

THE

Tech Magazine

THE MAGAZINE OF THE IST

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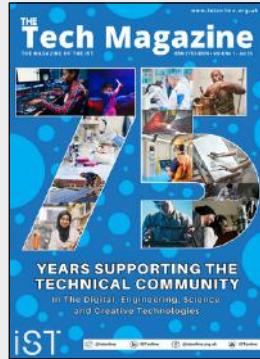
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THE Tech Magazine

The magazine for, and made by, the technical community.

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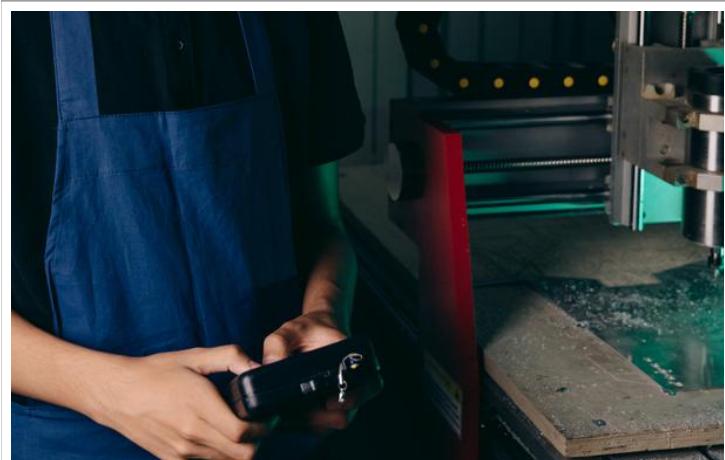
The Tech Magazine continues to grow as a dynamic platform for the professional technical community. With its fresh design and evolving content, the magazine celebrates the contributions of professionals across a wide range of sectors. It's more than a publication; it's a space where voices from the STEMM, Creative and AI workforces are heard, recognised, and valued. We're committed to keeping the magazine relevant, engaging, and impactful; supporting your professional growth and career development every step of the way. Your insights help shape what we do, so we always welcome your feedback and ideas for future content. We hope you enjoy this edition of the Magazine on all-things technical.

IST members can contribute with articles of interest / opinion pieces or research and information blogs. Members can advertise their projects, awards, or even advertise or offer an advert for their organisation. Below are some of the contents topics in our magazines:

MAGAZINE WALL OF CONTENTS

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iST[®]

Volume 6 Number 1

Apr 2025

This magazine is made for, and made by, the technical community.

CALL TO MEMBERS:

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Cover image: Robot sorting packages in a warehouse in Milton Keynes.

Thank you for everyone's contribution to this edition of the magazine.

We would love to hear your views on the Magazine and learn more about what you would like us to include in the future. Please feel free to send us your thoughts via office@istonline.org.uk.

Welcome

CHAIR'S MESSAGE



Terry Croft MBE, CSci FIScT
IST Chair

"The IST is run by technicians for technicians so, join one of our teams and play your part. Contact: office@istonline.org.uk"

Welcome to the latest edition of *The Tech Magazine*, the official publication of the Institute of Science and Technology. As we move further into 2025, we continue to stand firm in our mission: to support, recognise, and advocate for the professional technical workforce across all sectors. With all the challenges within Higher Education and across the world there is much uncertainty - and the IST remains committed to ensuring that the voice of technical professionals is heard, valued, and represented at every level.

One of the most rewarding aspects of leading this organisation is seeing the dedication of our volunteers. From coordinating national networks to running workshops and supporting professional registers, they are the lifeblood of our Institute. Their contributions shape the direction of the IST and enrich the experience of our members. To all those who have given their time, past and present - thank you.

With that in mind, I want to put out a call to action. As we continue to expand our reach and activities, we're actively seeking new volunteers to join our teams. Whether you're early in your career or an experienced practitioner, there are many ways to get involved. Volunteering with the IST is not only rewarding in itself, it also offers fantastic opportunities for professional development. You'll gain new skills, receive training, and get involved in projects with national impact. It's a brilliant way to broaden your network, enhance your CV, and contribute to something that makes a real difference.

A great example of this is Tyler Harvery-Cowlishaw, who has recently joined Arthur in the role of Assistant Education Officer. Tyler's enthusiasm and fresh perspective have already made a mark, and we're excited to see the impact this dynamic duo will have in shaping our educational strategy moving forward.



We're also pleased to welcome Bill Surridge into the role of IST Scottish Network Coordinator. Bill brings a wealth of experience and a deep understanding of the technical landscape in Scotland, and we're thrilled to have him lead this key area of work. Strengthening regional representation is a priority for us in 2025, and Bill's appointment is an important step in that direction.

The IST's influence continues to grow, and we've seen particularly strong interest in our work around Artificial Intelligence. Our newly launched AI short courses were fully booked within just weeks of opening, which clearly shows the demand for accessible, high-quality learning in this space. It's a testament to the quality of our training offer and the relevance of the content for today's



technical professionals. If you missed out, don't worry, more dates will be announced soon.

Turning to this year's annual IST Conference in Birmingham, I'm pleased to share that we've taken on board your feedback and made some exciting changes to the format. We've refreshed the agenda to keep it dynamic and engaging, including three brand-new keynote sessions that promise to inform, inspire, and challenge. These keynotes will focus on: the creative and artificial sectors, as well as on mental health.

We've also increased opportunities for networking and breakout discussion, ensuring that you leave not only informed but truly connected to the wider community. Conference registration is now open from April, and I encourage you to register early to secure your place. The event is always a highlight of the IST calendar, and I'm very much looking forward to seeing familiar faces and welcoming new delegates alike.

As ever, *The Tech Magazine* features a range of articles celebrating the creativity, resilience, and innovation of our community. In this issue, you'll find insights into the gaming industry, publishing, and an intriguing article on the Science of Efficiency, as well as information on our professional registers - including our frameworks for AI and Creative Practitioners. These frameworks are proving hugely popular and continue to raise the profile of technical roles within the wider professional landscape.



Figure 1. IST Conference 2024 Keynote Speakers 'Technical Panel' led by Helen Sharman, IST President.

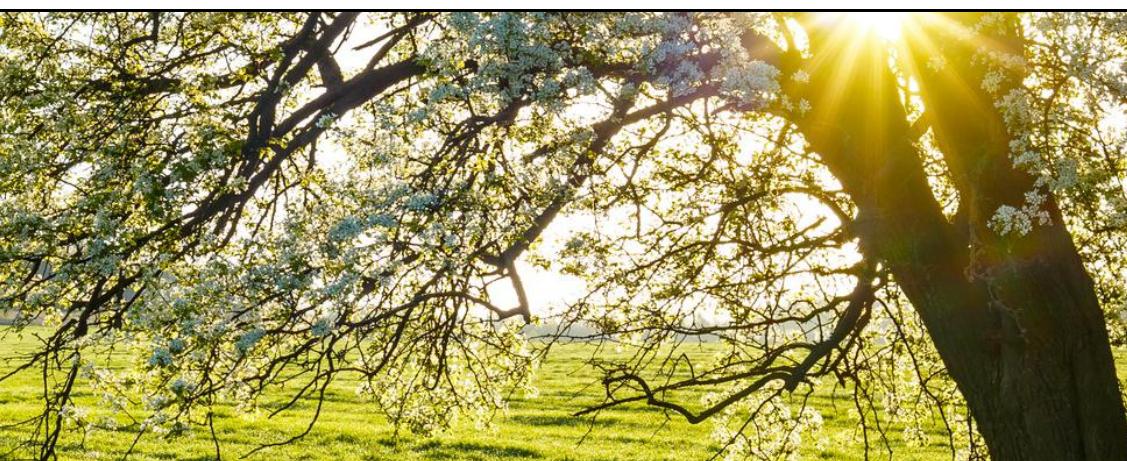
Thank you to JP and the Editorial Team for putting together another informative and engaging edition.

Finally, I want to thank all of you - our members, volunteers, partners, and readers - for continuing to support the IST and contribute to our shared mission. Your energy and ideas drive everything we do.

I look forward to catching up with many of you at the conference later this year. In the meantime, if you're interested in volunteering, have feedback, or want to get more involved, please don't hesitate to get in touch.

With best wishes,

Terry.



Editor's Welcome



JP Ashton-Kinlin, RSci FIScT
Editor / IST Marketing and
Development Officer

**"A big thank you to
everyone who
contributed to this
edition!"**

Dear Readers,

As we step into a new year, I'm delighted to welcome you to the latest edition of *The Tech Magazine*. This year promises to be one of progress, renewed ambition, and fresh energy across the IST and the wider professional community.

We're kicking off 2025 with a reinvigorated focus. Not only on sharing compelling stories from across our sector, but also on strengthening the ways we connect, celebrate, and support technical professionals at every stage of their careers. You may notice some subtle changes in this edition as we continue to evolve the magazine's style, tone, and scope. These updates are part of a broader commitment to make our content more inclusive, diverse, and representative of the brilliant minds that make up our community.

This edition comes to you following the remarkable success of the Conference last year. A huge thank you goes out to our sponsors, speakers, and exhibitors, whose contributions helped create a truly inspiring event.

Inside this issue, you'll find a vibrant mix of features; from developments in the gaming industry, publishing and insights into the Science Parks and our partners. We've added sections to become more all-inclusive and would welcome your comments as to whether we should be focusing on certain articles and updates.

This year, you'll also begin to see changes across the IST as an organisation. We're expanding our outreach, growing our network groups, and investing more in resources that empower professionals across the creative and AI sectors. Whether it's through professional registration, skills development, or opportunities to contribute to our publications, our mission remains clear: to support and elevate every professional working in STEMM, Creative and AI backgrounds in their journey.

We continue to champion contributions from members of all backgrounds. Many of you tell us you're unsure if your story, your research, or your reflections belong here - please know they absolutely do.

The Tech Magazine is your space as much as it is ours, and we're always keen to hear from you.

Thank you, as always, for reading and engaging with us. I hope you find this edition insightful, inspiring, and full of ideas to carry forward into the months ahead.

Here's to a year of innovation, collaboration, and continued growth.

J.P. AK



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The Gaming Boom (in the UK)

Richard Stanford



The UK gaming industry is experiencing an unprecedented boom, with revenues now surpassing those of film and music combined. With an ecosystem that includes powerhouse studios, indie developers, and a thriving esports scene, gaming is not just a form of entertainment; it's a cultural and technological movement. As we move deeper year on year, new trends and innovations are shaping the industry, re-defining how games are made, played, and experienced.

Artificial intelligence (AI) is transforming the way games are designed and played. In the UK, studios are increasingly adopting AI-driven tools to enhance creativity and streamline development. AI-generated assets, procedural world-building, and adaptive non player character (NPC) behaviours are making games more dynamic and immersive than ever before. Games like No Man's Sky (after additional updates), developed by Guildford-based Hello Games, have already demonstrated the power of procedural generation, and now AI is pushing these boundaries even further.

AI-driven storytelling is another exciting development. Narrative engines can now adapt storylines in real-time based on player choices, creating deeply personalised gaming experiences. This could mark the end of traditional linear storytelling in games, making each playthrough feel truly unique and life-like.

Beyond storytelling, AI is also being used to refine game balancing and difficulty scaling. Adaptive AI can assess a player's skill level and dynamically adjust the game's challenge, ensuring an experience that is neither too easy nor too frustrating. This is particularly beneficial for genres like roguelikes* and role playing games (RPGs), where replay-ability is a key factor in player engagement.

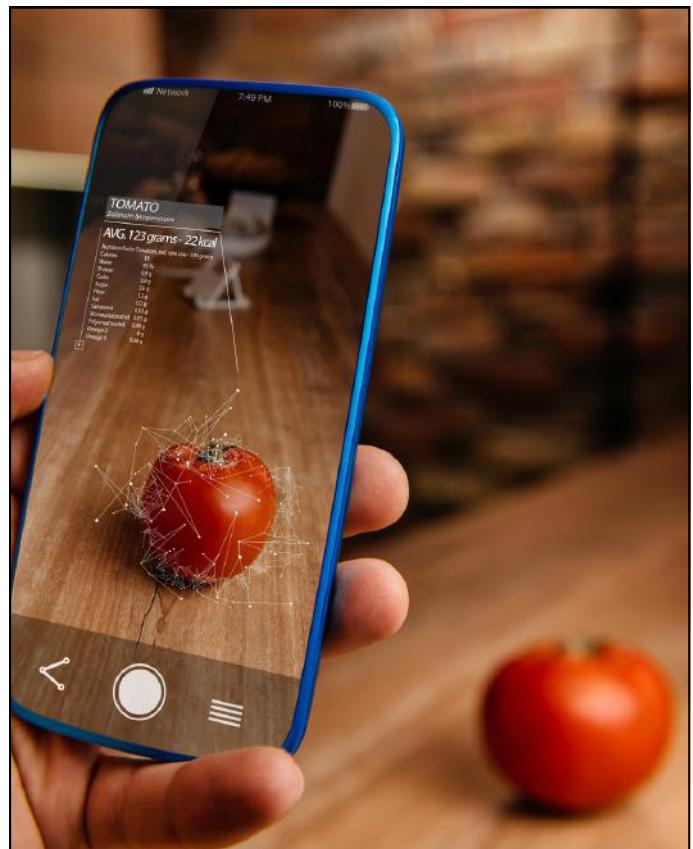
Moreover, AI-powered voice synthesis is revolutionising character dialogue. With natural language processing (NLP), NPCs can now respond more fluidly and contextually to player interactions, creating more organic and lifelike conversations. This means that in the near future, open-world games could feature NPCs with near-infinite dialogue possibilities, reducing repetitive interactions and enhancing immersion.

Virtual Production Expansion in Gaming

Virtual production, a technology already revolutionising filmmaking, is making waves in game development. UK-based studios are integrating virtual sets, real-time rendering, and motion capture techniques powered by engines like Unreal 5 to create hyper-realistic environments. This technology allows developers to create vast, detailed worlds more efficiently, merging the techniques of cinema and game design in new and exciting ways.

As gaming and film continue to converge, we're likely to see more crossover projects where games influence TV shows and vice versa. The success of adaptations like *The Last of Us* on HBO has demonstrated the appetite for high-quality storytelling across multiple media formats. This opens up new creative opportunities for UK developers to craft transmedia experiences that engage audiences beyond the screen.

Another exciting aspect of virtual production is its potential for real-time player-driven storytelling. By integrating virtual production techniques with AI and cloud-based rendering, developers could create games where environments shift dynamically in response to player choices. This could pave the way for more reactive and emotionally engaging narratives, where every player's journey feels like a personalised cinematic experience.

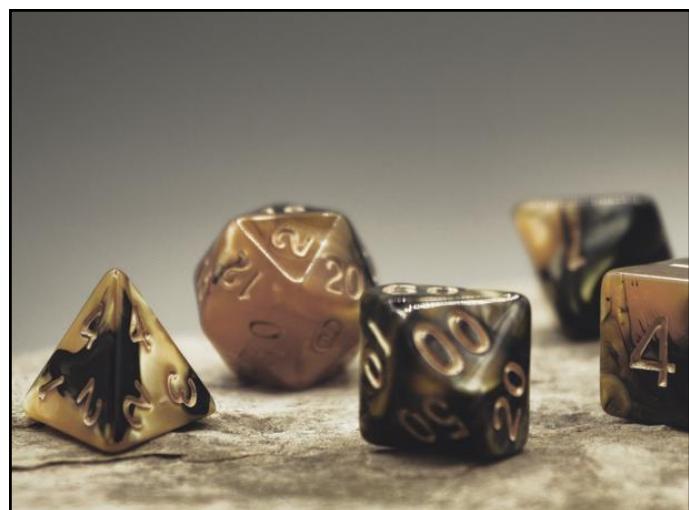


that push the boundaries of presence and interactivity.

One of the most exciting prospects is AR-enhanced gaming experiences that blend the physical and digital worlds. Imagine walking through London and encountering AR-driven quests, or using your smartphone to interact with digital overlays in real-world environments. These innovations are not just changing how we play games but also how we experience storytelling in everyday life.

Indie Developers Leading Innovation

While AAA studios grab headlines, the UK's indie gaming scene continues to be a hotbed of creativity. Smaller studios are leveraging new technologies to produce groundbreaking games without the need for massive budgets. Games like *Tunic* and *Sable* have shown that unique art styles, compelling narratives, and innovative mechanics can captivate audiences just as effectively as big-budget productions.



VR and AR Evolution: The Next Wave of Immersive Gaming

Virtual reality (VR) and augmented reality (AR) are moving beyond niche appeal and into the mainstream. With advancements in hardware like the PlayStation VR2 and Meta Quest 3, immersive gaming is becoming more accessible. UK-based studios are at the forefront of this evolution, developing games

With digital distribution platforms like Steam and Itch.io providing greater accessibility, indie developers are no longer reliant on traditional publishers. Crowdfunding and direct community engagement through platforms like Patreon and Kickstarter are enabling more creative freedom, allowing developers to experiment with unconventional ideas and artistic expression.

Additionally, the rise of game development tools such as Unity and Unreal Engine has significantly lowered the barrier to entry for small studios. Indie developers now have access to the same high-quality resources as larger companies, allowing them to produce visually stunning and technically impressive games. As a result, the UK indie scene is continuously pushing the boundaries of storytelling and gameplay mechanics, ensuring that creativity remains at the heart of the industry's evolution.

The Esports and Streaming Boom

The UK's esports scene is thriving, with competitive gaming tournaments attracting huge audiences both online and in-person. Events like the ESL Premiership and the UK League Championship are elevating local talent to global recognition. Meanwhile, universities across the country are launching esports

courses, recognising the industry as a viable career path.

Streaming platforms like Twitch and YouTube Gaming are also shaping the industry, giving rise to a new generation of content creators. Gamers can now build careers around live streaming, commentary, and community engagement, further blurring the lines between gaming and entertainment.

The UK's gaming industry is not just booming; it's evolving in ways that redefine interactive entertainment. AI-driven storytelling, virtual production, immersive VR/AR experiences, and the rise of indie developers are pushing the industry into uncharted creative territories. Meanwhile, esports and content creation are making gaming more mainstream than ever.

As technology continues to advance, the UK is poised to remain at the forefront of global gaming innovation. With a rich history of creativity and a willingness to embrace new ideas, the future of gaming is bright.



Keywords

A **non-player character (NPC)** is any character in the game that is not controlled by the player, instead, NPCs are controlled by the game's programming. While players control the protagonist or their own avatar, NPCs fill in the rest of the world, making it interactive and immersive. NPCs serve a variety of roles such as quest givers, shopkeepers, story characters, allies or enemies.

Roguelike genre is a style of game that can typically feature turn-based gameplay or procedural generation; where levels or maps are randomly generated, so each playthrough is different.

Role playing games (RPG) involves taking on the role of a character in a fictional world, these games often focus on storytelling, character progression, and decision-making.

Natural language processing (NLP) is a field of AI that focuses on the interaction between computers and human language. It helps machines understand, interpret and respond to text or speech in a way that is meaningful and useful.



Author:

Richard Stanford is an independent consultant and seasoned real-time artist with more than ten years of industry experience. He spent eight years at the German gaming company Crytek as a senior cinematic artist, where he was part of the Creative Services team. During his time there, he created demos, trailers, and marketing content for several AAA titles, including Warface, Crysis, and Homefront 2.



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The Science and Practice of Efficiency

Michael N. Quigley

Introduction

There is an underlying set of principles that provide guidance in assessing the efficiency of many tasks and operations in technical environments. Broadly, such considerations fall under the umbrella field of management science, otherwise known as operations research. Such a list of guiding principles include:

- Planning and strategising / anticipation of actions
- Time management
- Multi-tasking
- Focus / attention to detail and distraction minimisation
- Ergonomic and physical constraints
- Stress reduction
- Organisation and tidiness
- Automation and artificial intelligence

The list isn't intended to be exhaustive, and you may well be able to add your own influences on efficiency. For business entities, overall operational efficiency with its attendant profit and loss connotations is often dependent on technical work. Production facilities, quality control labs and research labs all play an essential role. For example, consider that any delay in the release of a product lot can have a rapidly escalating domino effect in a world economy largely dominated by Just-In-Time inventory control. Also, inaccurate results or poor record keeping caused by inefficient work practices can have far-reaching legal ramifications.

In the healthcare sector, there is a heavy reliance on the work performed in clinical / pathology laboratories. Profit and loss

assessments are accompanied by arguably more important concerns regarding generated results. Quite literally, some results could mean the difference between life and death.

In thinking about your own technical work, you may be able to see parallels to the examples that I have provided. No matter what type of technical environment you work in, if you look closely, you should be able to appreciate the thought involved in ensuring the most efficient processes. If an efficiency protocol is not so obvious, you may see ways in which existing processes can be improved. Looking in detail at the list above, is useful in thinking about the actual practice of efficiency enhancing techniques.

Planning and Strategising / Anticipation of Actions

Look at your core tasks for a given work day and create a plan for the most efficient use of your time. By planning and strategising, you can set a goal for yourself as to what needs to be accomplished, and the best way to accomplish the goals. If you feel more comfortable, discuss your thoughts with your supervisor.

As an example, if you are required to collect equipment, glassware, or other miscellaneous items within your own work area or somewhere separate, ask yourself if additional items are available that you could bring with you for yourself or your colleagues. Additionally, are there items from your work area that you could return to that other location.

The intent of this type of forward thinking is to reduce the amount of wasted time spent

making multiple trips. The goal is to make only one trip or the bare minimum number of trips (using a cart if necessary). This type of exercise is not too different from the route planning routines in place for use by delivery service drivers.

Time Management

If you are not taking a break and you find yourself with some free time, you could choose to offer your help to a colleague. Otherwise consider the words of the late Ray Croc, founder of the fast food global giant McDonalds. In visiting any of his franchise restaurants, Croc was fond of saying to apparently non-busy employees -

**“ If you have time to lean,
you have time to clean. ”**

Look at your own work area or personal space. Would it benefit from cleaning or organising? The intent in this case is to fill your day with assigned work and if time allows, additional tasks based on your own initiative.



Multi-Tasking

Look at the tasks that you perform, and consider those that require your active involvement, and those that can be done while you are involved with tasks requiring your focused attention. For instance, if a set of sample tubes needs to be processed through a mechanical shaker, you need not and should not wait until the shaker has shut off before moving onto another task. Even if there are no focus tasks associated with the process that you are currently involved with, you should be able to find another task to perform.

Focus / Attention to Detail and Distraction Minimisation

I'm sure that everyone has had the experience of trying to focus on a task or tasks, only to be distracted by a colleague, a phone call, or an incoming text or e-mail. A recipe for potential disaster is compounded when the distraction extends to more than just a few minutes. As soon as you are distracted, your efficiency is bound to reduce. Hopefully, you can recover with no appreciable problems. However, mistakes are easily made, requiring the need for work to be repeated with more time wasted. Worse still are those mistakes that are made and not detected, with all the attendant problems that can accrue.

I always remember receiving a phone call from an acquaintance and being told that he had nothing else to do, so he thought he'd give me a ring. On reflection, I appreciated the honesty, but I never appreciated the assumption that I had nothing better to do with my time either. If you have been the recipient of unfortunately timed banter, I think you can relate to my experience. Perhaps if you are the unknowing perpetrator, spare a thought for those people around you who are trying their best to perform a task.

Ergonomics and Physical Constraints

By their nature, many tasks are repetitive, and those that involve repetitive motions of certain joints in the hand or wrist need to be monitored and, if possible, eliminated. More than likely, decisions on improvements will be made by supervisors or managers but your health should not be influenced by the complacency of those who have not performed the tasks for

themselves. Make suggestions for improvements and introduce the concept of staff rotation between tasks.

Stress Reduction

If you look at all those factors that create stress in your workday, you are likely to see that those involving hazardous tasks and materials, or workplace dynamics with colleagues as being the most influential.

Working in accordance with safety guidelines and using appropriate safety equipment should provide a high level of confidence in your ability to perform hazardous work safely, and the need for focus and attention should be apparent to those in your vicinity. If there is anything less than total respect for the hazardous nature of your job, you might want to bring the full importance of your tasks to the attention of others.

If you find yourself having to listen to loud music or programming not of your choosing, consider approaching your supervisor and mentioning in confidence that you're having a difficult time concentrating.

As stress inducers, talking with colleagues about politics and religion can create a lot of friction, and some companies actively ban employees from talking about these topics. The rationale is that concentration can lapse with an increased risk for mistakes to be made and

accidents to be caused.

Stress is not a modern-day phenomenon, and I wrote an article titled "["Stress and the Science Technologist"](#)" for the Institute's old "["Science Technology"](#)" magazine back in 1993.

Stress and the science technologist
by
Michael N. Quigley
**Department of Chemistry,
Duquesne University, Pittsburgh, USA**

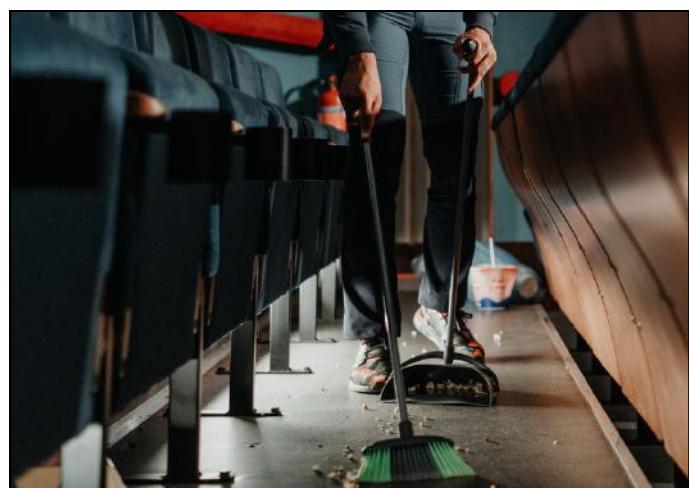
Stress has become a part of every day life for many people. Consider that most working people commute to work through heavy streams of traffic, or have to queue for buses or trains, and it is readily apparent that even before we set foot in our work place, our nerves have probably become frayed and tattered. What hope then for any better experience when we actually start work. Is there anything that can be done to alleviate the pressures and strains that invariably are placed upon our shoulders? It is often difficult to appreciate that many things can be done, and these need not necessarily be related to the many stress reduction exercises that are available.

For the last several years, I have worked among teachers and scholars and seen my share of office and laboratories. Almost without exception they have followed a pattern. Laboratories by necessity adhere to strict safety and work codes. Personally, I find many peoples method of avoiding laboratory tedium, namely playing radio or taped music, both annoying and distracting, but that is only my opinion. It is difficult for me to image a relaxing chemistry laboratory although someone somewhere may be fortunate enough to work in one. Easier to imagine - because I have seen three fine examples - are relaxing office environments. Where it is coincidence or not, I'm not sure, but all three offices contained aquariums of tropical fish. The most relaxed of the three belonged to a chemist I was visiting at a local university. Dark and secluded, and cushioned with thick

Figure 1. An excerpt from the 'The Science Technology' magazine, 1993.

Organisation and Tidiness

Although described earlier as activities that can be performed during less busytimes, there's an advantage to having a planned and organised workspace that is regularly tidied. The obviously organised and maintained nature of a workspace saves time in looking for items or documents and has the added advantage of also organising your mind.



Automation and Artificial Intelligence

Purchasing and use of automated equipment with increasing reliance on artificial intelligence and machine learning has the potential benefit of increasing productivity and efficiency.

However, for those familiar with chemical reactions and the concept of rate determining steps, there are limitations. Whatever advantages may accrue from using increasingly sophisticated instrumentation they will count for nothing if other factors influencing overall efficiency are ignored.

Summary

Although the foregoing article serves as a primer for those factors influencing efficiency, there are others that are less obvious. For example, strict adherence to the details provided in a standard operating procedure guarantees accurate and precise results with less likelihood of repeat work. In general, an organised approach to work in a technical work environment fosters an efficient workflow with the minimum of stress.

The added benefit, is that many of the principles so useful in such an environment, are easily transferrable to our personal lives.



Author:

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What!! Has my IPR been stolen?: AI Training, Content, IP Infringement, Authors and the Creative Industries

Alicia Colson



Did you know that the use of copyrighted content in training AI models is a legal battleground within the development of generative AI tools, such as the ChatGPT chatbot?

Maybe you know of the protests outside the offices in London by the members of '*The Society of Authors*' (societyofauthors.org)? Or how the members of the '*Authors Guild*' (authorsguild.org) in the US are reacting?

Back in December 2024, the '*Creative Rights in AI Coalition*' (Crac) stated that existing UK copyright laws must be respected and enforced rather than degraded. This coalition of musicians, photographers and newspapers insisted that existing UK copyright laws must be respected. They objected proposals made by the UK government ministers that allowed companies such as *Open AI*, *Google* and *Meta* to train their AI systems on published works unless their owners actively opt out. Creative professionals, authors and publishers warned

the use of their work without permission endangered their livelihoods and business models. The creative sector and the arts and media sector in the UK asked the government in December 2024 that the onus to be on the

“generative AI developers to seek permission, agree licences and pay rights-holders if they want to train algorithms with the power to write, and make moving images, pictures and music.”

Why? Many AI companies, predominately in the US, wish to train their large language models (LLMs) and rather than buy it, they have ignored who is the copyright owner and just used the data. They haven't paid those who created the data despite the fact that it belongs to people in the creative sectors (musicians, writers, photographers, filmmakers, etc). These US based AI companies are refusing to pay for the use of their data, which in turn threatens the creative industries which itself generates for the UK £125bn in gross value added (GVA). This is a measure of how much value companies add through the goods and services which they produce. '

As if the situation couldn't get any worse, if you're a writer, researcher, author, or a publishing professional, you'll know that *Meta* (formerly called *Facebook*) used copyrighted books to train AI for LLMs. It's been established by a group of authors based in the US that Zuckerberg, *Meta*'s CEO,

“approved Meta's use of “pirated” versions of copyright-protected books to train the company's artificial intelligence models.”



Meta used the '*shadow library*', LibGen (libgen.is/), which contains more than 7.5 million books. 'LibGen' is '*Library Genesis*', it's a "**shadow library**", which are online repositories of digital media which are free as the information in the library is usually behind a paywall or an access-controlled database or otherwise it's not readily accessible. It contains

articles, academic and general-interest books, images, comics, audiobooks, and magazines.

If you don't know much about it, check out: (en.wikipedia.org/wiki/Library_Genesis).

Last month, '*The Atlantic*' magazine published an article by Alex Reisner, entitled '**Search LibGen, the Pirated-Books Database That Meta Used to Train AI**' providing a link to their own searchable database of all of the titles contained in LibGen (theatlantic.com/technology/archive/2025/03/libgen-meta-openai/682093/). Many authors have searched *the Atlantic*'s database to discover that their works, despite being copyright-protected, were used to train *Meta*'s AI models. Many knew that it was likely that their works had been digitised by the pirated digital library as it has existed for some time and itself, has an 'interesting' history.

Unfortunately, this isn't the first time that '*The Atlantic*' has broken news about writing being used for training AI as it wrote an article, after an investigation of how film and television writing has been used to train AI (see: <https://www.theatlantic.com/technology/archive/2024/11/opensubtitles-ai-data-set/680650/>).

So, what's happening? On 3rd April 2025, the publication '*The Bookseller*' reported that the 'Publishers Association' and the 'Society of Authors' stated that the 'fair use' legal defence used by *Meta* and *Anthropoc* last week against separate allegations of copyright infringement for training AI tools on published books won't work in the UK courts. **So, what's next?** "I'm guessing, further law cases". Either way, IP has been lost and the UK's creative industries, which in November 2024 were valued by the UK government as being worth £125 billion to the UK economy, will suffer financial losses.



Author:

Dr Alicia J. M. Colson, FIScT is a freelance archaeologist and ethnohistorian and a key Management Committee Member in the IST AI Group.

Gaia for Science Technologists

Michael N. Quigley

Introduction

In an earlier article, “*The Anthropic Principle and its Relation to Laboratory Science*” in The Tech Magazine 2024, 5(2), 12, a brief mention was made of the Gaia Hypothesis. Given recent events, it’s an appropriate time to draw attention to the hypothesis with a view to increasing science technology awareness of what has become a world crisis.

On January 13th 2025, weather agencies across the globe made an announcement that **2024 was the hottest year on record**, with July 10th the hottest day having an average global temperature of 17.16°C. Of course, it’s been known for many years that the burning of fossil fuels is the major contributor to the increase in global temperatures. In particular, it’s the release of so-called greenhouse gases into the atmosphere such as carbon dioxide, methane, and nitrous oxide that is believed to be the cause. Alarmed at what appeared to be

a steady trend, an international agreement on climate change was adopted in Paris on December 12th, 2015 and eventually signed by representatives of both industrialised and developing countries. With a baseline temperature established during the pre-industrial 1850-1900 period, the intent of the agreement was and still remains to limit “*the increase in global average temperature to well below 2°C above pre-industrial levels*” by the end of this century. There was also supposed to be an effort via 5-yearly reviews to limit the increase to 1.5°C above pre-industrial levels. Unfortunately, as of 2024 and with the 10-year anniversary of the Paris Agreement’s adoption approaching, the global temperature rise has now already passed the preferred limit.

Hopefully, this recognition will lead to a concerted effort to at least slow and preferably reverse the trend in compliance with the Agreement’s intent to decrease the global temperature rise by 43% by 2030. To further



complicate matters, newly elected President Trump signed an executive order on January 20th, 2025 - the day of his inauguration - directing the US to withdraw from the Agreement.

Ironically, we and most other organisms on Earth actually need the greenhouse gases to survive. Indeed, if carbon dioxide were completely removed, it's estimated that there would be over a 30°C decrease in the Earth's surface temperature. The greenhouse effect refers to the insulating properties of greenhouse gases in the atmosphere preventing heat from the Earth being lost to space. Greenhouse gases such as methane from wild animals and vegetation have always naturally entered the atmosphere, and over the eons the Earth's theorised compensating mechanisms have always been able to cope. It's the sheer volume of greenhouse gases generated since the start of the industrial revolution that has overwhelmed these mechanisms.

There's an ongoing debate among scientists about whether there is now an acceleration in the temperature rise. If true, this is a worrying development requiring a quicker solution. You may already be aware of some effects of atmospheric and oceanic warming with reports of coral bleaching, melting of glaciers and calving of a huge iceberg from the Antarctic ice sheet. All this serves to bring global warming back into the public consciousness and hopefully with it a better appreciation of the ecosystem on which we depend.

The Gaia Hypothesis

Introduced by chemist James Lovelock and evolutionary biologist Lynn Margulis in the 1970s, the Gaia hypothesis was controversial from the very start, but it has since been widely incorporated into environmental studies courses and remains relevant today. Now both dead, Lovelock and Margulis had interesting backstories outside of their famous hypothesis.

The Gaia Hypothesis views the Earth as a complex, self-regulating body in support of all its variety of life. Named after the ancient Greek deity symbolising Mother Earth, the living organisms (from plants to humans, insects to whales, and every other living thing that you can think of) are all part of what is referred to as the biosphere, and the entire diverse population of organisms is closely integrated with the inanimate components that comprise the whole Earth. Thought of in synergistic terms, the biosphere is benign (except for humans) and should have only a minor influence on the inanimate components.

Because human involvement is so significant, a separate category has been created describing the anthroposphere or human made world. Not only does the anthroposphere include human made constructs such as towns and cities, reservoirs, dams, power grids, and infrastructure in general, but also human influence on the environment.

We are all familiar with these inanimate components although all except one are referred to by less familiar names:

- The lithosphere comprises the rocky crust and upper mantle of the Earth that we are familiar with as continents. Similar formations under the oceans are invisible to most people. The two types of formation are referred to as the continental and oceanic crusts respectively.
- The atmosphere with its mostly nitrogen content together with oxygen and a number of greenhouse gases and other gases in lower concentration is familiar to all of us. It may be invisible and often regionally polluted, but the atmosphere is always essential if only for its oxygen content.
- The hydrosphere comprises all the water in its liquid and gaseous states above and below the surface of water.
- The cryosphere, although strictly a part of the hydrosphere is distinct enough to

warrant its own name and refers to all the frozen areas of the Earth including permanent ice-caps such as those covering Antarctica and Greenland, permafrost and glaciers.

- The pedosphere refers to minerals, organic matter and microbes that make up the soil. The soil is intricately linked with the atmosphere and hydrosphere with air and water permeating and percolating through it.

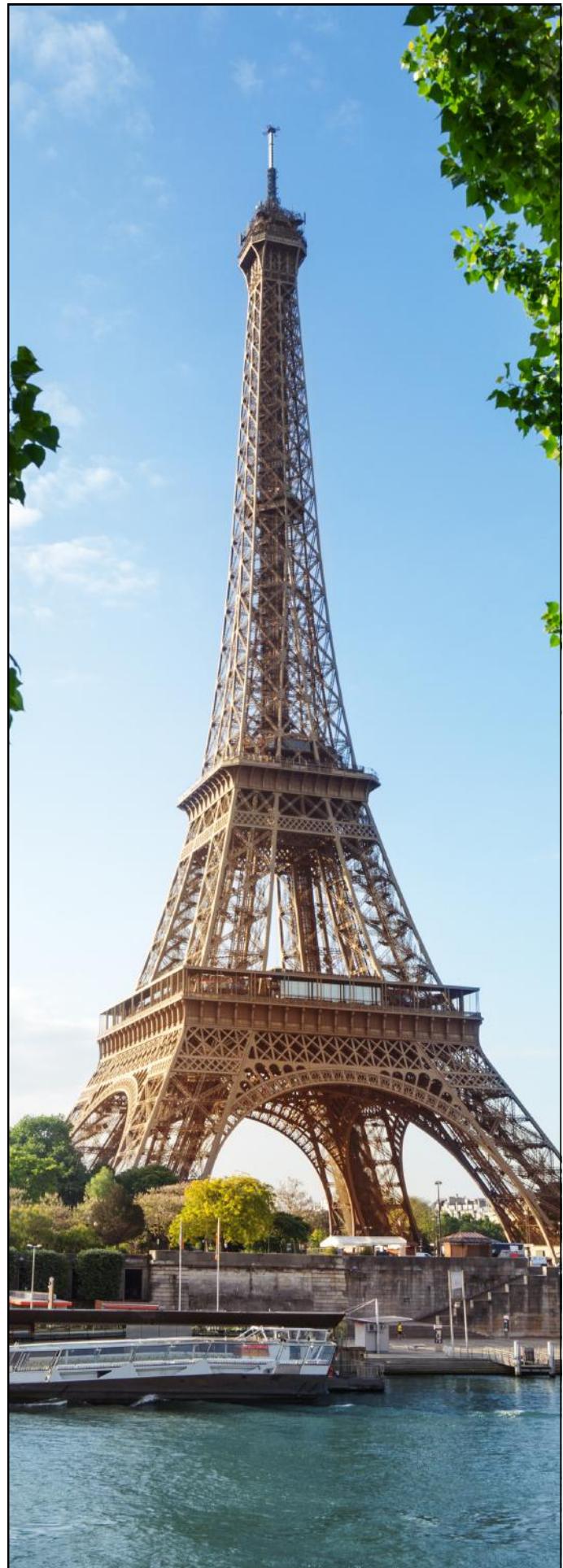
Influences on the Earth

Accepting the main points of the Gaia Hypothesis means believing that the Earth is in a continuous process of adjustment responding to a myriad of feedback mechanisms that maintain optimum conditions for its multitude of organisms. These feedback mechanisms include those controlling the oxygen content of the atmosphere, the salinity of the oceans and, as described earlier, the surface temperature of the Earth and its oceans. Even Lovelock was surprised at the very slow rise in average global temperatures after his hypothesis proposal, and his warnings tended to be disregarded by many scientists. However, the latest news only serves to bolster the case for climate control and adds credibility to the Gaia hypothesis.

Daisyworld, AI and Laboratory Simulations

The global policy making behind the Paris Agreement was an excellent step in setting boundaries for the emission of greenhouse gases into the atmosphere. Despite this, there needs to be a broader awareness of what can happen if inaction or ineffective controls continue.

Lovelock and one of his former graduate students Andrew Watson understood the importance of computer modeling even back in the 1980s, and their creation of the Daisyworld model set a precedent for evaluating the effects of temperature change in a simplified way.



Daisyworld was created imagining an Earth type of planetary body orbiting a star. The modeled planet had a rudimentary biosphere possessing just two types of daisies: one with black petals, and the other with white petals. The modeled daisies absorbed radiant energy from the star to different degrees. Changing the parameters would lead to different population numbers allowing for stabilisation of the planet's climate.



Of course, computer modeling acknowledges the fact that climate change and other influences on the Earth are by their very nature global in scale. It isn't that lab experiments can't provide useful information (especially in terms of mitigation). It's how to translate the information to a global scale. The natural generation of dimethyl sulphide (DMS) by certain types of marine phytoplankton is a case in point. DMS released into the atmosphere is involved in cloud formation, and with clouds

comes an albedo effect causing a reduction in radiant energy from the sun reaching the earth. As a result, there is the potential to reduce the global temperature rise. As you can imagine, much research has been performed on a small scale into the mitigating effects of DMS. Unfortunately, it isn't all good news since DMS in the atmosphere has been linked to the creation of acid rain, which is another problem entirely.

Summary

If you ask your family or colleagues their opinion on climate change, you will likely find the results to be representative of the global population's point of view. There will be a sense of urgency from some, and apathy or resignation from others. Shaping public policy of our own elected leaders is difficult enough and of course we have no control over public policy in other countries. Despite this frustration, we need to be aware of what will happen from a continued increase in global temperature.

If you have your own thoughts for modeling techniques or mitigation strategies to reduce the effects of climate change you might want to consider submitting an article to [The Tech Magazine](#) or [IST Journal](#).

Author:

Michael N. Quigley, FIScT

Createc Corporation, Ithaca, NY 14850, USA

The Gypsy Girl Mosaic of Zeugma (Gaia) - Turkey



Publishing for Beginners

Emily Toddington

Since graduating recently from Oxford Brookes University, Emily has nurtured an avid passion for publishing, combining her academic knowledge with a keen eye for detail and storytelling. Drawing on the skills she developed during her time at university, she brings both insight and enthusiasm to this article, showcasing her commitment to sharing ideas that inform and inspire.

Breaking into magazine publishing as an early-career apprentice can be an exciting and rewarding experience. Whether you're interested in writing, editing, design, or marketing, understanding the fundamentals of magazine publishing will help you establish yourself in the industry.

Here's a step-by-step guide to help you get started, along with some of my own top tips for success.

Step 1: Understand the Magazine Industry

Before diving in, research different types of magazines (obviously the IST webpages and their Tech Magazine is a good place to start, as they have the facility to accept articles from junior individuals), from print to digital, and explore their audiences, content styles, and publishing schedules.

This will help you understand where your skills and interests fit best.



Read a variety of magazines and analyse their content, structure, and tone to get a feel for industry standards.



Step 2: Build Your Writing and Editing Skills

If you're interested in the editorial side, start practising by writing articles, blog posts, or reviews. Understanding grammar, punctuation, and storytelling techniques is essential.



Take online courses or workshops on journalism and creative writing to refine your skills.

Create a personal blog or contribute to online publications or social media posts to showcase your writing and build a portfolio.



Step 3: Learn About Magazine Layout and Design

For those interested in design, mastering tools like Adobe InDesign, Photoshop, and Canva is crucial. Magazine layouts require a balance of text and images, and understanding grid structures, white space, and visual hierarchy can help create professional-looking pages. Studying successful magazine designs and deconstructing their layouts is a great way to learn what works well.

Additionally, it's important to familiarise yourself with industry design standards. Different publications have unique styles, and knowing how to adapt your designs to fit various audiences and themes can make your work more versatile. Learning about print production, including resolution, colour modes, and bleed settings, will also ensure that your designs look just as good in print as they do on screen.

Gaining hands-on experience with design tools will help refine your skills. Start by creating mock magazine covers, feature spreads, or digital layouts. Many free and open-source tools offer a great starting point for beginners looking to experiment with layouts and visual composition without the financial commitment of premium software.



Top 3 Free Design Software for Beginners:

1. Canva – A user-friendly online design tool that provides templates for magazine covers, social media graphics, and layouts. It's great for beginners and offers a drag-and-drop interface with a vast library of fonts, images, and elements.

2. GIMP (GNU Image Manipulation Program) – A powerful free alternative to Photoshop, GIMP allows for photo editing, image manipulation, and even some basic layout design. It's ideal for those looking to develop more advanced graphic design skills.

3. Scribus – A professional-grade open-source desktop publishing tool similar to InDesign. Scribus is excellent for creating magazine layouts, brochures, and print-ready documents while offering high-end publishing features for free.



Experiment with creating magazine-style layouts using free design software before investing in professional tools.

Step 4: Gain Experience Through Internships or Freelancing

Many magazines offer internships or freelance opportunities. This hands-on experience will provide insight into the industry and help you build a portfolio.

Reach out to local publications, blogs, or online magazines to contribute as a guest writer or designer.



Step 5: Network with Industry Professionals

Attend industry events, join writing or publishing groups, and connect with magazine professionals on LinkedIn. Engaging with industry communities helps you stay informed about trends, job openings, and best practices in the field. Many professional organisations also offer workshops, webinars, and networking sessions that can provide valuable insights into the publishing world.



Networking can open doors to job opportunities and valuable mentorship. Building relationships with experienced professionals can lead to career advice, potential collaborations, or even job referrals. Don't hesitate to reach out, ask questions, and showcase your enthusiasm for the industry - most professionals appreciate helping newcomers grow.

TOP TIP *Follow industry professionals and magazines on social media to stay updated on trends and job openings.*

Step 6: Understand the Business Side

Publishing is not just about creativity - it's also a business. Learn about advertising, distribution, and audience engagement to understand how magazines generate revenue and reach readers.

Research how digital subscriptions, sponsored content, and advertising partnerships work in magazine publishing.

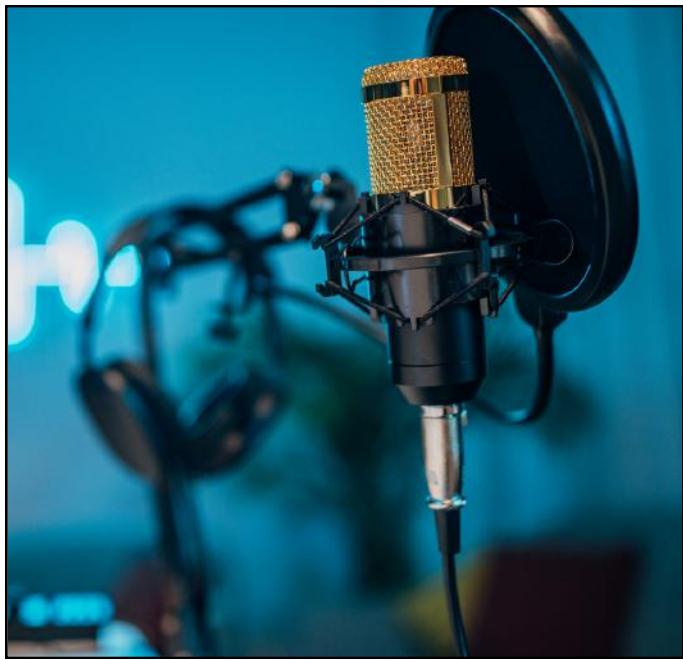
TOP TIP

Step 7: Keep Up with Digital Trends

With the rise of online publications, knowing how to optimise content for digital platforms, SEO, and social media is crucial. I give two examples below.

(i) Master SEO and Keyword Strategies
Understanding how search engines rank content is essential for reaching a wider audience. Research relevant keywords and incorporate them naturally into headlines,





subheadings, and body text. Additionally, optimising meta descriptions and using alt text for images can enhance visibility.

(ii) Leverage Social Media and Digital Marketing Promoting articles through social media channels such as Twitter, LinkedIn, and Instagram can drive traffic to online

publications. Engaging with readers through comments, shares, and discussions increases visibility and builds a loyal audience.

Learn about multimedia storytelling, including videos, podcasts, and interactive content, to expand your skillset.

TOP TIP

Final Thoughts

Starting a career in magazine publishing takes dedication, creativity, and a willingness to learn. By following these steps and staying adaptable, you can carve out a successful path in the industry.

Keep writing, designing, and networking, and opportunities will come your way!

Author:

Emily Toddington is an Oxford Brookes University Business School graduate with a BA (Hans) in Marketing Management.



What should you expect when you talk to us?



Understanding your needs

Our first conversations are about you. Current and future needs, objectives and timing requirements. We want to make sure that our product is right for you.



No obligation, free product evaluation

Start with our trial system to evaluate if the system is able to solve your issues. We will help set up your main configuration controls, train a key user and help you load a sample of your data to perform an accurate test.



Integration expertise

If you decide to use our available third-party integrations one of our support team will help you through the entire process so you can get the data flow you need.



Supported onboarding

We understand that some have limited time to devote to setup. So we will assist in the transition process, helping you get started, liaising with your team, and ensuring you gain maximum benefits from your system.



Live Product training

Face-to-face, bespoke training for your crucial admin users. Training is typically done via group video sessions but can be at your premises.



Ongoing friendly and responsive support

Dedicated account managers will be there to help you resolve issues and give advice to help you unlock our systems full potential and overcome any potential learning curves.

siso.co.uk

CALL FOR ARTICLES

At the IST, we want to encourage all of our members to submit short articles for our publications; The Tech Magazine or The Journal. Our members would like to see more articles from our Fellows and from our early-career technicians.

If you work at a senior/managerial level, we would encourage you to allow your team members to contribute also, so that they also have the opportunity to publish articles.

These are how the IST will help you:

- **Incentives:** Offer rewards such as recognition in the publications and professional development opportunities for those who contribute. All authors are credited for their article submission. Submitting to the publications can also contribute to your annual CPD review.
- **Contents/Themes:** The wall of contents shows the areas and themes for submissions to provide direction and inspire members to write about relevant topics. We have many areas and themes for members to write about.
- **Ease of Submission:** Simplify the submission process with clear guidelines and an easy-to-use platform. We have simplified the process by giving documents and example articles. We have a template for members to use to submit their article.
- **Spotlight Features:** Highlight articles and authors in publications, websites, or social media to give contributors visibility. Our authors who submit articles will be highlighted across our publications and marketing platforms.
- **Collaborations:** Encourage collaborative articles among members to share different perspectives and reduce the individual writing load. If members are struggling to complete an article, we will assist to help bring the technical workforce together to collaborate.
- **Editorial Support:** Offer editorial assistance to help refine articles and ensure quality content. The Editorial Board will provide constructive feedback to contributors, showing that their work is valued and helping them improve.
- **Regular Reminders:** Send out regular calls for submissions, reminding members of deadlines and the importance of their contributions.

By implementing these strategies, the IST can create a supportive environment that motivates members to share their knowledge and experiences through short articles.

Please send your articles to:
office@istonline.org.uk



The Tech Magazine Vol. 6 No. 1

Release - Mar / April 2025

- Call for articles: Jan/Feb/Mar
- Deadline for submissions: 18th March

The Tech Magazine Vol. 6 No. 2

Release - July / August 2025

- Call for articles: May/Jun/Jul
- Deadline for submissions: 25th July

The Journal

Release - November / December 2025

- Call for articles: All Year
- Deadline for submissions: 30th October

You can find the forms below from:

www.istonline.org.uk/resources/the-tech-magazine/

This form is titled 'Technical Spotlight - #TechnicianJourney'. It includes fields for Name, Role, Institution, and a text area asking 'What do you do at your institution? Talk about a typical day at work for you. (50-100 words)'. Below this is another text area for 'Why did you want to work as a Technician? (upto 50 words)'. Further down are questions about previous roles ('What makes your role so vital at your institution? (upto 50 words)'), past experiences ('What did you do before you became a Technician? (upto 40 words)'), and hobbies ('What do you enjoy doing when you are not working? (upto 40 words)').

This form is titled 'THE Tech Magazine - Article template'. It includes fields for Name, Role, Institution, and a text area asking 'Enter your article here - remember, the story is the focus'. Below this is a section for 'Word count' and 'Article links'. At the bottom, there is a note: 'If you have any resource links, PDFs, assets or schematics that your article is linked to enter them here. If you have any resource links, PDFs, assets or schematics that have been taken by your institution, or if you have any images for which you own all the necessary rights - this could be images that you have personally taken or images that have been taken by your institution, or images that have been taken by a third party, such as a partner website, a blog, or created by a stock, Shutterstock or similar image purchasing company.'

Article Specifications

Sector Specific Articles	Industry, Business & Consultancy Research Institutes Higher Education Schools & Colleges Overseas	300 – 400 words
Technical Spotlight	See individual specs for this on page 2	230 – 270 words
Highlight articles	Special Highlight	300 – 400 words
E-Articles	Articles from all disciplines as Full Papers, Communications, Reviews	1,000 – 2,000 words
Technology Articles	Creative Digital Engineering Science	300 – 500 words
Special Interest Articles	Equality, Diversity & Inclusion Outreach & Engagement Sustainability	300 – 500 words

Format and layout of your articles

Keep your writing clear and concise, avoiding repetition or embellishment. All submissions must be in English. You are welcome to use common or standard abbreviations; if your abbreviations are non-standard, please include a definition the first time you use them.

All articles accepted for publication in our magazines and journals are edited and typeset to our house style by professional editors: the manuscript will be formatted for you.

If you would like professional guidance on improving the standard and style of your writing, before submitting your article, we can offer help, support and advice.

Article Types

Articles fall into one of three main categories: Full papers, Communications and Reviews. However, each journal will have further, specific article types, so you should always refer to the publications specific specifications while preparing your manuscript.

Full papers are original, unpublished primary research. Extensions of work that has been published previously in short form such as a Communication are usually acceptable.

Communications must contain original and highly significant work whose high novelty warrants rapid publication.

Reviews may be an authoritative overview of a field, a comprehensive literature review, or tutorial-style reference materials. Reviews are usually invited by the editor, but a topic may be proposed by an author via the Editorial Board.

THE NEW ADDRESS OF THE IST AND MORE UPDATES FROM SHEFFIELD TO STOCKPORT

The New IST Office Address

We're pleased to share some important updates with our members! The IST has recently moved into a new office space.

Our new address is located at Bank Chambers, Market Place, Stockport, SK1 1AR, and we also have a new phone number: 0333 772 3929.

Please update your records and feel free to get in touch - we'd love to hear from you.

AGM - Wednesday 23rd April 2025, 12.30pm

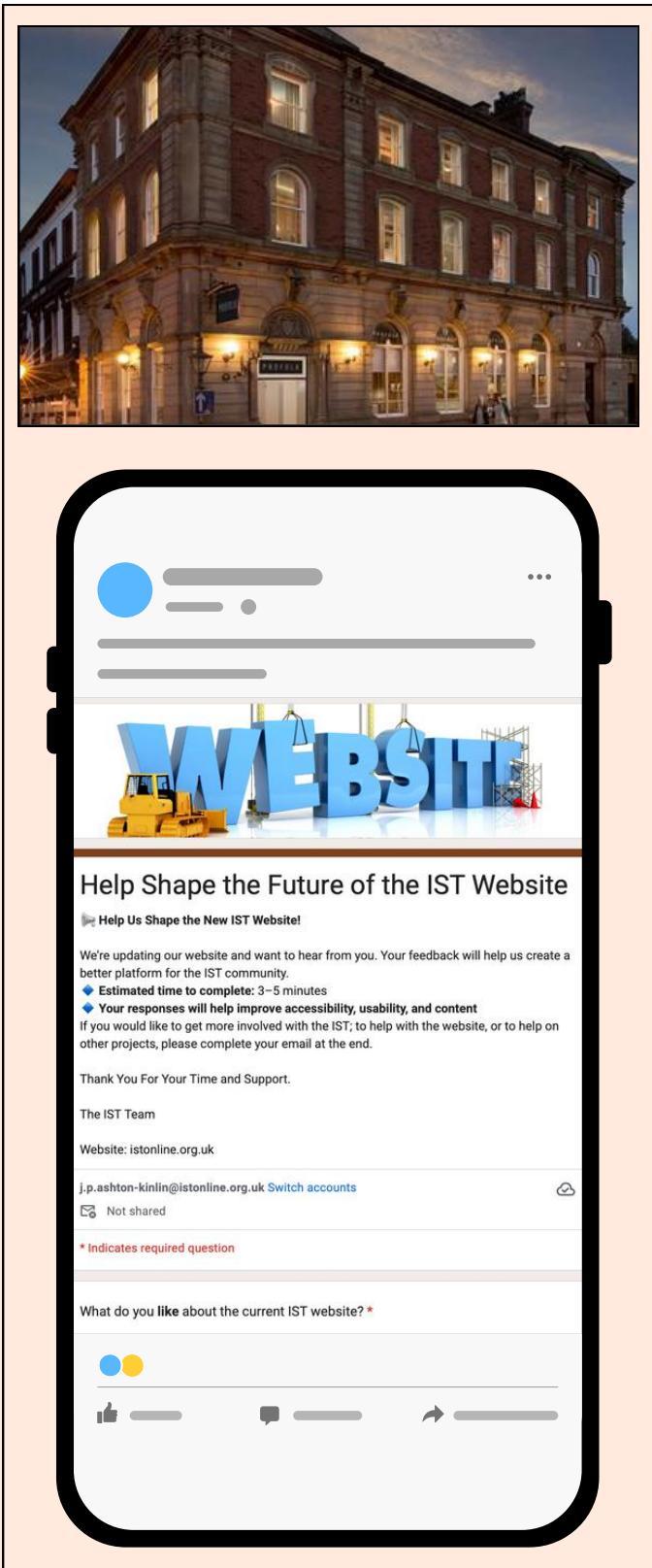
We're also looking forward to welcoming members to our upcoming Annual General Meeting (AGM) on 23rd April. This is a fantastic opportunity to learn more about our recent activities, future plans, and to get involved in discussions that help shape the direction of the IST. We really value member participation and hope to see many of you there.

[Complete this form if you would like to join us.](#)

The New Website - COMING SOON

In addition, we're currently working on refreshing our website, making it easier to navigate and more helpful for our members.

As part of this process, we've launched a feedback form on the site and would greatly appreciate your thoughts. Whether it's something you like, something you'd change, or features you'd like to see added - your feedback will help us improve the online experience for everyone.



The image consists of two parts. The top part is a photograph of a large, three-story red brick building with multiple windows and lights on, identified as the new IST office location. The bottom part is a screenshot of a mobile device displaying a feedback form titled "Help Shape the Future of the IST Website". The form includes sections for user information, estimated time to complete (3-5 minutes), and responses that will improve accessibility, usability, and content. It also features a "Thank You For Your Time and Support" message, the IST Team contact information (website: istonline.org.uk, email: j.p.ashton-kinlin@istonline.org.uk), and a note about shared accounts. The form ends with a question about current website likes and a series of icons for thumbs up, thumbs down, and other interactions.

[Click here to find out more and complete the form](#)



IST MEMBER BENEFITS

SPONSORED BY DELL TECHNOLOGIES

EXCLUSIVE DISCOUNTS

Dell UK is proud to partner with the Institute of Science & Technology to provide a range of discounts on selected products.

Benefits for IST members include:

- Up to 20% off Dell Technologies laptops, desktops, and accessories
- Access to additional savings during seasonal Dell promotions
- One-to-one tech advice from Dell advisors

OFFER BENEFITS

7% OFF all Vostro and Inspiron

14% OFF all Latitude, Precision and Optiplex

10% OFF all XPS, Alienware, Dell Gaming and Monitors

20% OFF all accessories

Email for exclusive offer codes:
office@istonline.org.uk

Use voucher code at the Dell checkout or contact SBAUK@Dell.com for assistance.

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Professional Registration: An overview for science-based apprentices

Laurence Dawkins-Hall et al.

Preface

Why become Professionally Registered with the Science Council?

I have written extensively in the past on the application process for achieving professional registration with the Science Council via a standard on line pro forma or CAP (Common Application portal), including an article dedicated to exploring the structure, application pro forma and testified benefits, in an article for the IST *The Tech Magazine* (Vol #5, No. 2, pp 37_40):

In essence, Professional Registration post nominals are a “*Mark of excellence*” which inculcate and accredit to professional theory and practice, compliance with ethical and professional standards and CPD.

How do I become professionally registered?

CAP requires the collation of a [portfolio of working evidence](#), testifying to the candidate's proficiency or competency in the workplace, and detailing relevant working practices, such as technical aptitude and practice, planning, organisation and CPD. These working proficiencies are adumbrated via prescribed competencies, which examine all aspects of working skills, enabling proficient and efficient practice in STEM.

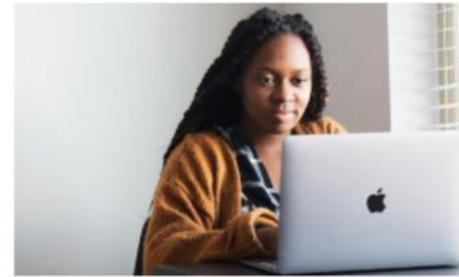
The required competencies, are divided into five principal categories which each subdivided into two to four sub-competencies. That means applicants must submit evidence in about fifteen fields, each requiring 300-, so a full

Letters of mark

24 Feb 2025

Professional registration provides a clear indication of competency and access to valuable resources, explains Laurence Dawkins-Hall, with a shortened route for apprentice technicians and scientists.

 laboratory news



application script can be approximately 5,000 words in length.

What about qualified STEM apprentices?

Applicants who have recently completed [an eligible science-focused apprenticeship](#) can use a more streamlined route (short R2R). In many cases, applicants need only provide their apprenticeship certificate, a copy of their CV and submit a declaration relating to their continuing professional development.

So, [what will Professional Registration bring to your armoury](#) and what steps are required to achieve it:

Get recognised

Using RSci or RSciTech after your name demonstrates a level of the competency you have as a practising scientist or technician and your commitment to integrity, regard for public interest and responsibility for others.

Shine & Reflect

The application process supports and encourages you to reflect on what you have achieved in your career so far - it's a process that will build your confidence in your role.

Ethical Credentials

Registration tells others that you are committed to working to high ethical standards and gives them trust and confidence in you as a professional scientist or science technician.

Be the one that stands out

Registration is a mark of quality and competence that is sought after by employers.

Become part of a community

To become a registrant, you will need to be or become a member of a licensed Professional Body. This offers the opportunity to access networks, resources and events.



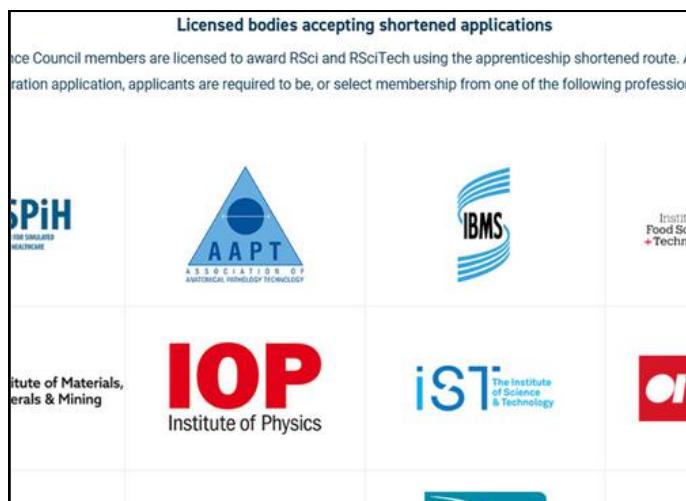
Joining a licensed body: The Road to Registration

Professional registration is awarded by a Licensed Body in partnership with the Science Council. Applicants for registration must hold membership of the relevant Licensed Body (which can be applied for at the same time as professional registration).

Distinct from professional registration, [membership of a Licensed Body conveys a range of professional benefits](#) and advantages:

- A forum for networking with like-minded apprentices and other professionals working in your field.
- Annual conferences, providing the opportunity to attend, present or chair sessions with fellow professionals.
- Many licenced bodies such as the [IST](#), [RSC](#), [RSB](#) offer apprentice-focussed travel grants, prizes and training courses.

Moreover, it is probably worth pointing out that if you are professionally registered you enhance your chances of a successful applying for these grants and other benefits, like.



A subset of Licensed bodies, falling under the aegis of the Science Council, have elected to [support short R2R](#), including the IST and RSB.

As an apprentice, am I eligible to apply for Professional Registration?

The register you join is dependent on the particular apprentice standard. In particular:

- Check on the [Technical Pathways website](#) if your apprenticeship is aligned to either Registered Science Technician (RSciTech) or Registered Scientist (RSci).
- If you have received your apprenticeship certificate in the last 24 months, you are eligible to apply for professional registration via a shortened route.
- For the small number of cases where the endpoint assessment does not automatically culminate in an apprenticeship certificate, it may be necessary to provide further evidence of experiential knowledge, skills and behaviours in the form of Equivalency.

Apprentice routes to application

Over thirty science-focused #Level #3/4/5/6 apprentice standards are aligned to either RSciTech or RSci. This mean that the knowledge, skills and behaviours you have demonstrated as part of your apprenticeship's endpoint assessment are taken into account so you are only required to complete specific tasks as part of your application for professional registration.

[Fully aligned apprenticeships](#)

Many apprenticeships are '**fully aligned**'. Applicants only need to complete the following steps as part of their application:

- Up to date CV.
- Copy of Apprentice Certificate.
- Copy of requisite qualifications or completion of the Equivalency field instead.
- Supporter Statement.



Partially aligned apprenticeships

For some apprenticeship standards, the evidence generated by the endpoint assessment covers about 70% of the competence requirements for professional registration. In these cases, applicants are required to provide some additional evidence in support of their application:

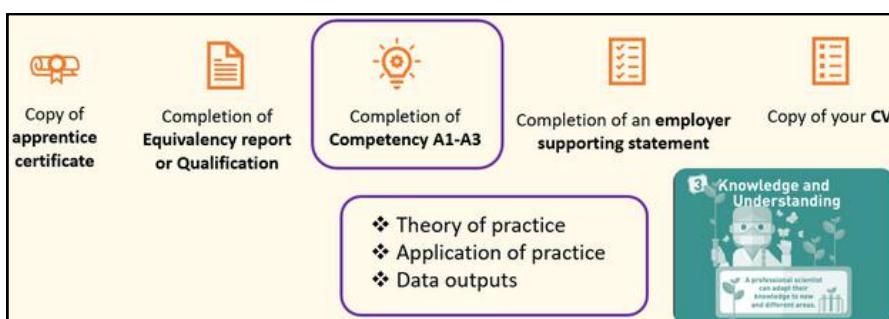
- Up to date CV.
- Copy of Apprentice Certificate.
- Copy of requisite qualifications or completion of the Equivalency field instead.
- Supporter Statement.
- In addition, the applicant must evidence workplace technical proficiency by completing competencies A1, A2 and A3.

HOW TO APPLY



Where can I find more information about any of the above?

- Go to the apprenticeship section of the Science Council's Technical Pathways website.
- Alternatively, if you are applying directly through a Licenced body and not the OnLine Application Portal (#CAP) e.g., the RSB or RSC, contact the respective licenced body directly for further guidance.



Summary: why become professionally registered?

Professional registration provides:

- post-nominals (RSci, RSciTech) which demonstrate your professional competency and commitment to excellence in practice.
- represents a quality standard recognised across the scientific professions, supporting your career progression and professional profile in conferences, publications and with clients, which in turn is valuable CPD.

- I recently provided an abridged version of this article in [Laboratory News Issue #1, 2025, pp. 37-40](#).
- Moreover, in a recent edition of [NTDC Tech meet](#) (#1) I provided a detailed on line workshop on short R2R, [archived on YouTube](#).

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technicaleducation.sciencecouncil.org/summary-of-eligible-apprenticeships

3. Licensed Bodies:

sciencecouncil.org/about-us/our-members-and-licensed-bodies

4. Science Council Mapped Apprentice standards:

technicaleducation.sciencecouncil.org/apprentices

5. Science Councils Technical Pathway website:

technicaleducation.sciencecouncil.org/apprentices

6. Science Council on Line Application portal (CAP): sciencecouncil.org/scientists-science-technicians/apply-for-professional-registration/



Author:

Laurence Dawkins-Hall (Principal author) in association with Tom Cheek, Louise Flint and Joyti Chandegra.

Laurence Dawkins-Hall BSc CBiol CSci FIScT FRSB is an award winning STEM Educator and Trailblazer: Registration Mentor, NTDC, MI Talent, Lab Innovations & Science Council, RSB CBiol and CSci Assessor/Instructor, Consultant, Marshall Assessor.

Laboratory Safety

LabCup was designed with a safety first approach! Safety functionality is automated as much as possible. The aim: automate safety info & put it in the users hands when it is needed.

labcup.net

IST Member Spotlight: Tyler Harvey-Cowlishaw Features on STEM Apprenticeship Podcast





Podcast Episode
#Apprenticeship Week Special: Restart & Rebuild with Tyler Harvey-Cowlishaw
Stepping into STEM

25 Feb • 27 min 36 sec

Play • ...

Episode Description

In this episode, we sit down with Tyler, a trailblazer in science apprenticeships who started as a trainee lab technician at the University of Nottingham in 2016. Over the past eight years, they've climbed the ranks through Level 3, 5, and now Level 6 lab scientist apprenticeships—all while championing the future of apprenticeship pathways in science.

From collaborating with the Science Council to founding the Science Apprenticeship Forum, Tyler has been instrumental in shaping policy, organizing conferences, and fostering a network for apprentices. Beyond advocacy, they manage multiple research labs at UoN and are actively working on a meningitis research grant.

Join us as we dive into Tyler's journey, the impact of apprenticeships in STEM, and what's next for hands-on learning in the lab.

Find BeScience STEM on LinkedIn, Instagram, YouTube, Twitter, Newsletter or at bescience.org.uk

We're proud to share that IST member Tyler Harvey-Cowlishaw, Chair of the **Science Apprenticeship Forum**, has been featured in a podcast episode celebrating the power of apprenticeships in science.

Tyler, who began their career as a trainee lab technician at the University of Nottingham in 2016, has since progressed through Level 3, 5, and now **Level 6 Lab Scientist Apprenticeships**. Their inspiring journey highlights the potential of vocational pathways in STEM and the real-world impact of hands-on learning.

In the episode, Tyler reflects on their progression, shares insights into managing research labs and working on a meningitis research grant, and discusses their advocacy work; including founding the Science Apprenticeship Forum and collaborating with the Science Council to influence policy and build networks for current and future apprentices.

A **must-listen** for anyone passionate about apprenticeships, science education, and career development in the technical community.

Welcoming our New AI Group Volunteers

We're excited to announce two new roles in the AI Group, taken up by two amazing members of our community! We're thrilled to have them on board and can't wait to work together.

Dinesh Chacko is stepping in as our new **Secretary of Policy**, helping shape the group's direction on important AI-related issues.

Ville Kokko is also joining as a member of the **Standards Group** alongside Dinesh, Dr Marie Oldfield and Murray Webster.

We would also like to welcome our new International Philosophers, Student Computer Scientists and University Staff to the AI Group and Slack Channels.

UKAS Seeking Independent Technical Assessors

Opportunities for IST Members

Are you an experienced technician or specialist with sector-specific expertise?

UKAS (the United Kingdom Accreditation Service) is currently looking to expand its pool of independent technical assessors; a fantastic opportunity for IST members to apply their knowledge in a new and impactful way.

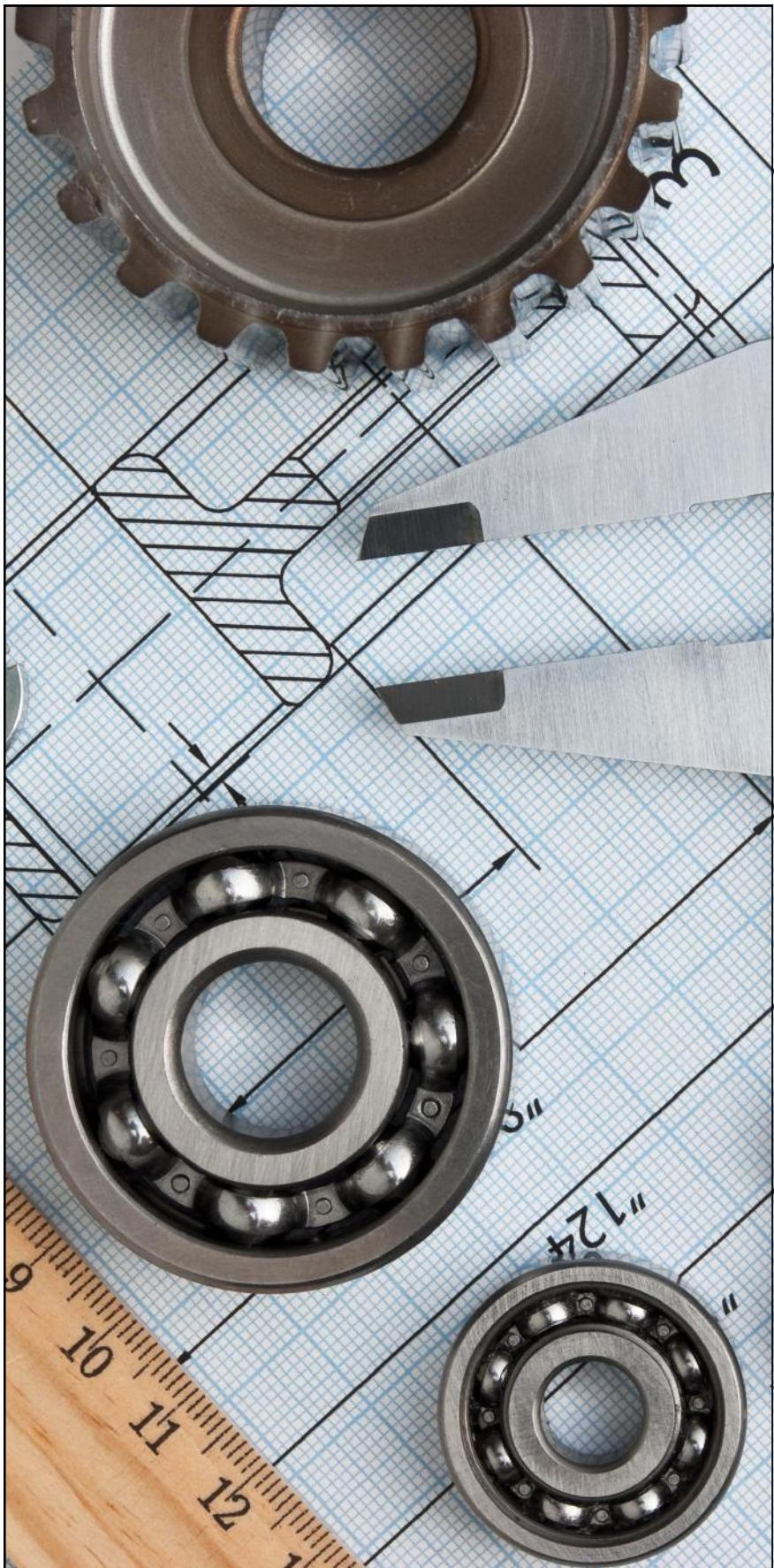
Independent assessors play a vital role in evaluating the technical competence and capability of organisations across a range of industries.

Working on a flexible, contract basis; either self-employed or through a limited company, assessors contribute their expertise as part of a UKAS Assessment Team.

UKAS has published a list of priority areas on their website, but they also welcome speculative applications from professionals across the technical spectrum.

If you're looking to broaden your professional portfolio and contribute to maintaining high standards across UK industry, this could be the perfect opportunity to take advantage of.

[To find out more or express your interest, visit the UKAS website here or contact their team directly.](#)



The IST Technical Conference 2025 Registration is Now Open And You're invited on 18th September!

We've been bursting to share this - and now it's official: the IST Annual Conference 2025 is **LIVE** and **open for registration!**

Mark your calendars: 18th September 2025 | University of Birmingham. You won't want to miss this annual event.

This year's theme:

“ Professionals: Innovating and Evolving in a Changing Landscape ”

Because let's face it - our world is shifting fast, and technicians are leading the charge.

Why You Need to Be There

Whether you're deep in AI, shaping creative futures, safeguarding labs, or steering your career to the next level; this conference has you written all over it. We're bringing together minds from across the technical spectrum to share ideas, spark conversations, and fuel the future of technical careers.

You'll experience:

- Cutting-edge workshops across AI, Creative Technologies, Media/Comms, H&S, Sustainability, and Careers
- Unmissable networking
- Practical takeaways you can apply immediately in your role

And the Keynote Line-Up - Iconic

We've pulled together three powerhouse speakers, each redefining what's possible in their field. We are excited to introduce:



Professor Tracy Harwood

Professor of Digital Culture at De Montfort University. She's reimagining the future of creativity and tech.



Professor Stephen Jarvis

Provost & Vice-Principal at the University of Birmingham A thought-leader in AI, with a vision to inspire.



Dr Raj Persaud

Harley Street psychiatrist, author, broadcaster, and coach. Mental health in the spotlight.

A Huge Thank You to Our Returning Key Sponsors and New Sponsor Academia

We're proud to once again be supported by the incredible teams at UniGreenScheme, SISO, and LabCup. Their continued backing helps us bring this community together, year after year.



Ready to be part of something big?

Tickets are available now. Spaces will go fast, so hit that registration link and join us in Birmingham this September. **This isn't just a conference | It's a movement | And we can't wait to meet you.**



Many Thanks to our 2025 Key Sponsors:

UniGreenScheme

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www.labcup.net

academia
the technology group

Artificial Intelligence Training at Capacity

Register Your Interest for September 2025!



We're delighted to share some fantastic news; our AI entry level training programme is now [at capacity](#) upto September 2025! Following an overwhelming surge in demand, all sessions for this year have reached full capacity. This reflects the growing momentum across the technical community to upskill and future-proof careers in the evolving world of AI.

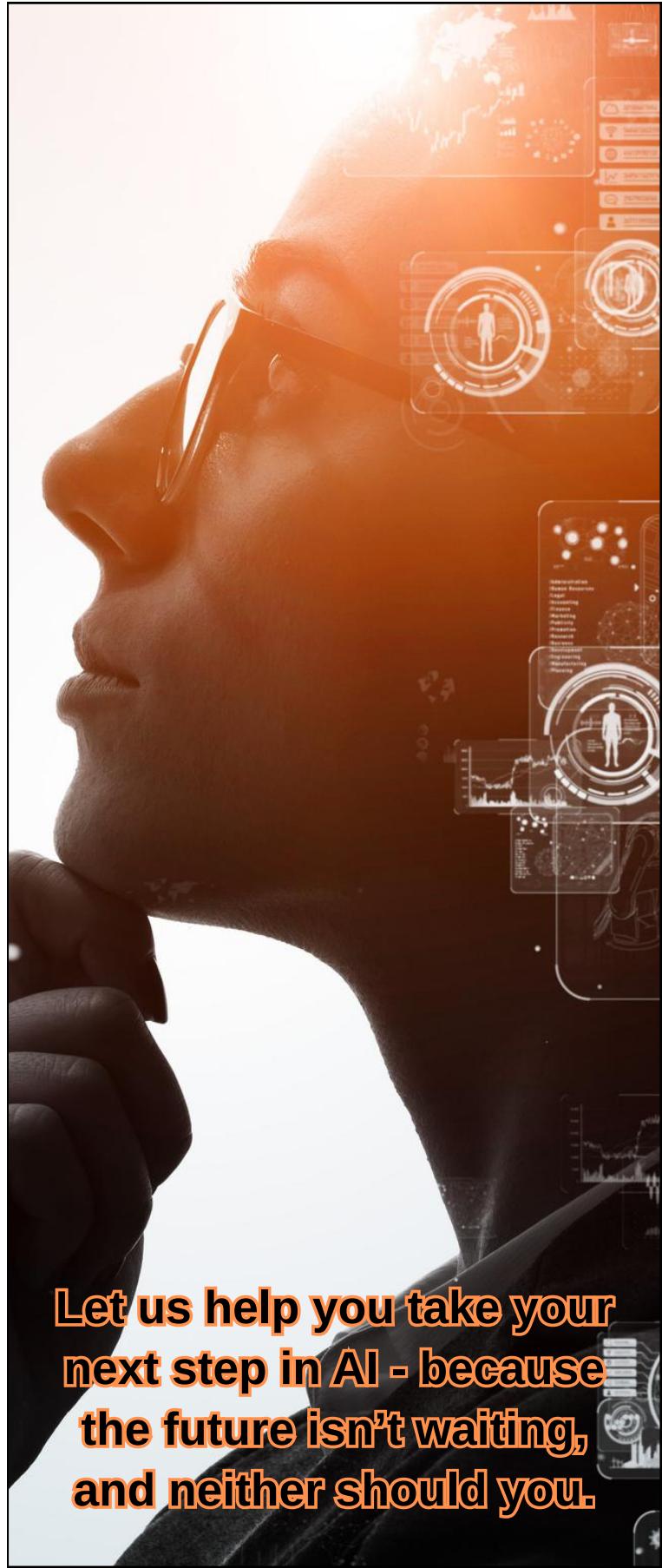
To express your interest for entry level training from September or to enquire about our other training packages simply email us at: office@istonline.org.uk.

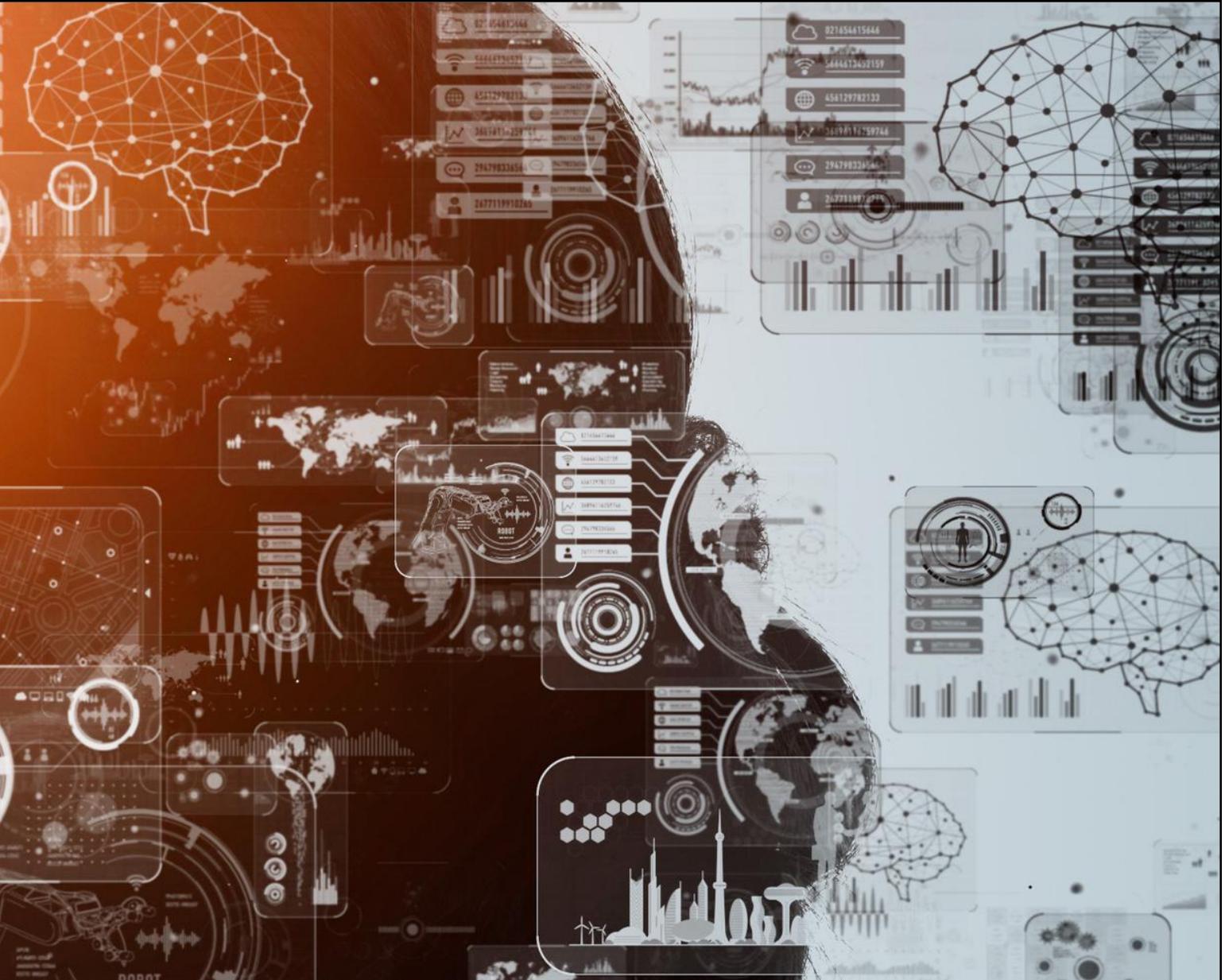
As part of our commitment to supporting professional growth, the IST offers an extensive training catalogue designed to equip individuals with the skills and recognition needed to thrive in the AI space. Our courses support pathways to Registered AI Technician (RTechAI), Registered and Advanced Practitioner in AI (RPAI / APAI) status, as well as a variety of standalone modules and short courses tailored to specific technical and soft skill areas.

Key highlights of our training offer:

- Aligned with FHEQ levels in Higher Education
- Customisable to suit your role, team, or organisation
- Delivered by a registered UK Government Training Provider

We're already planning our future programmes, and now's the perfect time to register your interest to stay ahead of the curve. Whether you're looking to enhance your technical proficiency or broaden your capabilities within AI and emerging technologies, we've got something for you, details on our [website here](#).





AI Seminar Series - Watch them all on YouTube

AI Seminars ► Play all

IST AI Special Interest Group Seminars

<p>Institute of Science & Technology AI Special Interest Group Seminar Series</p> <p>Panel Discussion: AI and the Law</p> <p>Kiran Naras Gane + Legal Counsel, Xerox N. Ganes PLLC Dr Akash Agarwalla + Founder CEO, Minerva Chemists + Mathematics Parichay + Lawyer and AI Startup Advisor</p> <p>Online Seminar: Thu 23 May 2024 @11:00 BST</p>	<p>Institute of Science & Technology AI Special Interest Group Seminar Series</p> <p>Automated Mapping of Electric Vehicle Infrastructure Using Machine Learning</p> <p>Dr Jay Flynn*, + Dr Hamed Mousavi + Dr Michaela Koenig +</p> <p>Online Seminar: Thu 26 Oct 2023 @16:00 BST</p>	<p>Institute of Science & Technology AI Special Interest Group Seminar Series</p> <p>Particle Track Reconstruction: Joining the Dots at the LHC</p> <p>Philippe Duckett + UCL</p> <p>Online Seminar: Wed 15 May 2024 @16:00 GMT</p>	<p>Institute of Science & Technology AI Special Interest Group Seminar Series</p> <p>Machine learning methods in DNA and RNA sequencing</p> <p>Dr Mike Viles + Oxford Nanopore Technologies</p> <p>Online Seminar: Wed 16 Jan 2023 @16:00 GMT</p>	<p>Institute of Science & Technology AI Special Interest Group Seminar Series</p> <p>Simulating human logical reasoning</p> <p>Tjörn Folkeira + University of Oldenburg</p> <p>Online Seminar: Wed 14 Dec 2023 @16:00 GMT</p>
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Panel Discussion: AI and the Law

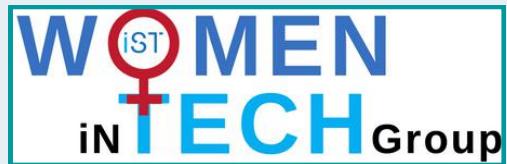
ML Use in Automated Mapping of EV Infrastructure

Particle Track Reconstruction: Joining the...

Machine Learning Methods in DNA and RNA Sequencing...

Simulating Human Logical Reasoning

**Joan Ward and Dr Marie Oldfield Co-Author
Chapter on Female Role Models in HE
Women in Tech Group**



We're proud to share that Joan Ward, leader of the IST's Women in Tech Network Group, and long-standing IST ally and founding chair, Dr Marie Oldfield, have recently co-authored a powerful book chapter focusing on female role models in Higher Education.

The chapter, which appears in the soon-to-be-released book **Female Role Models in Higher Education around the Globe: Motivators, Challenges, Gaps and Barriers**, explores the importance of visibility, representation, and support for women in technical and academic careers. Their work highlights the lived experiences of women navigating roles in science, technology, and research, shedding

light on the structural challenges they face and the strategies that lead to success.

This exciting opportunity stemmed from Marie's attendance at the International Conference on Gender Research, held in Barcelona, where a vibrant exchange of ideas and insights sparked the collaboration.

Both Joan and Marie are passionate advocates for creating more inclusive and equitable spaces in STEMM and beyond. Their contribution to this publication is a significant step in amplifying the voices and stories of women who are shaping the future of Higher Education and technical professions.

We look forward to sharing more details about the book and where it can be accessed once it is officially published. In the meantime, we'd like to extend our warmest congratulations to Joan and Marie on this important achievement!

Want to get involved with the Women in Tech Network Group or share your own story?

Contact us at office@istonline.org.uk.



A New Chapter for the Scottish Network

A Massive Thank You Russell and a Huge Welcome to Bill!

Thank You, Russell Wilson – A Job Well Done and Good Luck in Your New Position!

We'd also like to extend our heartfelt thanks to Russell Wilson, who has done a fantastic job getting the Scottish Network off the ground. Russell began his career at Edinburgh Napier University as a trainee Sport and Exercise Science Technician, gaining expertise across various labs and commercial work. After 18 years, Russell moved to Heriot-Watt University in 2022, where he took on a Senior Technician role in the new Sport and Exercise Science programme.

His work has been instrumental in shaping the Scottish Network, and we wish him all the best in his exciting new role at the University of Cambridge.

Meet the New Scottish Network Coordinator: William (Bill) Surrage

We're pleased to introduce William (Bill) Surrage as the new coordinator for the IST Scottish Network. Bill brings a wealth of experience, having started his career at Edinburgh Napier University in 2006 with a BSc in Forensic Biology, before specialising in Glycobiology for his Masters by Research in 2011.

With roles ranging from Laboratory Demonstrator to Laboratory Technician in the Biomedical Science section, Bill has honed his technical skills and is passionate about supporting students and academics alike. In his new role, Bill is excited to continue developing the Scottish Network and contribute to the growing technical community in Scotland.

The Scottish Network: Empowering Technical Professionals Across Scotland's Universities

The Scottish Network aims to empower the technical workforce across Scotland's universities, including University of Edinburgh, University of Glasgow, University of Aberdeen, University of Dundee, University of Stirling, Heriot-Watt University, University of Strathclyde, University of St Andrews, and Edinburgh Napier University. It provides a platform for technical professionals to network, share resources, and engage in discussions and events that enhance both personal and professional development. By fostering collaboration and knowledge exchange, the network helps strengthen the technical community, ensuring members stay ahead of industry trends and have the support they need to succeed.



Project Aardvark: Reimagining AI Weather Prediction

The Turing Institute

Can Machine Learning-Enabled Weather Prediction Better Protect Communities and Economies?

Accurate weather prediction plays a vital role in managing climate-related risks, from agriculture and transport to extreme weather warnings. At the Turing Institute, we're pioneering Project Aardvark, an AI-driven system designed to transform weather forecasting. This new approach promises faster, more accurate forecasts, all while being computationally less expensive than traditional methods.

Currently, weather predictions rely on a multi-step process that requires enormous computational resources. Aardvark is different: it replaces all traditional steps with a single AI model that can run on a standard desktop computer. By processing multimodal data from satellites, weather stations, and balloons, Aardvark can generate 10-day forecasts within minutes, vastly improving efficiency and accessibility.

Why Does This Matter?

Aardvark's potential is especially significant for developing regions where computational resources are limited. This AI model could democratise access to advanced weather prediction tools, enabling countries with fewer resources to create tailored forecasting systems without relying on large teams or expensive supercomputers.

The system is already as accurate as leading global models while using only 10% of the data. This suggests that as more data is incorporated, Aardvark's precision will improve further.



The Road Ahead

While Aardvark is still in its experimental stages, the potential benefits are clear. Researchers are working to refine its accuracy, particularly for predicting extreme weather events like hurricanes and floods. As the system evolves, Aardvark could revolutionise environmental forecasting, especially in vulnerable regions, and contribute to more sustainable weather prediction practices.

Find out more about Aardvark in the project's new Nature paper.

Responsible AI Institute's Bold New Approach to AI

Responsible AI Institute

As AI adoption accelerates, the Responsible AI Institute (RAI Institute) is pivoting from policy advocacy to hands-on support, helping businesses implement and govern AI responsibly - especially in the age of agentic AI.

The Rise of Agentic AI

With over half of companies already using autonomous AI systems and more planning to follow, the need for responsible AI governance is urgent. While some vendors suggest accepting AI's imperfections, RAI Institute emphasises structured, accountable integration.

RAI Institute's New Focus

Following a strategic review, the Institute is now focused on three pillars:

1. Human-Led AI Integration – Embedding AI into its own operations to lead by example.
2. AI Operationalisation – Launching real-time tools and monitoring systems to help businesses assess and verify AI risks, aligned with global standards.
3. RAISE AI Pathways – Offering AI-powered insights and benchmarking tools to guide organisations through responsible AI adoption.

Powered by Partnerships

Backed by universities and foundations across the U.S., U.K., and India, RAI Institute is developing tools to tackle AI risk and governance.

Looking Ahead

Starting March 2025, six AI agents will roll out to help businesses assess, deploy, and manage AI with accountability at the core.

This marks a bold move from policy to practical impact - turning responsible AI into a reality.



Standards vs Regulations: Understanding the Key Differences

British Standards Institution (BSI)

When it comes to compliance in industries such as technology, healthcare, or manufacturing, the terms standards and regulations often come up.

While they may sound similar, they play very different roles in shaping industries and ensuring safety and efficiency. Understanding

the difference between them is key for businesses, professionals, and policymakers.

What are Standards?

Standards are voluntary guidelines or frameworks developed by experts to promote best practices in various industries. They help

ensure consistency, safety, and efficiency. While standards are not legally binding unless referenced by a regulation, they are widely adopted across sectors because they support improved quality and interoperability. Examples include ISO 27001 (Information Security Management) and ISO 9001 (Quality Management).

Some standards are general, such as those on quality management, while others are more specific, like BS 7671 (Requirements for Electrical Installations). They are regularly updated to keep up with technological advancements and industry trends.

What are Regulations?

Regulations are legally binding rules set by governments or regulators to protect public health, safety, and the environment. Unlike standards, failing to follow regulations can lead to fines or operational shutdowns. In the UK, bodies like the Health and Safety Executive (HSE) and the Medicines and Healthcare

products Regulatory Agency (MHRA) enforce these rules. Regulations often reference standards, making some voluntary guidelines legally required.

Key Differences:

- Voluntary vs Mandatory: Standards are optional unless included in regulation. Regulations are legally required.
- Enforcement: Standards rely on voluntary adoption; regulations carry legal consequences.

Often, standards and regulations work together. By referencing standards, regulators promote best practices and improve safety and compliance.

Conclusion

Understanding the difference between standards and regulations is vital. Both help improve safety, efficiency, and trust; so staying informed and compliant is key.

The Benefits of a Sustainability-First Approach to AI Adoption

Scottish AI Alliance

AI adoption offers major opportunities for SMEs - but doing so sustainably brings added value. A sustainability-first approach can reduce environmental impact, lower costs, and improve long-term competitiveness.

Eliot Gillings, Policy Adviser at the Royal Academy of Engineering, warns that scaling AI without considering sustainability can increase carbon emissions and harm business targets. In contrast, sustainable AI adoption supports both environmental goals and financial performance. Environmentally conscious businesses are becoming more attractive to investors, especially as ESG (Environmental, Social, and Governance) criteria shape funding decisions.

With UK sustainability reporting standards expected in 2025, ESG-aligned SMEs could benefit from increased investment and potential tax incentives.

Smaller, sustainable AI models also require less data and computing power; cutting costs in cybersecurity, infrastructure, and maintenance. With cloud computing expenses forecast to rise sharply, energy-efficient models can offer long-term savings.

In summary, a sustainability-first AI strategy helps SMEs stay ahead - reducing emissions, lowering costs, and strengthening appeal to investors in a changing business landscape.

Breaking the Barriers to Finance in Creative Industries

Creative UK



The creative industries sector is known for its innovation and growth potential, but it has long faced challenges when it comes to securing the finance needed to fuel that growth. A new report, *Unleashing Creativity: Fixing the Finance Gap in the Creative Industries*, shines a spotlight on these barriers and calls for action to overcome them.

The report, published by Creative UK in partnership with the Creative Industries Policy & Evidence Centre (Creative PEC), reveals troubling trends across the creative sector. While 72% of creative organisations report a strong appetite for growth, they are more than four times more likely to face challenges in accessing the finance they need compared to businesses in other sectors.

One of the key findings is that over half (51%) of creative organisations feel that funders view them as too risky to invest in. Additionally, 41% of respondents believe there are no suitable financial products on the market to meet their unique needs, and the gap in understanding between funders and creative businesses is significant.

The report also highlights the impact of these issues on diversity. Female and ethnic minority-led organisations face even greater challenges, with these groups more likely to report needing capital but unable to access it. There is also a lack of knowledge about finance in the sector, with many creative organisations unsure where to seek support.

In response to these findings, Creative UK is calling for the creation of Creative Economy Capital, a new investment framework aimed at addressing these financial barriers. The initiative would align various types of capital, ensuring that creative enterprises can access the right investment at the right time. A key recommendation is the establishment of a regulatory sandbox, which would allow financial institutions to test new lending models and better understand the risk profiles of creative businesses.

The report was launched just before the Creative UK Summit, where over 120 investors, policymakers, and creative leaders gathered to discuss the future of the sector and the impact of the Create Growth Programme.

Australia Reignites Push to Join Horizon Europe as US Funds Wane

Higher Education

Australia's top universities are urging the government to rejoin Horizon Europe, the world's largest research and innovation programme, amid growing concerns over the reliability of the US as a research partner. The call follows the suspension of several Australian research contracts due to actions under the Trump administration, raising doubts about current funding stability.

Horizon Europe, with a €95.5 billion budget, offers significant opportunities for international research collaboration. The European Commission has shown openness to renewed discussions, with the EU's ambassador to Australia reaffirming the invitation in March.

Foreign Minister Penny Wong recently stressed the need to diversify Australia's research ties.

With the US seen as increasingly unreliable, universities are looking to Europe as a more stable, rule-based partner. Universities Australia CEO Luke Sheehy estimates that for a A\$150 million contribution, Australia could gain at least A\$300 million in return.

The Australian Academy of Science and the Group of Eight have echoed this push, calling for reduced dependence on the US and urging the government to assess the cost of joining the programme.

With New Zealand and Canada already participating, joining Horizon Europe would give Australian researchers access to vital funding and global partnerships—strengthening their role in international science and innovation.

Using Statistics to Understand Research Funding Outcomes

UK Research and Innovation (UKRI)

In March 2025, the Royal Statistical Society (RSS) released an analysis of the Engineering and Physical Sciences Research Council's (EPSRC) grant funding, revealing how demographic characteristics affect outcomes. This marks a key step in understanding barriers to equality in research.

EPSRC is believed to be the first research council globally to share its full funding data with an independent body. This transparency helps uncover potential biases.

The report examined factors including sex, ethnicity, disability, institution, region, and research area. Ethnic minority researchers had a 32% lower success rate than white researchers and, when successful, received less (90p for every £1 awarded).

Sex-based data showed a mixed picture: female applicants had an 80% higher success rate in fellowship applications, but males typically received more - £1 for every 85p awarded to women.

The report also explored perceived bias. Ethnic minority researchers were more likely to perceive bias, though institutional bias was most frequently cited over ethnicity or other characteristics.

While complex, this analysis is a vital step towards fairer, more transparent funding. EPSRC will use the insights to refine its approach, and we hope others follow suit.

Sheffield Technology Parks Expands to Meet Demand for Lab Space

United Kingdom Science Park Association (UKSPA)

Sheffield Technology Parks (STP) has launched a new shared lab facility to meet rising demand for high-quality laboratory space from science and tech startups, university spinouts, and companies relocating to Sheffield. The move reflects the growing number of knowledge-led businesses choosing the city, drawn by the University of Sheffield's world-class research and its expanding innovation ecosystem.

Alongside the lab, STP has introduced shared office space to support lab users with the resources needed to scale. As more firms look beyond traditional hubs like London, Sheffield offers affordable, high-quality facilities and a collaborative environment ideal for growth.

The first to benefit is Deep Blue Biotech, a

sustainable firm relocating from the South East. Specialising in marine cyanobacteria for eco-friendly health and beauty alternatives, the company values Sheffield's collaborative spirit. Co-founder Tim Corcoran says, "Having the University on our doorstep is incredibly useful, we've had some great conversations and they're a fantastic resource."

The launch of these spaces marks a milestone for Sheffield's DeepTech sector. By clustering science and tech businesses, STP is promoting innovation and collaboration. Tom Wolfenden, STP's Chief Executive, explains, "Innovation doesn't happen in isolation. Creating a collaborative environment ensures Sheffield remains a magnet for ambitious entrepreneurs and scientists."

Global Survey Report Highlights Key Trends in Innovation Spaces

International Association of Science Parks (IASP)

The International Association of Science Parks and Areas of Innovation (IASP) has released its much-anticipated Global Survey, offering valuable insights into the latest trends within the industry. Conducted in 2024, the survey gathered data from 126 Science & Technology Parks (STPs), Innovation Districts (IDs), and Areas of Innovation (AOIs) across 51 countries.

The survey, divided into 11 chapters, examines over 100 variables related to the creation, location, infrastructure, governance, and services of innovation spaces. It reveals the evolving role of these spaces in fostering technology, business development, and environmental sustainability. Key findings include a strong focus on university collaborations, an increased emphasis on sustainability, and the growth of knowledge-based services, all of which contribute to the

success of innovation hubs worldwide.

However, challenges remain, particularly around securing financial support and streamlining regulatory frameworks. These issues must be addressed to boost international competitiveness and expand service offerings.

A special chapter in the report explores sustainability and environmental factors, showing how innovation spaces are incorporating these elements into their operations and planning for the future.

This report provides essential insights for AOI, ID, and STP managers looking to understand global trends and potentially inspire improvements within their own organisations.

Australia's First National TechNet 2024 Conference

National Technician Development Centre (NTDC)

Thanks to support from the IST, I was fortunate to represent the National Technician Development Centre at Western Sydney University (WSU) at the 2024 TechNet Conference in early December.

With a journey from Sheffield to London, from London Heathrow to Sydney, it was a slightly longer journey than I'm used to for attending conferences!



Arriving at the lovely WSU campus, the first thing I noticed, other than the warm December sun, was the spectacular array of birds on display. It felt a long way from the freezing Sheffield I had left a couple of days before!

It was a pleasure to meet Dr Shane Griffin, Director of the WSU Office of Teaching and Research Technical Services, in person. We've been on video calls (at all hours of the day) for a few years now, so it was great to finally meet in person. Shane quickly introduced me to Kellie and Jennie, who had helped me arrange the trip and who had played such instrumental roles in making the conference happen. Everyone from Western Sydney and beyond was so incredibly hospitable and friendly that it made for a really positive and collaborative conference atmosphere.

With representatives attending from over 25

organisations from across Australia and New Zealand, there was a fantastic buzz about the conference. There were so many great sessions that the only downside of the programme was that it meant I couldn't attend some of the talks that were on at the same time! - [click here to visit the webpages](#).

It was great to see colleagues from so many different organisations connecting and chatting about their work and experiences. Personally, it was really interesting to hear how many of the challenges technical staff face in Australia and New Zealand parallel those seen by technical staff in the UK.

After my talk on the National Technician Development Centre, and the challenges and developments for technical staff in the UK in recent years, a number of delegates stuck around after to talk more about the situation at their organisation and their desire for support in highlighting and developing their technical workforce going forward.

It was a real pleasure to hear about all the amazing work technical staff are carrying out across Australia and New Zealand, and to see all the enthusiasm for shining a bigger spotlight on this work going forward.

Hopefully the momentum from 2024's TechNet Conference can be carried forward, with the IST in place to support technical specialists throughout Australia and New Zealand, especially with the AI Professionals and Creative Professionals Registers.

I heard lots of talk throughout the conference about getting the next one in the diary as soon as possible. Hopefully I can be there for the next one too!

HEaTED Networking Event 2025: Connecting the Industry

Higher Education and Technician Educational Development

HEaTED is thrilled to announce its first in-person event of 2025, taking place on [Tuesday, 1st July](#). In collaboration with The University of Salford, this exciting afternoon will provide ample opportunities to build meaningful connections within the sector.

The event will feature sessions from HEaTED, NTDC, and The University of Salford, alongside technical facility tours, offering a unique chance to engage with the latest developments in the industry. More sessions and announcements will be made soon, ensuring a day packed with valuable insights and networking opportunities.



UBMA Joins Technician Commitment as 20th Supporter

University Bioscience Managers Association



The University Bioscience Managers' Association (UBMA) has proudly become the 20th official supporter of the Technician Commitment, strengthening its dedication to promoting the visibility, recognition, sustainability and career development of technical staff in biosciences.

With over 40 years of history supporting bioscience technicians, UBMA represents professionals managing resources in biological, biomedical, life science and related disciplines across universities and research institutes. Membership is open to those responsible for resource management in departments, schools and faculties across the UK.

Dr Victoria Talbot, Chair of UBMA, said: "[We](#) are delighted to be part of the Technician Commitment community. A motivated, skilled technical workforce is essential for teaching, research and knowledge exchange, and their contributions must be recognised and valued."

UBMA's support means a continued focus on best practice, professional development, and national policy influence, all aimed at raising the profile of technical careers in biosciences.

Clare Stevenson, Associate Lead of the Technician Commitment, welcomed UBMA's pledge, noting the importance of recognising bioscience technicians for their vital day-to-day contributions.

Together, UBMA and the Technician Commitment will work to ensure technical roles are not only supported and respected, but also seen as inspiring career paths.

Connecting and Driving Innovation

Publication References and Representation on/Collaborating with

AI and Government Policy

The IST is pleased to announce that the evidence given by AI practitioners of the IST AI Group has been formally referenced in the Public Accounts Committee's inquiry on 'Use of AI in Government'.

The government's considered reply to the PAC's recommendations will now be given to the PAC through the Treasury.

Links and References:

1. <https://committees.parliament.uk/work/8580/use-of-ai-in-government/publications/>



AI Publication

The AI Group's paper '**The Future of Technology and How Mathematics is Implemented: initial workshop outcomes**', with the assistance of many students from the London Mathematical Society Research School, has been accepted and will be presented at AISB at UWE 2025.

Links and References:

1. <https://aisb.org.uk>
2. <https://www.lms.ac.uk>

Fostering Women's Leadership

We are delighted that Dr Marie Oldfield has been referenced in the UNESCO and European Commission publication on AI and Women.

Links and References:

1. <https://unesdoc.unesco.org/ark:/48223/pf0000392190>
2. Oldfield, M., 2023. Dehumanisation and the future of technology, in: International Conference on AI and the Digital Economy (CADE 2023). Presented at the International Conference on AI and the Digital Economy (CADE 2023), Institution of Engineering and Technology, Hybrid Conference, Venice, Italy, pp. 61–67. <https://doi.org/10.1049/icp.2023.2566>

Representation on/Collaborating with

1. UK Govt. Register of Learning Providers: 10096163
2. BSI ART/1 AI Standards and Policy
3. Scottish AI Alliance
4. Alan Turing Institute
5. StudyTec Technology Solutions
6. Responsible AI Institute
7. CEN (European Committee for Standardisation)



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Thames Boat Race Faces Pollution Crisis Amidst Sewage Concerns

Environmental campaigners raise alarms over high *E. coli* levels in the River Thames, threatening the safety of the iconic Oxford-Cambridge Boat Race and highlighting broader water quality issues.

As the annual Oxford-Cambridge Boat Race approaches, environmental activists have sounded the alarm over alarming levels of *E. coli* in the River Thames. Tests conducted by River Action between March 10 and April 7 revealed that nearly 30% of samples exceeded safe limits for bathing water, with some readings nearly three times above the threshold for poor quality. The contamination is attributed to sewage discharges by Thames Water, including illegal dry-weather spills and unmonitored outflows. These findings pose significant health risks to rowers and have previously caused illness among participants. Campaigners are calling for systemic reforms in the water industry and stronger regulatory enforcement, with some advocating for the nationalisation of Thames Water.

In response, British Rowing has issued safety guidance for athletes and continues to advocate for cleaner waterways. This situation underscores the ongoing environmental and regulatory challenges facing UK water management, emphasising the need for immediate action to safeguard public health and preserve the nation's rivers.



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We are still accepting expressions of interest to be part of the Editorial Board or to be involved with any of the other IST activities that take place over the year.

Thank You for your contributions

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