEE Society on Social Impact of Technology (SSIT). Thema IEEE ISTAS 2023 yw "Technoleg a Dadansoddi ar gyfer Datblygiad Byd-eang'. I cael rhagor o fanylion ac am gofrestru, defnyddiwch y ddolen yma.

Mae'r rhaglen IEEE ISTAS 2023 yn cynnwys cymysgedd o brif gyflwyniadau, paneli rhyngweithiol, sesiynau papur a gweithdai datblygiad proffesiynol, sy'n cyd-fynd â gweithgareddau SSIT.

Mae IEEE ISTAS 2023 yn cael i noddi gan IEEE Region 8, IEEE UK and Ireland Section, IEEE UK and Ireland SSIT Chapter ac IEEE UK and Ireland Education Chapter. Mae IEEE ISTAS 2023 yn cael i gefnogi gan Yr Ysgol Reolaeth, Prifysgol Abertawe and IEEE Humanitarian Technologies Board.

Sylwch yn garedig mai amserlen ddrafft yw hwn ac y gallai newid. Mae cyflwyniadau gan awduron wedi'u hamserlennu i 10 munud am Bapurau Byr, gyda sesiwn holi-ac-ateb 5 munud, ac 15 muned am Phapur Llawn gyda sesiwn holi-ac-ateb 5 munud.

Maent yn edrych ymlaen i croesawu chi i'r cynhadledd, ac arddangos y gorau o ddiwylliant Cymreig, lletygarwch, a golygfeydd syfrdanol.

Cofion

Cadeiryddion y gynhadledd
- Dr. Denis Dennehy, Prifysgol Abertawe
- Yr Athro. Yogesh Dwivedi, Prifysgol Abertawe
- Yr Athro. Samuel Fosso Wamba, TBS Education

Cadeiryddion y rhaglen dechnegol
- Miriam Cunningham, IST-Africa Institute | Chair, IEEE UK and Ireland SSIT Chapter
- Dr. Ransome Bawack, Audencia Business School
- Dr. Silvia Masiero, University of Oslo

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DAY 1: WEDNESDAY 13TH SEPTEMBER 2023 / DYDD MERCHER 13eg MEDI 2023

8.30 – 9.30	**Registration / Cofrestru** Great Hall, Swansea University, Bay Campus
9.30 – 10.00	**Welcome Address / Croeso** Moderated by Dr. Denis Dennehy, IEEE ISTAS 2023 General Chair & School Research Lead, Swansea University Prof. Jonathan Bradbury, Associate Dean Research, Innovation and Impact, Faculty Humanities & Social Sciences Swansea University Prof. Emeritus Luis Kun, President, IEEE Society on Social Implications of Technology (SSIT) Prof. Paul Cunningham, IEEE UK and Ireland Section Vice Chair, IEEE UK and Ireland SSIT Chapter Vice Chair **Room:** GH043
10.00 – 11.00	**Keynote:** Cycles *of Development and Artificial Intelligence in Systems of Survival* **Presenter:** Prof. Sajda Qureshi, University of Nebraska **Room:** GH043
11.00 – 11.30	**REFRESHMENTS & NETWORKING / BYRBRYDAU AC RHWYDWEITHIO**

11.30 – 13.00	**Session 1A:** Sustainable Development & Humanitarian Technology **Chair:** Galina Kondrateva **Room:** GH043	**Session 1B:** Universal Access (Fintech, Education, Health) **Chair:** Tatiana Khvatova **Room:** GH029
	Paper 40 (FP): Electronic Government Services Continuance and Trust: An Empirical Investigation in Pakistan Muhammad Ovais Ahmad, Iftikhar Ahmad and Iqra Sadaf Khan	*Paper 8 (FP): Designing a Blockchain Token Distribution Model to Encourage Action on Greenhouse Gas Reduction* Takumi Aita, Tomoyuki Kimura and Yusuke Kaneko
	Paper 41 (FP): Achieving Reinforcement Learning Speedup via Quantum Kernel Estimation Vincent C Emeakaroha and John Gilvarry	*Paper 10 (FP): An Exploratory Study on Virtual Reality and In-person Effects on Loneliness* Abid Hussain, Seung Joon Lee, Danny Theunissen and Min Hooi Yong
	Paper 51 (FP): A Cross-cultural Exploration of Smart Home Energy Devices and Community Well-Being Prakarsh Mishra, Jac Fennell, Sonja Dragojlovic-Oliveira and Anna Chatzimichali	*Paper 44 (FP): Extended Reality, Augmented Users and Design Implications for Virtual Learning Environments* Lilian Genaro Motti Ader, Katie Crowley, Stefan Kuhn, Fabio Caraffini, Turgay Altındağ and Simon Colreavy-Donnelly
	Paper 18 (FP): Forecasting climate transition regulatory and market risk variables with machine learning Juan Fernando Pérez-Pérez, Isis Bonet, María Solange Sánchez-Pinzón, Fabio Caraffini and Christian Lochmuller	*Paper 63 (FP): Behaviour Change Techniques within Smartphone Application Connected Health Interventions for Paediatric Cancer: A Review* Emma Delemere and Rebecca Maguire

13.00 – 14.00	**LUNCH / CINIO**
14.00 – 14.40	**Keynote:** *The Role of Engineering and Technological Innovation in Addressing Societal Challenges* **Presenter:** Miriam Cunningham, IEEE Humanitarian Technology Board; IEEE UK and Ireland SSIT Chapter, Chair **Room:** GH043

14.45 – 15.45	**Session 2A:** Protecting the Planet (AgriTech, sustainable livelihoods) **Chair:** Joseph Walsh **Room:** GH037	**Session 2B:** Societal Impact (IS, ICT4D 3.0, Circular economies) **Chair:** Oteng Ntsweng **Room:** GH029	**Session 2C:** Professional Development Workshop: IEEE Humanitarian Technology Board Best Practices **Facilitator:** Miriam Cunningham **Room:** GH043
	Paper 13 (FP): Design and Construction of an Autonomous, Industrial and User Friendly Laboratory for Indoor Controlled Vertical Farming Giulia Robbiani and Eric Törn	*Paper 21 (FP): Circulation of Fake News: Threat Analysis Model to assess the Impact on Society and Public Safety* Amal Dabbous, Abbas Tarhini and Antoine Harfouche	The IEEE Humanitarian Technology Board Best Practices Workshop will showcase lessons learnt and best practices from successful technological interventions with local communities undertaken by IEEE Special Interest Groups on Humanitarian Technology (SIGHTs) in Region 8.
	Paper 26 (FP): The Biomonitoring of Ireland's River Network Using a 1D Convolution Neural Network Abdullah Caliskan, Joseph Walsh and Daniel Riordan	*Paper 37 (FP): Green IS for Sustainable Energy Behaviours: An Exploratory Study* Stephen McCarthy, Titiana Ertiö, Nina Kahma and Ciara Fitzgerald	
	Paper 27 (FP): A Survey on Cyber Security Research in the Field of Agriculture Technology Karianne Kjønås and Gaute Wangen	*Paper 55 (FP): Technological Innovations and Obsolescence: Leveling the Playing Field for Remanufacturing* Pedro H. Albuquerque and Kiara S. Winans	
15.45 – 16.00	**REFRESHMENTS & NETWORKING / BYRBRYDAU AC RHWYDWEITHIO**		
16.00 - 17.30	**Panel session**: *IEEE Societies: Addressing Climate Change Challenges* **Moderator:** Luis Kun, President, IEEE SSIT **Room:** GH043 **Description |** The IEEE is currently working in multiple areas to deal with climate change. Some of these efforts include: Electrification of the transportation infrastructure which is one of the most promising solutions to reducing carbon emissions; hydrogen as a viable fuel source. Many are calling for hydrogen to be part of future energy sources; the use of distributed energy resources (DERs) and microgrids is integral to provide a flexible and resilient energy system that can help meet the growing demand for clean energy. **Panellists:** o Saifur Rahman, President, IEEE o Rakesh Kumar, Past President, IEEE Solid-State Circuits Society o Nita Patel, President, IEEE Computer Society o Metin Akay, Past President, IEEE EMBS o Manuel Delgado-Restituto, President, IEEE Circuits and Systems Society o Victor Grimblatt (Circuits and Systems Society, White Paper on Climate change)		

DAY 2: THURSDAY 14TH SEPTEMBER 2023 / DYDD IAU 14eg MEDI 2023

9.00 – 9.30	**Registration / Cofrestru** Great Hall, Swansea University, Bay Campus
9.30 – 10.30	**Keynote:** *Mobile Payment App Use for Digital Financial Inclusion: Affordances, Constraints, and Cross-country Cultural Influences* **Presenter:** Prof. Raghav Rao, University of Texas at San Antonio **Room:** GH043
10.30 – 11.00	**REFRESHMENTS & NETWORKING / BYRBRYDAU AC RHWYDWEITHIO**

11.00 – 12.30	**Session 3A:** Ethics and Human Values **Chair:** Ciara Heavin **Room:** GH043	**Session 3B:** Smart Technologies for Defence, Security and Stability **Chair:** Abbas Tarhini **Room:** GH029	**Session 3C:** Professional Development Workshop: Indigenous Knowledge and Information Technology **(Part A)** **Facilitator: Sajda Qureshi,** Jacqueline Corbett, Sian Roderick **Room:** GH014
	Paper 17 (SP): Social Media Self-Disclosure: A Research Agenda Raji Raman, Christine Abdalla Mikhaeil, Tabitha James and Viswanath Venkatesh	*Paper 9 (SP): Preliminary Findings of a Work In Progress Research: Quantification and Modeling of Broken Links Prevalence in Hyper Traffic Websites Homepages* Ronan Mouchoux, Laurent Moulin and Nicolas Striebig	This part of the workshop aims to support practitioners, academics, and policy-makers by 1. expanding knowledge on the opportunities and challenges of conducting indigenous knowledge research. 2. developing research and practice papers with strong contributions to the topic.
	Paper 28 (FP): Explainability for All: Care Ethics for Implementing Artificial Intelligence Olivia Tracey and Robert Irish	*Paper 16 (SP): Are we Ready to Adopt Facial Recognition Payment System? The Perspective of Cognitive Appraisal Theory* Xin Jean Lim and Jun-Hwa Cheah	
	Paper 31 (SP): Proposing a Framework for Investigating Acceptance of AI-Based Tools by Lawyers Galina Kondrateva, Rachid Rhattat and Tatiana Khvatova	*Paper 42 (FP): Hate Speech is not Free Speech: Explainable Machine Learning for Hate Speech Detection in Code-Mixed Languages* Sargam Yadav, Abhishek Kaushik and Kevin Mc Daid	
	Paper 38 (FP): Artificial Intelligence (AI) Ethics: A Critical Realist Emancipatory Approach Deepak Kumar Saxena, P. J. Wall and Dave Lewis	*Paper 43 (FP): Development of the Reflective User: The Additive Effects of Reflective Practices and Gameful Learning on Flow and Cybersecurity Awareness* Oteng Ntsweng, Ransome Bawack, Xixian Peng and Shem Amalaya	
12.30 – 13.30	**LUNCH / CINIO**		
13.30 – 15.00	**Session 4A:** Intelligent Systems and Supply Chains for Sustainable Development **Chair:** Guoqing Zhao **Room:** GH043	**Session 4B:** Societal Impact (IS, ICT4D 3.0, Circular economies) **Chair:** Stephen McCarthy **Room:** GH029	**Session 4C:** Professional Development Workshop: Indigenous Knowledge and Information Technology **(Part B)** **Room:** GH014

	Paper 36 (SP): The Impact of Industry 4.0 Technologies in Supply Chain Management: Perspectives of Developing Countries Neo Rafifing, Ofaletse Mphale, Joy Tlhoolebe, Ontiretse G. Kebitseope	*Paper 4 (FP): CINT City Net-zero Tool: A Method to Quantitatively Assess Carbon Data in Urban Areas* Silvio Carta, Luigi Pintacuda, Tommaso Turchi, Foteini Papadopoulou, Marc McGurk, Alan Clark and Candice Luper	This part of the workshop aims to providing feedback to authors who intend to submit their research to the Special Issue on Indigenous Knowledge with the *Information Technology for Sustainable Development* journal.
	Paper 39 (FP): An Automatic Deep Reinforcement Learning based Credit Scoring Model using Deep-Q Network for Classification of Customer Credit Requests Sudipta Paul, Vinay Singh, Arpan Kumar Kar and Agam Gupta	*Paper 66 (SP): Exploring the Influence of Affect on Food Waste: Do Social Media Usage Matters?* Nor Asiah Omar and Aishath Lahath	
	Paper 45 (SP): Enhanced Video Surveillance Systems for "Signal For Help" Detection on Edge Devices Sarah Azimi, Corrado De Sio and Luca Sterpone	*Paper 68 (FP): Applying Action Design Science Research to Develop a Conceptual Design for Smart Contracts in Real Estate Transaction Processes* Evgeny Exter and Milan Radosavljevic	
	Paper 57 (SP): Discourse, Challenges, and Prospects Around the Adoption and Dissemination of Software Bills of Materials Anesu Chaora, Nathan Ensmenger and L Jean Camp	*Paper 23 (FP): Sustainability in the Internet of Production: Interdisciplinary Opportunities and Challenges* Sebastian Bernhard, Sebastian Pütz, Calvin Röhl, Ralph Baier, Philipp Brauner, Ester Christou, Hannah Dammers, Roman Flaig, Leon M. Gorißen, Jan-Christoph Heilinger, Christian Hinke, István Koren, Dirk Lüttgens, Michael Millan, Kai Müller, Alexander Schollemann, Luisa Vervier, Thomas Gries, Alexander Mertens, Saskia K. Nagel, Frank T. Piller, Günther Schuh, Martina Ziefle, Verena Nitsch and Carmen Leicht-Scholten	
	Paper 58 (SP): Empowering Sustainable Healthy Eating through Personalised Food-related Visual Cues Jie Yan and Gianni Corino		
15.00 – 15.30	**REFRESHMENTS & NETWORKING / BYRBRYDAU AC RHWYDWEITHIO**		
15.30 – 16.00	**Cultural Event – Insights to the Welsh language and culture (**Dr. Dafydd Cotterell, Swansea University) **Room:** GH043		
16.00 - 17.30	**Panel session:** *Public Safety Technologies and Climate Change* **Moderator:** Luis Kun, President, IEEE SSIT		

	Room: GH043 **Description |** The main objectives of this panel include to discuss: how Society can better address the aspects of Emergency Management (Awareness, Preparation, Prevention, Response and Recovery) and secondly how we connect the IEEE Public Safety Technology Initiative with the Climate Change Sustainability Initiative. Over 40 nations are facing food insecurity and forced migration because of either floods or drought and fire. In public health, the threats characteristics are of global threats with local impact and local threats with global impact. These affect health, security, education, economy, everything. Globalization, connectivity and speed are fundamentally crucial to the response. Requirements include fast: detection, fast and effective communication, fast and effective integration and fast and effective action. **Panellists:** ○ Kamal Al-Haddad, Director, IEEE Division 6 ○ Johann Marquez-Barja, IEEE Education Society ○ Mariusz Malinowski, President, IEEE Industrial Electronics Society ○ Alan Chong, President, IEEE Professional Communication Society ○ Steven (Zhaojun) Li, President, IEEE Reliability Society ○ Ravikiran Annaswamy, President, IEEE Technology and Engineering Management Society ○ Wei-Jen Lee, Chair, IEEE Program Director Climate Technologies Sustainability ○ Sampathkumar Veeraraghavan, Global President, 2023 IEEE HKN
18.00 – 18.30	**Pre Gala Dinner Social Event – Morriston Orpheus Choir/ Croeso i wefan swyddogol** **Venue:** Great Hall Auditorium (2nd Floor) **About:** Formed in 1935 and enjoying an international reputation as a leading exponent of male choral singing, the Morriston Orpheus Choir undertakes performances on television, and at national and international events (https://www.morristonorpheus.com/welcome)
18.30 – 10.00	**Gala Dinner | IEEE SSIT Practitioner Award & Best Paper Award (MC: Yogesh Dwivedi & Denis Dennehy)** **Venue:** Great Hall Auditorium (2nd Floor)

DAY 3: FRI 15TH SEPTEMBER 2023 / DYDD GWENER 15fed MEDI 2023

9.00 – 9.30	**Registration / Cofrestru** Great Hall, Swansea University, Bay Campus
9.30 – 10.30	**Keynote:** *Navigating Tensions Between Indigenous Communities and Global Development Partners: Reflections on 25 Years of Fieldwork in East Africa.* **Presenter:** Mr. Abdalla Badhrus, Program Manager, Muslim Education & Welfare Association, Kenya **Moderator:** Mr. Mike Fitzgibbon, Food Business & Development Dept., University College Cork **Room:** GH043
10.30 – 11.00	**REFRESHMENTS & NETWORKING / BYRBRYDAU AC RHWYDWEITHIO**

11.00 – 12.30	**Session 5A:** Sustainable Development & Humanitarian Technology **Chair:** Oteng Ntsweng **Room:** GH043	**Session 5B:** Universal Access (Fintech, Education, Health) **Chair:** Muhammad Ovais Ahmad **Room:** GH029	**Session 5C:** Practice Workshop: Innovation Strategy Development and Implementation **(Part A)** **Facilitators:** Ciara Heavin, Roderick Thomas, Dan Rees, Gareth Davies **Room:** GH014
	Paper 15 (FP): Trust-based Classification in Community Policing: A Systematic Review Obinna Ogbonnia Otuu, Joseph Henry Anajemba, Deepak Sahoo and Felix Chukwuma Aguboshim	*Paper 14 (FP): Google Trends Dynamics for the Guidance of Open-Source Intelligence: Augmentation of Social-Media and Survey Surveillance of Population Mental Health* Fred Boy	This part of the workshop aims to support practitioners, decision makers, policymakers, and academics by - expanding knowledge emerging practices and processes involved in the development of innovation strategies and its implementation in real-world organisational settings. - developing research and practice papers with strong contributions to innovation practice.
	Paper 47 (SP): Embedding Environmental Sustainability Practices in Fashion Supply Chains for International Brands and SMEs Sarah Alaghbari, Nasiru Zubairu and Ahmed Maher	*Paper 32 (SP): SCPD-IT: Smart COVID-19 asymptomatic patient detection over IoT-WSN* Malik Muhammad Arslan, Daniyal Haider and Adil Mustafa	
	Paper 52 (FP): Automated Labelling of Sustainable Development Goals in Judicial Controversies before the Brazilian Supreme Court Rodrigo Lobo Canalli, Alexandre Ferreira de Menezes, Euler Rodrigues de Alencar, Lucas José Gonçalves Freitas, Paulo Henrique Vencio Moreira and Regis Proença Picançov	*Paper 19 (FP): Fuzzy logic-based Smart Healthcare System for Preliminary Identification of Patients with Pandemic-prone Diseases Through Symptom Analysis* Aditika Tungal, Kuldeep Singh, Yogesh K. Dwivedi and Prabhsimran Singh	
		Paper 75 (FP submitted to the preconference virtual PIT workshop): Socio-Technical Systems for an Ageing Population Ciske Smit, Matthew Scott and Jeremy Pitt	
12.30 – 13.15	**LUNCH / CINIO**		

13.15 – 14.45	**Session 6A:** Protecting the Planet (AgriTech, sustainable livelihoods) **Chair:** Joseph Walsh **Room:** GH043	**Session 6B:** Intelligent Systems and Supply Chains for Sustainable Development **Chair:** Fabio Caraffini **Room:** GH029	**Session 6C:** Practice Workshop: Innovation Strategy Development and Implementation **(Part B)** **Room:** GH014
	Paper 29 (FP): A Method of Plant Disease Detection Analysis From Image Object Extraction Based on The Mask R-CNN Model François Xavier Sikounmo, Cedric Deffo and Clementin Tayou Djamegni	*Paper 24 (FP): Analysis of the Drivers of Industry 4.0 Technology Deployment to Achieve Agri-food Supply Chain Sustainability: A Hybrid Approach* Guoqin Zhao, Paul Jones, Shaofeng Liu, Carmen Lopez, Denis Dennehy, Xiaoning Chen	This part of the workshop aims to support, practitioners, decision makers, policymakers, and academics by - providing feedback to authors who intend to submit their research to the Special Issue on 'innovation for practice' in the *Journal of Decision Systems.*
	Paper 46 (FP): The Future of Agriculture: Analysing User Sentiment on Smart Farming with Explainable Artificial Intelligence Sargam Yadav, Abhishek Kaushik, Shubham Sharma and Kevin Mc Daid	*Paper 25 (FP): A Review of Artificial Intelligence (AI) and Machine Learning (ML) for Supply Chain Resilience: Preliminary Findings* Enjoud Alhasawi, Nick Hajli and Denis Dennehy	
	Paper 59 (FP): Adoption of Lean by AgriTech Companies in Ireland Kieran O'Donoghue, Bobby Woods, Sara Morrisey Tucker and Joseph Walsh	*Paper 70 (SP): AI-enabled Sustainable Supply Chains: A Systematic Literature Review* Abdullah Albizri, Antoine Harfouche and Marina Johnson	
14.45 - 15.00	REFRESHMENTS & NETWORKING / BYRBRYDAU AC RHWYDWEITHIO		
15.00 - 16.30	**Panel session:** *Ethics, Labor and Democracy: Designing Impactful Tech for an Actively Inclusive Society* **Moderator:** Floriane Fidegnon, Consultant, BMNT Ltd. **Room:** GH043 **Description |**As technology rapidly evolves and new capabilities become widely available, the tech industry must be consciously and consistently aware of the people it stands to leave behind via traditionally inequitable practices and systems. Among other places, these inequities are found in hiring practices, public services (healthcare, education, policing, etc.), and product development life cycles. Ethical design, development and deployment of technology must be rooted in the values of equality, diversity, equity, inclusion and justice so that all members of society can contribute to innovations that will fundamentally change the way in which we live our lives.This IEEE TechEthics panel will address why the adoption of these values must become a professional skill and explore practical steps the technology industry can take to apply this in their practices. **Panellists:** • Juan Amador, Executive Director, Society for Advancing Chicanos/Hispanics and Native Americans in Science (SACNAS) • Jacqueline Corbett, Full Professor, Université Laval • Mathana, Tech Ethicist		
16.30 - 17.00	**Closing Ceremony of ISTAS23 and About ISTAS24 (Mexico)**		