

THE Tech Magazine

THE MAGAZINE OF THE IST

Vol 1 No 1 • Dec 20

VIRTUAL VS. REALITY

New world, new concepts

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New world, new concepts

If you would like to look at any of the links this document refers to,
you will need to go to our website and under resources,
select The Tech Magazine

THE Tech Magazine

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

THE Publications
THE Publications
THE Publications

PUBLICATIONS: DECEMBER | MARCH | JUNE | SEPTEMBER



The IST eNewsletter has gone from strength to strength in design and content and has naturally changed from being a traditional newsletter into an established magazine over the last five years. We wanted to thank everyone for their positive and encouraging comments. The content has been popular in representing the technical workforce from different sectors. We wanted to take this one step further to give technicians a publication they could contribute to, as well as ensuring the technical community is well represented. We want to keep adapting all our publications to be useful for your work and career. Please let us know if you have any feedback or opinions.

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.

MAGAZINE WALL OF CONTENTS

UPDATES & NEWS | INDUSTRY | BUSINESS

RESEARCH INSTITUTES | CONSULTANCY

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#TECHNICIANJOURNEY | AWARDS

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THE TECHNICAL COMMUNITY

Giving technicians the visibility & recognition they deserve



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IST

Volume 1 Number 1
December 2020

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

CALL TO MEMBERS:

If you want to publish an article or are interested in joining the team, contact us at the office, we would love to hear from you.

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Views expressed in this magazine are not necessarily those of the Editorial Board or the Institute.

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Cover image: 'Virtual Reality vs Reality'.

Thank you for everyone's contribution to this edition of the magazine. We have included a feedback form so that members can let us know what they want from the magazine and Journal.

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WELCOME

Dr Helen Sharman CMG OBE FIScT FRSC

PRESIDENT'S MESSAGE



Have a happy Christmas and an optimistic start to the New Year!

Dr Helen Sharman, FIScT
IST President

2020 is a year that few of us will forget, even though many of the events that often mark time for us, like birthday gatherings, celebrations at work and even holidays didn't happen. I doubt that there is anyone who has not been touched in some way by the pandemic and those who have lost a loved one will feel it the most. I echo Terry's sentiments with heartfelt sympathy to all those affected in this way.

I am sure all of us have all learnt from the disruption, not only in the technical and managerial skills that many of you will have developed while mitigating for various events, but also in the knowledge of how much you actually have achieved in the circumstances. Right now, we may still be reeling from the changes that have challenged us, the constant decisions at all levels that have exhausted us and the uncertainty of so many different aspects of life that have been so stressful.

But applying skills and experience to new ways of working and to different activities shows us how much more we are able to do than we might ever have contemplated otherwise.

As we look towards a time of herd immunity thanks to what (hopefully) will be a variety of effective vaccines taken up by sufficient people, technicians can be confident that technical skills and adaptability to make best out of evolving jobs and opportunities are increasingly recognised and required by employers in the UK. The Technician Commitment is extending its reach and the IST continues to support individual members and corporate affiliates to flourish and grow.

Have a happy Christmas and an optimistic start to the New Year!

Helen.



TERRY'S BLOG

A Christmas Message

Who would have thought that last New Year the world would be hit by a pandemic and the impact it would have on the human race? This has hit members, colleagues and friends in different ways and my heart goes out to everyone affected. What a year it has been for technicians across all sectors too. Not only have we had to adapt to a new way of living but also new ways of working. Not surprisingly, the technical community quickly stepped up to the challenge. From working with employers to look at new ways of working and keeping their businesses operational to technicians who used their myriad of skills to manufacture PPE in their own time. A big thank you to all involved.



The IST team and our volunteers have been as busy as ever although having to adapt our services and support to our members without the many face to face activities we normally deliver throughout the year. Thanks to their skill and hard work, we were able to quickly deliver virtual activities from webinars to professional registration presentations. Despite the pandemic and the many restrictions, we all faced, the team were determined to deliver our annual conference. The feedback has been tremendous and what a day with great speakers and workshop presenters to being able to celebrate our Science Council CPD winners.

So, on behalf of all the delegates, I want to thank the contributors, the team and the many volunteers who ensured such a

successful conference.

Hopefully, we will be in a position to have a more normal event next year with our partners at the University of York on the 15th September 2021. I look forward to catching up with you all at what will be an excellent day and opportunity to network with colleagues.

A good reason to regularly check our website for the latest news from across the sectors that effect our members but also for specific information on the many activities and support services we provide. Whether you are considering Professional Registration or wishing to publish an article in the IST Journal or Magazine, to wanting to join our team of volunteers and play your part in your professional body. So, despite these unprecedented and challenging times, the IST is there for you, to provide you with professional support or maybe just to chat that problem through.

I look forward to a busy and exciting coming year for the IST and our members with many activities already planned. With the dedicated work of our scientists and technicians, the development of new vaccines means there is light at the end of the tunnel. Although there is still some way to go and we all need to remain vigilant, 2021 will hopefully see a return to normality and a good time to be a technician, specialist and technical manager. We are here to support you on your journey.

I wish you all a very Happy Christmas and a Peaceful and Rewarding New Year!

With best wishes,

Terry.



With the dedicated work of our scientists and technicians, the development of new vaccines means there is light at the end of the tunnel

Terry Croft, FIScT
IST Chair



The magazine is the first of its kind for the IST, and we are wanting you to let us know what you would like to see in your publications? We would like the magazine to adapt to be a useful resource and information centre for technical staff all over the UK and overseas.

The Tech Magazine, also known as The Technician Magazine has naturally evolved as a result of the newsletter's success.

The Editorial Board is currently working to update the format of the Journal which will be released in June on an annual basis. The magazine will be published three times a year to give members every opportunity to contribute to a number of publication vehicles.



Women in Tech

Marie Oldfield joined the Executive earlier on this year and has already suggested many great ideas. Marie works really closely with the Women in AI group and was keen that the IST looked at starting a group for women in technology. We think this is a great idea and would like to know what people think? Please send expressions of interest for joining this group to the office: office@istonline.org.uk.

The Journal

The Editorial Board met for an introductory meeting and will be working over the next few months on the redesign of the Journal. Thanks to everyone involved so far. If anyone else is interested in being part of the board please contact the IST as this is a very team effort so that everyone can share responsibilities, but most importantly develop a Journal that all members would like. The magazine has had its last 'redesign' for a while so that we can concentrate on the development

of the Journal ready to be published in June 2021. If you would like to contribute to the Journal, please send in your articles by 19th May. Please also take the time to complete our survey so that you can tell us what you would like from the Journal, as well as the magazine. To fill in the short survey click [here](#).

Cyber Aware

Due to Coronavirus, more people will be doing their festive shopping online this year. This means more opportunities for hackers to carry out cyber attacks. They often do this by targeting people and businesses using emails and website scams, or with malware; software that can damage your device or let a hacker in. You can find advice on the UK Government website by clicking [here](#).

Technician Commitment

The Technician Commitment have recently launched their Collaboration Fund. This funding will be for projects to support the

sustainability, recognition, development & visibility of the technical workforce. The scheme is open to all [Technician Commitment Signatory institutions](#) and funding is awarded on a competitive basis. The Steering Board is inviting submissions in the range of £100 - £2000 to support the creation of collaborative opportunities. You can find out more [here](#).

Apprenticeship Week

National Apprenticeship Week will run in the UK from **8th - 14th February 2021**. We will be supporting the week by promoting various activities, as well as offering 18 months for the price of 12 to all apprentices or trainees who apply for membership over Apprenticeship Week.

Policy

Many of the IST Executive are involved with National and Government groups and the IST will be using 2021 to influence policy more on behalf of the technical workforce.

We would be interested to know what our members feel should be actioned and what actions may want to be prioritised. We also have our own goals to update our own policies including our Diversity, Equality and Inclusion Policy.

Creative Industries Register

We have reached out to a stakeholder with regards to the

register that we have been developing with our creative technician members. We believe that it won't be until January before we hear anything from those individuals, but we are looking forward to their response and we will update members and the pilot group accordingly. It is a very exciting time to be a technician in any of the creative disciplines, but also a challenge due to the many

set-backs that this year has thrown our way. We are still encouraging members to contact us if they need support, and you can do this by following the wellness check-in form link by clicking [here](#).



By Terry Croft, MBE FIScT CSCi



Fellowship Awards

"I was delighted to be nominated for election to become a Fellow of the Institute of Science and Technology and feel very honoured that the IST has awarded this to me in acknowledgement for my contributions to our profession over the years. The IST has championed the recognition and professionalisation of the technical workforce for the last 72 years and I have much appreciated and benefited from the support I have received from them in my technical management role"

- Allison Hunter, FIScT

As Chair of the IST, I often have to undertake those necessary daily duties which can be repetitive and not ones I look forward to undertake. The necessary administrative paperwork for

example. I'm sure many of you can say the same. However, this is always counter balanced by those enjoyable conversations I have with members throughout the year, being able to experience their workplaces on visits to their companies, universities and research organisations. I am never ceased to be amazed at the work they are involved with and the skills they so professionally demonstrate. This is further enhanced when I have the opportunity to inform one of those members that they have been elected to the IST's College of Fellows.

Therefore, it gives me the greatest of pleasure to announce that Allison Hunter, Technical Operations Manager at Imperial College London, has been elected by the Executive Board, to the College of Fellows and has been awarded Fellowship status.

Allison's career spans many years and has been recognised in the past for her work, including the S-Lab Award Winner: Making A Difference and the King's Award for Sustainability, King's College London. Allison is experienced in many areas of operations from technical management, financial and strategic management to playing a key role in many space and infrastructure projects as well

as publishing a number of research papers along the way.

With this level of knowledge and experience, Allison has been regularly invited to give a number of presentations and workshops across the sector by a variety of leading organisations. IST members and technicians from across the UK recently experienced her latest presentation at the 2020 IST virtual conference, which received great feedback. As a committed IST volunteer, she has on numerous occasions, supported and championed many projects and initiatives. More recently, Allison has worked directly with the National Technicians Development Centre (NTDC) on their National Covid-19 support platform for the UK's technical community linking in many sectors including the NHS, PPE manufacturers and the HE sector. This is just a snapshot of the contributions Allison has made both locally and nationally over her career to date and the IST has therefore recognised the impact of her work accordingly.

I'm sure we all wish to congratulate Allison on her achievements and therefore on behalf of the IST team and our members we send our warm congratulations to Allison on achieving Fellowship of the IST, which is so well deserved.

OUR MEMBERS REPRESENT A WIDE VARIETY OF INDUSTRIES

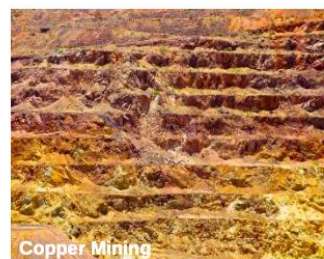
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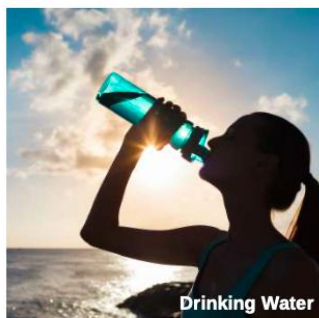


SERVICE: WATER AUTHORITY



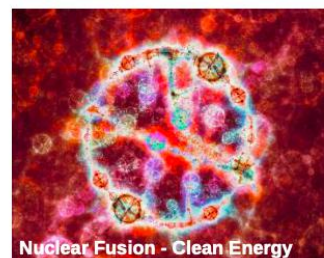
Environment Agency - National Laboratory Service

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INTELLECTUAL: RESEARCH AND DEVELOPMENT

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GOVERNMENT AND DEFENCE

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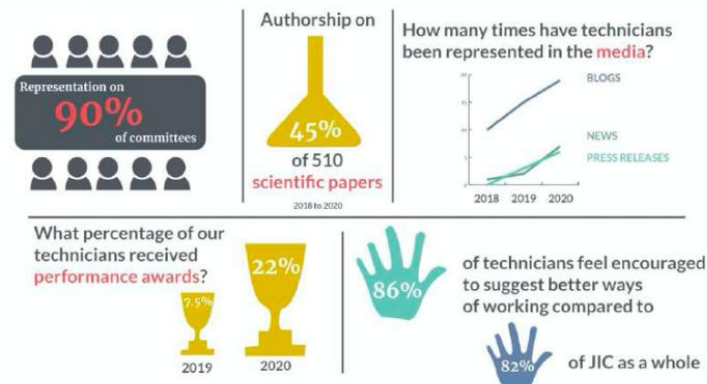
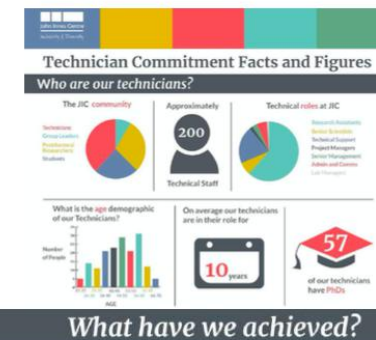
GREAT OUTPUTS DRIVE SUCCESS OF THE TECHNICIAN COMMITMENT INITIATIVE AT JOHN INNES CENTRE

Research and Support staff make up the largest proportion of Professional and Technical staff at the John Innes Centre. Most of the 200 individuals work in laboratory based roles.

The Research Institute is quite unique in that there has been a Technician Voice committee for over 10 years which goes hand in hand with the commitment.

To ensure that impact of our Technician Commitment action plan is recorded the collaboration software called Trello is used. A board is created and outcomes on actions and impact are regularly added against each objective. This provides a central record of

milestones and achievements to ensure nothing is missed when our self-assessment is carried out. The intention is to provide yearly updates at JIC on the progress of our new action plan.



Graphics credit: Ruby O'Grady, John Innes Centre - <https://www.jic.ac.uk>



Dr Clare Stevenson provides a 'walk-through' perspective to support the safe return to work into research facilities and buildings. This is a very positive outcome from collaboration that has been produced as a result of the IST good practice sessions. Click on the image above to watch the video on YouTube.

Take a look at Trello

Click here to see our next 3 Year Action Plan (2021 - 2023)

Clare Stevenson, MIScT

Clare is a Senior Scientist and Technician Commitment Nominated Institutional Lead at the John Innes Centre

Working as a technician in a Secondary School in Kent during Covid-19

Malcolm Strickland, MIScT

Malcolm is a School Science Technician working at an Academy Trust in Kent

The school where I work as a science technician is a non-selective school in mid-Kent with an intake of 500 students this academic year. It is part of an Academy Trust of fifteen primary and secondary schools based in Kent and East Sussex.

As with every school in the UK, it suffered from the first lockdown back in March with a complete withdrawal of students except for those whose parents were key workers or had to still attend their work place. Special provision was taken for their children across all year groups to attend as one fixed group, all receiving special study schemes and occupying the library. This also meant just one area needed be kept at a high level of cleanliness.

All other students had work set online via a special access code. For students with no online access at home, we organised for hard copies of the work to be delivered through their letterboxes.

Over the last four weeks of the Summer term, Year 10 were permitted back for special theory-only lessons taught conventionally; as this group were going into Y11 (the final GCSE year from September). Thus, providing a reminder and taste of school again before the six-week formal summer break. Without this return, the students would have been away from school for six months!

During the holiday period the school developed a plan to allow the whole school population to return, study and work in the safest possible manner, that was both flexible and adaptable.

Fortunately, the school has several large buildings and due to a lower in-take this year, we could safely ensure 2m social distancing. Specific groups occupied different buildings, separated on the basis of 'year-group bubbles'. Teachers would move from lesson to lesson to prevent mass movement from students. A contraflow system was laid out to follow around campus to reduce mixing, with hand sanitisation stations located in all corridors and rooms. Year groups were also kept separate at break-times.

The Head of Science wanted to offer practical laboratory classes where relevant, strictly following the Academy and Government guidelines. After completing a thorough risk assessment, we devised an approach to open one laboratory on a rotational basis between year sets.

Apparatus remained within the labs to avoid movement across corridors and was disinfected and left to quarantine for 48 hours before being used again.

On the day of a practical, the students would initially engage in an exercise in another room before being led by staff to the laboratory.

The school has coped well with this unprecedented state of affairs. Now adopting that face masks must be worn around all communal areas by everyone. There have been many challenges with students testing positive, or self-isolating adding pressure to effectively running the school. Some year groups have been temporarily suspended with provision of on-line learning. However, it is only one of the few schools in the area remaining open until the end of Autumn term.

January onwards is sure to be a challenge!



Image of an Edinburgh Napier University Physiology Laboratory

Returning to work and the challenges faced by a laboratory technician within the sport, exercise, and health sciences

We have returned to the laboratories but not the same laboratories we left way back in March. Laboratory technicians have come together from all around the UK to help support each other with the shared common problems faced during lockdown and the return to work. Groups such as NTDC's Tech-Meet, Techs-connect and the IST good practice sessions became a regular occurrence for many seeking support and reassurance, myself included. Around the UK technicians found themselves being one of the first groups of staff returning to work back on campus, planning on how to safely re-open whilst ensuring equipment is serviced and maintained.

What happens to those who work within a field where indoor exercise and maximal testing are essential for both teaching and research to occur? It soon became apparent that myself and my colleagues were further restricted in comparison to other subject areas. Not being able to be within two metres of others means no longer being able to record EMG or ECG measurements, being able to apply motion tracking markers, take a skinfold or blood lactate measurement.

How do you prepare for classes with the ongoing uncertainty surrounding what will be deemed safe, whilst many of your colleagues are looking towards the technical team for answers to these very questions? In the end you can only prepare for the worst and hope for the best.

For ourselves this has meant the almost never-ending creation of online material, such as practical video demonstrations of classes, maximal testing, and instructional videos on individual equipment use (SOP's). This has resulted in a rather steep learning curve regarding how to use video editing software. Learning as we go and with the help of YouTube we now find ourselves proficient in transitioning shots, adjusting scaling, overlaying multiple videos, opacity, cropping, adding time-codes, labelling / drawing tools, and to top it off the narration and captioning (which always takes longer than you think). What started as a few equipment videos has quickly morphed into a 45-video strong library of fitness drills, class demonstrations, exercise / performance testing and equipment SOPs.

This does now mean that we have an ever-growing bank of material that can be utilised if for whatever reason we cannot have any form of practical exercise/performance testing classes within the labs. Although these videos will obviously never replace the practical's and skills acquired within the labs it does demonstrate our readiness and willingness to assist in "planning for the worst".



Edinburgh Napier Environmental Chamber

On a more upbeat note, when we think about "hoping for the best" there are many positives we can take from the last couple of months as we move closer to welcoming users back into the laboratories. Only a few months ago we were unable to film demonstration videos that involved exercise and managing to get over this milestone leads us to potentially welcoming back external partners who have their eye on preparations for the upcoming Tokyo Olympics in July and Paralympics in August. Athletes utilise our environmental chamber when preparing for competitions and the conditions they will experience. Acclimating to the temperature, humidity, and altitude in which you are due to compete is a vital component of preparation for any athlete to perform at their best. In addition to this there is also the potential of utilising a new markerless motion tracking software in the new year which would allow testing within the biomechanics laboratory to begin again.

We have been prepped for some time to welcome back students and staff into a well organised and safe environment and are hoping that the conditions we find ourselves in the new year will enable us to do so. For the meantime we will continue to attempt to prepare for all potential scenarios and are committed in doing so, as technicians make it happen.



Edinburgh Napier University

Russell Wilson, MIScT

Russell is a laboratory technician at Edinburgh Napier University specialising in the sports, exercise and health sciences.

Higher Education over Covid-19

Matt Wyles, MIScT

Matt is the Senior Technician at the Sheffield Institute for Translational Neuroscience

I work as a Senior Technician at the Sheffield Institute for Translational Neuroscience, part of the department of Neuroscience at the University of Sheffield. I manage the genomics facility and have spent the past 18 months developing long read applications using Oxford Nanopore Technologies sequencing platforms.

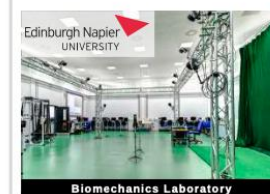
In early March 2020, I was approached by a Senior Clinical Lecturer in Infectious Diseases to sequence the viral genomes of 2 SARS-CoV-2 cases, using our GridION platform. These were the first genomes sequenced in Sheffield and over the next few weeks as lockdown took hold, the work rapidly gained momentum.

Sheffield quickly joined a consortium called COG-UK3 to rapidly sequence and analyse SARS-CoV-2 genomes to fully understand the transmission and evolution of the virus. Around 8 weeks later we had gone from 2 cases to over 1000 (now around 4000 and counting). This work was a collaborative effort involving multiple technicians and researchers from several University faculties and also the NHS. The data produced is combined with clinical and epidemiological datasets in order to help to guide UK public health interventions and policies.

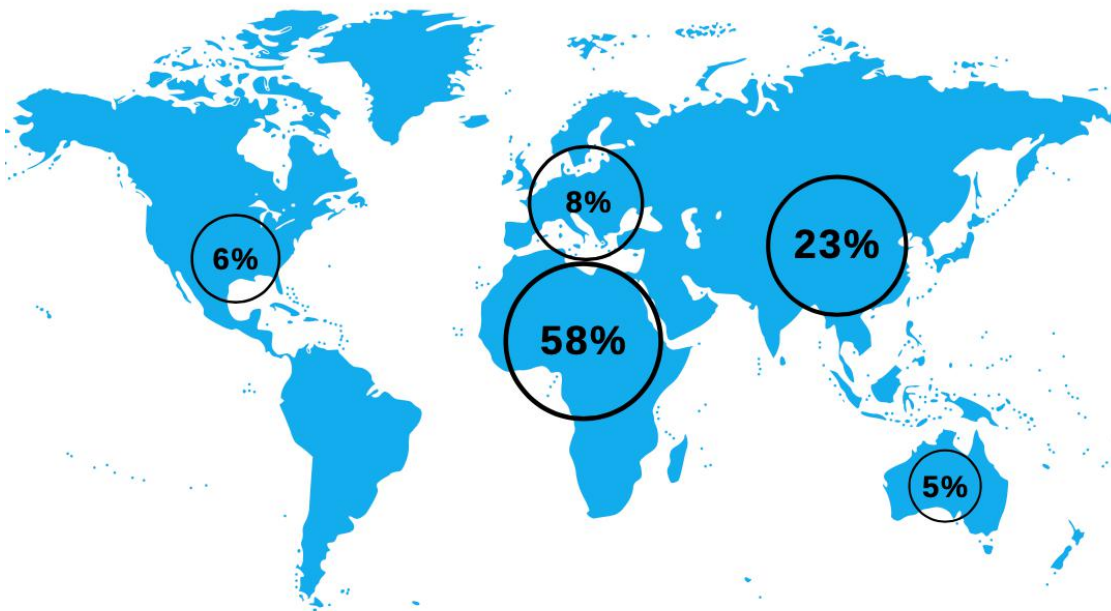
The COG UK work feeds into a worldwide effort to construct a phylogenetic tree of SARS-CoV-2, to identify how the virus entered the human population and its subsequent evolution.



Image credit: GISAID



Biomechanics Laboratory



Whilst the majority of our members are based in the UK, we do have a significant and important range of overseas members. The map above shows the percentage distribution of members overseas. We want to hear from our members across the Globe - Please contact us if you would like to contribute to the magazine or The Journal. If you would like to know more about getting involved with the IST from any discipline or sector, please contact the IST office.



The Large Hadron Collider, Switzerland

Acknowledging our previous Conference Key Sponsors CERN - <https://home.cern>



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Frankie (Natalie) Franklin BA MIScT(Reg) AFHEA



Frankie is a Registered (Reg) Practitioner and part of the IST Creative Project Pilot

Frankie in her studio surrounded by student artwork

Frankie Franklin works in Studio Technical Support at the University of Reading.

What do you do at your institution?

No two days are the same! It's the beauty of being an art tech. One day I could be preparing 80 COVID safe teaching packs for a workshop, the next I could be running a small group workshop myself. Some of the obvious, student facing work includes helping set up and take down exhibitions, giving advice on how to achieve a students' vision, using my art knowledge to give students artists to research. Some of the more behind-the-scenes type of work includes stock audits, stock ordering, setting up for workshops, tidying, checking tools and machinery are in running order.

Why did you want to work as a Technician?

Being an art technician unites my two loves of art and teaching. I remembered how vital technicians were during my university experience and wanted to be that go-to for future students. I was inspired by my old flatmate from university who went into her old college as a technician and suddenly thought "I could do that too!".

What makes your role so vital at your institution?

The behind-the-scenes work is work that lecturers don't have time to do. It keeps the department running and enables them to focus on teaching and grading. With the more student facing work, I have particular technical skills - for example, darkroom wet photography - that the other members of staff don't have, which I can pass on to students.

What did you do before you became a Technician?

Between graduating Plymouth College of Art with a degree in Contemporary Craft in 2015 and starting as a technician in 2017, I worked a series of retail and hospitality jobs.

What do you enjoy doing when you are not working?

I'm very active! I enjoy swimming, Rockfit (kind of like Zumba but to rock and metal music) and ballet. I'm considering taking up running if steroid injections help my hip joints. I also read a lot and am still a practicing artist. I'm hoping to start an MA soon to progress even further with my career.

CONGRATULATIONS



The THE Awards are the biggest celebration of UK higher education. This event recognises outstanding work across a wide range of university activity. The event last year announced a new category, the 'Outstanding Technician of the Year' Award.

Well done to the IST members who were shortlisted for the THE Awards 2020 Outstanding Technician of the Year Award:

David de la Haye, Newcastle University
Samantha McCormack, Buckinghamshire New University

Congratulations to the 2020 winner of the Outstanding Technician of the year, John Waters.

Congratulations to Mohamed El-Guindy who has been recently appointed as the Information Security Advisor to the Assistant of the Prime Minister of Egypt.

Congratulations to Mr Richard Warhurst for his new appointment to the Science Council Registration Assessment Committee (RAC), alongside other IST members.

Congratulations to Dr Clare Stevenson on her appointment as a Specialist Advisor with the National Technician Development Centre representing Research Institutes.

We are keeping a record of all awards and recognitions our members receive and in May 2021 we will bring these all together and showcase the Technical Community in:

THE AWARDS LIBRARY

COMING MAY 2021

Please let us know about any awards you receive or have received so we can publish them amongst our members and readership.

Have you or one of your colleagues received an award or recognition that you would like us to promote? Contact us at the Office.

office@istonline.org.uk



VERY WELL DONE TO THE SCIENCE COUNCIL CPD WINNERS AND COMMENDATIONS 2020

RSci Winner - Sarah McCafferty

RSciTech Winner - Russell Wilson

CSci Commendation - Kranthi Maniam

CSci Commendation - Caroline Jarrett

RSci Commendation - Manik Purnanik

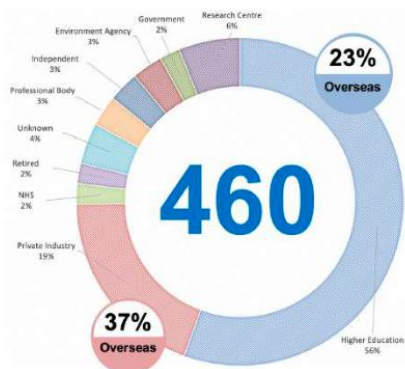
The Virtual Technical Conference 2020

Due to the unprecedented challenges this year, unfortunately we had to cancel our onsite Conference in collaboration with the University of York. Many members reached out to ask if we would still go ahead with the Conference but translate this into an online event instead!

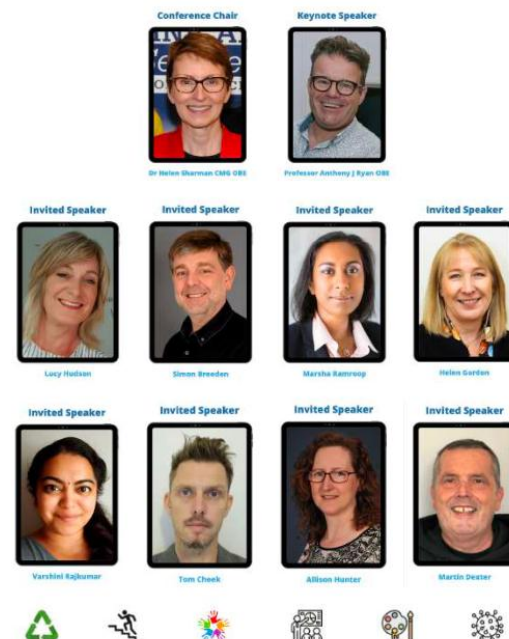
Therefore, we set to work developing the Virtual Conference programme. We had an exciting lineup of speakers, giving a variety of workshops that allowed attendees to attend all or just one or two.

CLICK HERE to see all the resources from the Virtual Conference.

Over 460 individuals registered. Over the course of the half-day, over 1,000 delegates tuned-in to listen.



Many Thanks to our Speakers

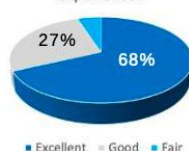


Graeme McAllister, Ian Helliwell, Andy Firth
Technician Guest Speakers, University of York

Online Experience Feedback

"The conference was really well structured and well-organised. I am very impressed with how it was conducted"

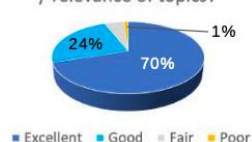
How good was the online experience?



Variety and Relevance

"I liked the variety of topics. It allows technicians from different backgrounds to feel included and gives an idea of what technicians in other disciplines do"

How do you rate the variety / relevance of topics?



E-articles are generally longer than other magazine articles. Therefore, to maximise your time for reading, we have condensed our longer articles onto this page so you can choose what you read.

Click on any of the boxes below to read the article.

The Science of Sociology

By Colin Neve, MIScT

(a) Sociology is the study of social interaction of people with each other and the environment they exist in. It uses scientific methods to study these interactions to seek social patterns that underline our civilisation that has evolved over thousands of years.

Reliable Analysis in Occupational Toxicology & Biomonitoring

By Raffaele Conte, FIScT

(b) Occupational toxicology is used to prevent adverse health effects in workers that result from their work environment. Biomonitoring is one of either, internal exposure monitoring or biological effect monitoring.

COVID-19 Courses Review

By Stephen J Gamble, MIScT

(c) A wide range of online courses have become available which provide an excellent basis for continuing professional development. This short article will give brief reviews of a few of these courses taken from two major providers, FutureLearn and Coursera.

The Institute supports the technical community and engages with anyone who has an interest in developing the technical workforce. We have several membership levels available.

RECOMMEND A NEW MEMBER TO HELP US GROW OUR MEMBERSHIP

CREATING VIDEOS

A 5 step guide to help you start creating your own videos

STEP 1



As specialists we all have a lot to say about the subjects we are passionate about. With video creation, however, time is of the essence. You have to capture the audience in the first few moments as learner engagement begins to drop after six minutes, then dramatically again after nine minutes. Therefore, why not create 'more with less'. Shorter videos but more of them, each video concentrating on single learning objectives.

STEP 2

Three key tips to remember:

- Keep your content focused
- Use visual cues to highlight key information
- Minimise on-screen text



STEP 3

There are many tools available for you to create an instructional video. You will need a recording device. Phones can video at a very high quality these days, but there are a few things to be mindful of. **1)** Choose which way you hold your phone. **2)** Take control of the auto exposure and auto focus to fine tune the exposure. **3)** Try to avoid zooming – digital zooming can sometimes degrade the image quality. **4)** Trim the beginning and end of your clips, to avoid seeing you press record. **5)** Improve audio with an external mic.

There are great online tools available to enhance your videos such as [Biteable](#), [PowToon](#) or [Animato](#) to name a few. But most computers and laptops do come with an inbuilt video maker. Do you want to make use of a screen casting program? Programs like [Explain Everything](#), allow you to pause and re-record videos easily. Keep an eye out for a robust video editor and an embedded annotation tool.

STEP 4



Enhance your engagement with the audience! Students and learners will be sitting and watching videos for some time, which can lead them to lose focus. The best videos keep them actively engaged. Prompt learners to take notes or answer guided questions. Programs like [Edpuzzle](#) can improve student interaction.

STEP 5

The most important part of a video is to be yourself and to be personal. Mistakes happen all the time and shows how authentic your video is. Creating high-quality videos doesn't happen overnight, it requires continual trial and error and researching different programs.

Video Tool Links

[Lumen5](#)

[GoAnimate](#)

[AVS Video Editor](#)

[Adobe Premiere Pro](#)

[Wirecast](#)

[RenderForest](#)

[Wirecast](#)

[PowToon](#)

[VideoScribe](#)

[Magisto](#)

[Slidely](#)

Lisa Ludlow

Lisa is an instructional video creator at Pentrehafod Secondary School

VIRTUAL vs REALITY?



What is virtual reality? It is not far from our 'grounded' reality, but is indeed very opposite to our physical environment. Virtual reality can be created via stories, paintings, theatre productions, films or more recently digital media (including immersive VR technology). You could say that virtual reality is completely different to what is considered the physical "real" world. But is it? If that is the case, what are dreams?

Some researchers have suggested that virtual reality space feels very similar to dream space and that our brains cannot tell them apart. Could this be a blessing in disguise for the current Covid-19 crisis? Many of us are currently reaching out to family, friends and colleagues over video conferencing facilities. Will this help us to keep our brains healthy, using virtual social interaction to replace those face-to-face meets for the time being? Human beings are a very social species that rely on cooperation to survive and thrive, therefore making use of the virtual world may prove to be very important for our mental health.

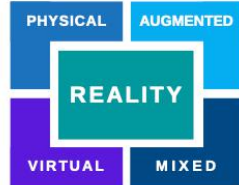
Although your brain may find it difficult to differentiate between what is real and what is not in VR, many people still prefer the real experiences over 'hooking up to a machine'. Some researchers have argued that the emotions people feel when they have a virtual experience is 'cheap'. For example, if you were to see the Grand Canyon in person, you feel in awe of that outstanding nature and you may even feel fear. If you were to visit the Grand Canyon virtually, you may indeed feel that fear and in-awe sensation, but the emotions are

dampened and tricked by your knowledge that the danger is not real.

Whilst looking at virtual reality differently, it can give you things that real-life cannot! For example, the gaming industry creates the illusion for people to become immersed in the virtual environment around them, whilst using objects, casting spells, and traveling to new worlds. Completing challenges and achievements causes your brain to release endorphins which make you feel like you have been rewarded. You can pull the plug at any time, yet that feeling doesn't go away.

Let's go one step further, where manufacturers are using virtual reality technology to design new components for use in the real world. Using a VR headset and controls, they first model the equipment needed removing any errors. Then using a real physics engine, put the concept through a computer and induce variables, like G-forces, environmental and operational stresses. Once this is passed they develop, through 3D printing, the parts to the exact specifications, saving millions in manufacturing costs.

What is next? Augmented reality, like Pokémon Go, is already around us. The next steps are being incorporated into a mixed reality of physical, virtual and augmented. The next technology we could see ourselves using are contact lenses which can pull up directions in front of our eyes from a Google map. The possibilities are endless, but is reality?



John-Paul Ashton, MISCT

John-Paul is Executive Support Officer and a Specialist Advisor with a keen interest in digital technology and digital design

Image of a Computer science engineer wearing a virtual reality headset

WILL AI TAKE YOUR JOB?



The AI system can neither observe nor utilise information from the external environment

The answer is probably not. AI systems can be good predictive systems and be very good at pattern recognition. AI systems have a very repetitive approach to sets of data, which can be useful in certain circumstances. However, AI does make obvious mistakes. This is because AI does not have a sense of context. As Humans we have years of experience in the real world. We have vast amounts of contextual data stored in our brains that make it possible to predict and to know boundaries of the real world so that even if we have never been in a particular situation, we are still able to deal with it. The unknown situation is where AI will fall down.

In engineering, AI is being developed to monitor and control certain systems, this could extend to Nuclear Power Plants for example. If we examine control systems for Nuclear Power Plants on vessels, the system would likely be programmed using the safety of the reactor as the main priority. Automation is crucial in engineering systems like this, as the likelihood and cost of human error is high and human reaction times are slow in comparison to the system.

Marie Oldfield, MIScT

Marie is a member of the IST Executive, Director of Oldfield Consultancy and is currently a Doctoral candidate in Artificial Intelligence

Interested in AI? Marie is looking for everyone's opinion in the following survey [CLICK HERE](#)



However, there is always the possibility of unforeseen external factors that may override plant safety which cannot be programmed. If we look at a plant onboard a Submarine, for example, we see such additional factors as ship safety. In one example, the power plant might breach safety parameters, in which case an automatic system may shut down the reactor.

However, there might be a greater urgency such as a flood in another compartment or an attack upon the vessel, that would override shutting down the reactor. The AI system can neither observe nor utilise information from the external environment to make this type of judgement, whereas the operator may be completely aware. To programme context into AI systems would be near impossible.

We still need operators as we still need to understand the environment around us, which may contain an infinite number of possibilities. In a further example of this; if we examine the ICO (Information Commissioner's Office) guidance, it is clear that in clinical settings a human being will always be required to validate findings and to provide context.

Sometimes having a lot of data just doesn't replace social interaction, intuition and experience.

The Blood Journey

Transfusion of blood and blood components is a very common medical procedure, and more than two million transfusions are carried out in the UK each year. It is a safe and often life-saving procedure and depends upon the voluntary donation of blood by the general public. The transfusion pathway starts with the screening of donors using a questionnaire to confirm that they are healthy to donate and that their blood is suitable for transfusion use. The donor's haemoglobin level is measured to confirm it is in the normal range and then the donation process can commence.

Whole blood is collected using a single-use sterile collection set into a flexible plastic blood bag where it is mixed with an anticoagulant solution to prevent clotting. Blood samples are taken from the unit for testing purposes. The donation is given a globally unique donation identification number that will be used to link the unit, the samples, and all components prepared. Once collected the unit of blood is maintained under strict temperature control and returned to the Blood Centre for processing.

Only a very small percentage of blood is transfused as whole blood. The vast majority is separated into individual blood components the most common of which are red cells, platelets and plasma. Separation is performed using centrifugation. By selecting specific centrifugation speeds and times it is possible to selectively sediment the different components. Some components will go through a further filtration stage to remove leucocytes, and may have solutions added to extend their storage period. Typical storage periods for blood components are: 35 days at 2-6°C for red cells; 5 days at 20-24°C for platelets; and up to 3 years at -25°C for plasma.

The blood samples collected at the same time as the donation are used for blood typing and microbiology screening.

All donations are tested to determine the ABO and RhD blood group. This testing is so critical that verification against a second result is required – either by comparing the current result with a previous result from the same donor, or by an independently performed second grouping test. Screening for red cell antibodies is also performed. Donors who have previously been transfused or who have been pregnant may have antibodies in their circulation that

could be harmful to a recipient of a different blood type. Additional blood typing may be performed to identify units that will be compatible with patient who have complex antibody profiles. Microbiological screening is carried out to ensure that the donation is free from infectious disease that can be transmitted by transfusion. All units are tested for HIV, Hepatitis B, Hepatitis C, HTLV and syphilis. Other screening tests may also be performed.

When all testing and processing is complete the individual components can be labelled and released for issue. UK hospital transfusion laboratories (Blood Banks) are supplied by one of the four UK Blood Services. Hospitals retain sufficient stock of blood components to support their immediate need and have rapid access to Blood Centre stocks to support emergency needs.

Patients who may need transfusion support will have a blood sample collected and this will be used to determine the patients ABO and RhD blood group, and to screen for other red cell antibodies, in the hospital Blood Bank.

ABO testing should be verified against previous results from the same patient, or by independently testing a second sample from the patient. This is to minimise the risk of an error in patient identification or sample labelling which could lead to a potentially fatal ABO-incompatible transfusion.

Patient who are found to have additional red cell antibodies in their circulation need to have blood selected that is negative for the corresponding antigens. Suitable blood may be available in stock, but for some individuals with complex mixtures of antibodies a special request will need to be made to the blood centre.

Suitable blood components are crossmatched with patient samples in the laboratory and clearly labelled with the patient identifiers. At the bedside stringent checks are carried out to ensure the correct matching of blood component and patient prior to infusion. Patients are observed and monitored during the transfusion and for a period of time after to ensure that any reaction to the transfusion is detected and appropriate action taken.

Healthcare scientists and technicians in Blood Centres and hospital Blood Banks are involved throughout the transfusion chain ensuring quality and safety of blood for transfusion.



Paul Ashford, MIScT

Paul worked as a Clinical Scientist at the Welsh Blood Service before moving into an international role as Executive Director of ICCBBA, a standards development organization for transfusion and transplantation.

HOW YOU CAN HELP...

Despite the progress that is being made there is still much work to be done to break down the barriers to diversity, inclusion and belonging that continue to exist in many organizations and in society as a whole.

We believe that real progress can only be made when we all take individual responsibility for creating change, so we ask you to join us to help us to continue our work...help us to amplify our voice by using yours.

Follow Us:

Twitter - @IEDPorguk

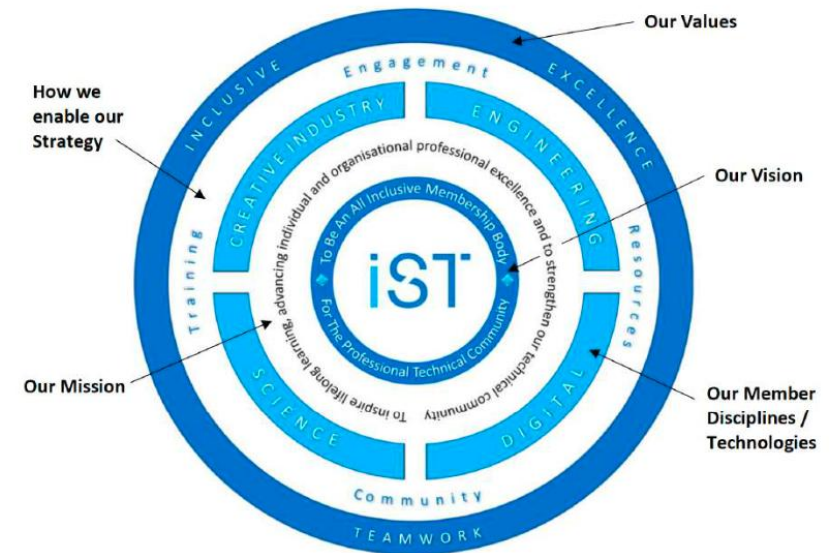
LinkedIn Group 'The Institute of Equality & Diversity Professionals'

Facebook- Institute of Equality and Diversity Professionals

iedp.org.uk

“It is harder to crack a prejudice than an atom.”

Albert Einstein



Our Aim, Vision, Mission and Values encircle, and are central to the IST Strategic Framework.

Our Strategic Framework

As a not-for-profit organisation, we recognise the need to work in close partnership with our members and our communities to deliver our aims, vision and mission.

We are the IST; and we aim to be recognised as the leading professional body for the technical workforce. Established in 1948 and known originally as the Science Technologists Association, we embody and are proud of our history. With the modern technology-driven world opening up many new and exciting fields, our main aim is to ensure that the IST strives to represent the many technologies and no longer just the sciences (hence why we now have four discipline categories).

Our Strategic Framework identifies groups of technical professionals that we support and work closely with, across many technology disciplines (these are the creative, digital, engineering and science sectors), as well as defining strategic ambitions and objectives to support each group.

The IST deliver our vision and mission through the needs of technicians, specialists, support staff and managers across many disciplines.

These professionals are the unsung heroes of the organisations in which they work. Having an outward focus allows the IST to remain relevant and effective in delivering our vision and mission, whilst offering further recognition and visibility to the technical community.

Our Values

We will be Inclusive of all disciplines of technology, constantly motivated for Excellence in all our activities and use the strength of Teamwork to deliver value.

Inclusive

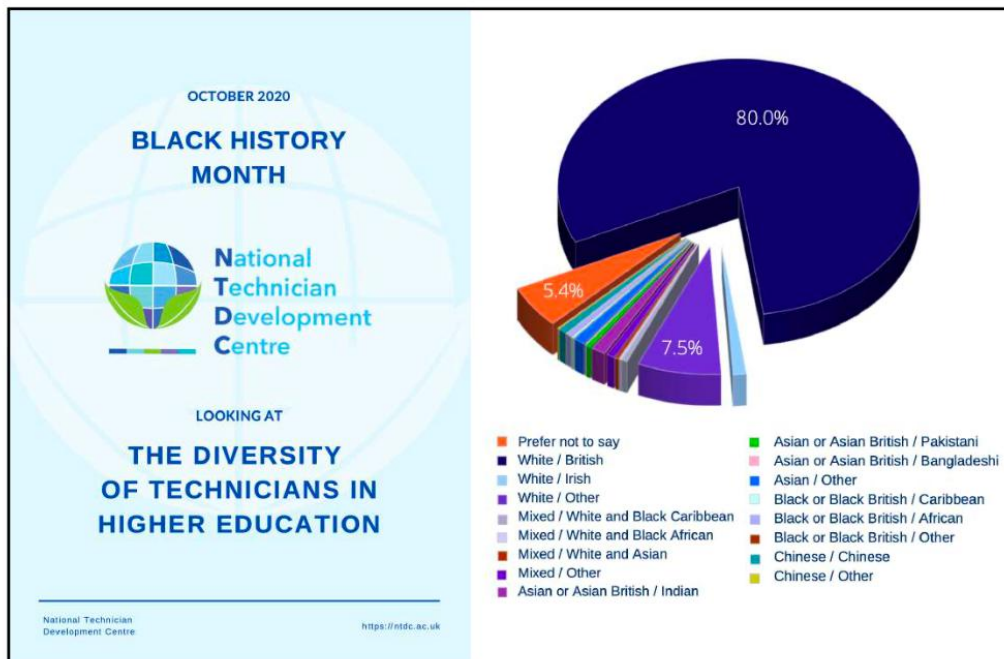
We will respect everyone and value each other's contribution from all different disciplines and backgrounds.

Excellence

Continuously work with our members and the technical community to improve best practice and allow access to knowledge exchange, development and support.

Teamwork

We will collaborate with our members and the community to encourage discussions whilst recognising talent and rewarding hard work.



The National Technician Development Centre recently released a short report from a cohort of over 1,000 technicians from 8 Universities. You can read the report by clicking on the image above.

HYDROGEN-FUELLED TRAINS

Some members will remember that for our Conference in Birmingham, we invited a local expert on Hydrogen Fuelled trains to give a workshop on the future of HydroFLEX - the first hydrogen powered rail transport. Dr Stuart Hillmansen from the Birmingham Centre for Railway Research Education gave us an insight into the exciting future of rail travel and mentioned that they had just received approval to run HydroFLEX on the mainline Network Rail infrastructure.

As far as green energy goes, this is a great step for a sustainable future and the only emission is water. An extra benefit bought to journeys is that hydrogen provides a quiet and clean passenger experience.

The hydrogen-fueled vehicles are complimentary to rail electrification. The HydroFLEX has the components for electrification, so the train can run on both a non-electrified, as well as an electrified network.

Dr Stuart Hillmansen highlighted that the Hydrogen is stored at 350 Bar, in high pressure lightweight tanks.

We are hoping to get an update on the progress of this research and its testing programme so that we can 'keep up to speed' important and promising green initiative.

We have seen a short report that the company [Fuel Cell Systems Limited](#) has gone into partnership with [Vanguard Sustainable Transport Solutions Limited](#) and the [TP Group \(TPG\)](#) to deliver hydrogen fuelling solutions by integrating fuel cells into the HydroFLEX.

Network Rail's Decarbonisation Strategy indicates that hydrogen will need to be part of the future railway system. This sounds promising but will encounter interesting conversations over costs and performance.

The future of sustainable railway solutions sounds very encouraging and we could see a rapid development in the capability of hydrogen vehicles in the years to come. Personally, we can't wait to ride on a hydrogen-fuelled train!

HydroFLEX is the first hydrogen-powered train in the UK. HydroFLEX has been developed by fitting a hydrogen pack to an existing Class 319 train set



Image Credit: HydroFlex University of Birmingham | Porterbrook

HIGHER DIPLOMA.

The IST's Higher Diploma is a recognised qualification for the specialist technician working in specific science areas:

- Analytical Chemical Laboratory Techniques
- Biochemical Laboratory Techniques
- Microbiological Laboratory Techniques

PROJECT DEADLINE: 30TH MAY 2021

The contents of the Higher Diploma is to enhance technical skills and focuses on in depth knowledge of the technique and its application.



OPEN TO MEMBERS AND NON-MEMBERS

OPPORTUNITIES ARISING OUT OF THREATS



10

Useful Links

[IST Conference 2020](#)

[CPD Awards Top Tips](#)

[IOSH Webinars](#)

[Royal Academy of Engineering](#)

[Event Videos RSA](#)

The threat posed by the 2020 Coronavirus pandemic and its associated financial fallout prompted many organisations to undertake SWOT analysis (strengths, weaknesses, opportunities, and threats). The principles underlying SWOT analysis can equally be applied to analysing and informing an individual's CPD strategy. Focusing on the opportunities and threats quadrants of the SWOT framework, may help in identifying the numerous opportunities for professional development that have arisen out of the threat posed to us all by the Coronavirus pandemic.

A wide variety of new CPD opportunities have arisen out of creative adaption and management of work-based practice and processes, volunteering in support of local communities and the NHS and, most notably, from the way in which professional bodies, including the IST, have quickly and effectively optimised the use of online platforms in reaching out to their members.

A flood of online webinars, meetings and courses have appeared as a consequence of the COVID threat.

A considered selection of those most likely to benefit an individual's professional development may deliver a rich bounty for a CPD portfolio. Further, cultivating the new local, national and global networking opportunities opened up online, may produce a catalytic effect in providing additional opportunities to develop skills and knowledge to enhance professional development.

For those who happen to miss out on the opportunity to attend an online event, on the day, many professional bodies provide online access to presentation slides and or videos. Dipping into these resources can often reveal a huge archive of material which may inform and enhance the professional development journey. Examples of such resource archives are on the left.

It's thus important to apply the proverbial saying "every cloud has a silver lining" when considering CPD. Professional development opportunities may arise from dealing with and managing the threats which often quite unexpectedly arise in our professional and personal lives.

Arthur Nicholas, FIScT
IST Education Officer



1-2-1 Mentoring

[NTDC Smart Mentoring](#)

[Mentor SMART Club](#)

[HEaTED Coaching Service](#)

[What is mentoring?](#)

RESOURCES

Science Council Resources

[Useful resources for members, registrants, applicants and support for scientists and apprentices](#)

[Diversity and Inclusion Progression Framework - Benchmarking Report 2017](#)

Education Resources

[T-Levels - Technicians Make it Happen](#)

[T-Level Resources for Teachers - Amazing Apprenticeships](#)

[Introduction of T-Levels - GOV.UK](#)

[Apprenticeships - Technicians Make it Happen](#)

Sector Specific Resources

[Creative Resources - Creative Industries Federation](#)

[Digital Resources - Digital Strategy](#)

[Engineering Resources - Royal Academy of Engineering](#)

[Science Resources - Science and Public Policy](#)

Diversity and Inclusion Resources

[The Institute of Equality and Diversity Practitioners](#)

[Chartered Institute of Personnel and Development \(CIPD\)](#)

Sustainability Resources

[Climate, Justice and Science - Grist](#)

TRAINING

[IST's Leading Your Technical Team](#)

[IST's Higher Diploma](#)

[Validation and Certification \(IST\)](#)

[IST's Professional and Personal Development](#)

Higher Education

[The Open University Courses](#)

[AdvanceHE](#)

[HEaTED Technician Courses](#)

Schools and Colleges

[STEM Learning](#)

Professional Registers

[RSciTech - Registered Science Technician](#)

[RSci - Registered Scientist](#)

[CSci - Chartered Scientist](#)

[Registered Practitioners](#)

HEaTED Apprenticeship Networking Meeting
21st January 2021 - 10-12pm

Apprenticeships Week
8th - 14th February 2021

Online Digital Transformation Conference
4th March 2021

Learning Technologies (ExCel)
9th - 10th June 2021

Higher Education Technician Summit
23rd June 2021

UKSPA Med Tech Innovation
29th - 30th June 2021

University of York Technician Week
13th - 17th September 2021

The Annual IST Technical Conference
15th September 2021

Lab Innovations
3rd - 4th November 2021

TechWorks Industry Summit
18th November 2021

Smart Mentoring

Launch: 14th January 2021

Smart Mentoring is a targeted, online 1:1 mentoring service using everyday technology, with no requirement for individuals or institutions to invest in any new software or hardware. It is useful as a standalone resource, but is also being developed to support the work of the Technician Commitment.



Email: smartmentoring@ntdc.ac.uk



HEATED IS THE LEADING ORGANISATION FOR HIGHER EDUCATION AND TECHNICIAN EDUCATIONAL DEVELOPMENT, PROVIDING OPPORTUNITIES FOR THE PROFESSIONAL TECHNICAL WORKFORCE TO ENGAGE WITH CPD AND TRAINING COURSES, AS WELL AS DELIVERING NETWORKING EVENTS FOR ALL SPECIALITIES.

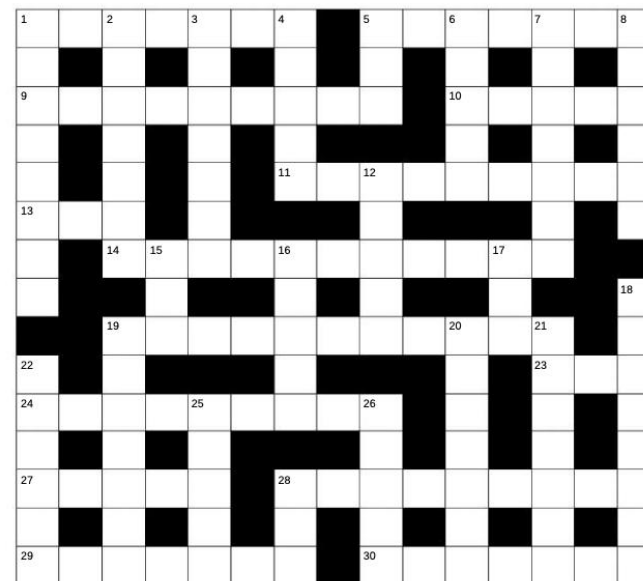


Plus many more CPD Courses can be found on our website:

<https://heated.org.uk>

We look forward to hearing from you!
@HEaTEDtechs
heated@sheffield.ac.uk
+44 (0)1142 229 671

The Crossword Puzzle



The first correct solution and completed crossword received will win a £20.00 voucher

What is the hidden theme?

Down

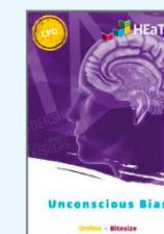
1. Made longer (8)
2. Reverse of downstream (2,5)
3. Jam ingredient (7)
4. Majestic, regal (5)
5. Victory (3)
6. Study aids (5)
7. Leaning letters (6)
8. "Summer Nights" musical (6)
12. Dutch cheese (5)
15. Beer type (3)
16. Valley (6)
17. Sight organ (3)
18. Adult mated female, lives in a colony (5,3)
19. Carbon and silicon precede this (7)
20. Chess pieces (6)
21. House of a noble royal family, opera singers (7)
22. Dull in perception (6)
25. Claus (5)
26. A sudden rapid flow (5)
28. Still; so far (3)

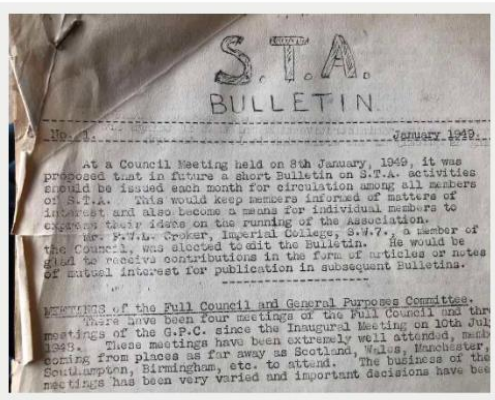
Across

1. Latitude zero (7)
5. Close eye briefly (7)
9. Game of Thrones House of Fire (9)
10. To take in exchange (5)
11. Planning of movement (9)
13. Expected in (3)
14. Ascot and Epsom (4,7)
19. Jean blazer (5,6)
23. XX Chromosome sheep (3)
24. Specific case for reading matter (4,5)
27. Workers' association (5)
28. Early life group (5,4)
29. Tastefully fine (7)
30. Nursing home (7)

How to enter

Send your completed puzzle and hidden theme answer by 25th January 2021. Please make sure you include your name, email address and your membership number (*contact us if you are unsure*). You can scan copies or take images of the crossword, or alternatively you can post entries to The Institute of Science & Technology, 7th Floor, The Balance, 2 Pinfold St, Sheffield, S1 2GU.





#03 Bulletin of the IST

In with the old. The new Bulletin.

The Bulletin was established in 1949, when the IST was previously known as the Science Technologists Association (STA). This Bulletin provided a variety of news articles, view points, updates, briefs and the crossword puzzle.

Bulletin of the IST was a great way for technicians to communicate news and training. Back in 1948, the first Bulletin was created using a typewriter and the logo was a pencil drawing, which gave the feel of the issue a very personal and monumental one.

In the archive the IST have paper copies of over 250 Bulletins, commencing with the first issue published January 1949 Vol 1 No. 1. There was a brief intermission of production for 2 years between 1972 and 1974, but they then continued up until February 1978 with Vol 4 No. 2. The Bulletin seemed to come to a halt at that point and no more volumes were printed or created. It is not certain why this was the case. What is odd, is that the Bulletin was on the verge of its 30th Anniversary.

Perhaps time was reallocated to focus on the Journal? The evidence would suggest not, as the inception of the IST's The Journal was in 1955, which was 23 years before the Bulletin finished production.

What was the reason for the sudden conclusion? Are there more Bulletins out there that we are not aware of? I will leave it down to you to decide.

It would also be interesting if any IST members had the two missing issues.

May 1975 Volume 1 Number 3
January 1977 Volume 3 Number 1

Over 2020, we have all had to get to grips with the online world very fast, and at the IST we want to communicate and engage more with our members from 2021 onwards. Members will therefore be receiving a short Bulletin email every two months to give brief updates, news, CPD, events, resources, training and policy. Our commitment to engagement will see The Bulletin return as an e-version of its former self, re-emerging from Volume 5.



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

Paul Ashford **MIScT**
Raffaele Conte **MIScT**
Frankie Franklin **MIScT(Reg)**
Stephen J Gamble **MIScT**
Allison Hunter **FIScT**
Lisa Ludlow **BA**
Colin Neve **MIScT**
Arthur Nicholas **FIScT**
Marie Oldfield **MIScT**
Clare Stevenson **MIScT**
Malcolm Strickland **MIScT**
Russell Wilson **MIScT**
Matt Wyles **MIScT**

IST Editorial Board

John-Paul Ashton **MIScT**
Magazine Editor

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Nigel Cooke **MIScT**
Laurence Dawkins-Hall **FIScT**
James Fox **MIScT**
Alan Gall **FIScT**
Stephen Gamble **MIScT**
Ian Moulson **FIScT**
Marie Oldfield **MIScT**
Joan Ward **FIScT**

Thank You to our Conference Speakers

Professor Anthony J Ryan OBE	Andrew Firth MIScT	Allison Hunter FIScT
Lucy Hudson MIScT	Marsha Ramroop	Martin Dexter
Simon Breeden	Helen Gordon	Terry Croft MBE FIScT
Graeme McAllister MIScT	Tom Cheek	Helen Sharman OBE FIScT
Ian Helliwell	Varshini Rajkumar	

Congratulations to David de la Haye **MIScT(Reg)**, Mohamed El-Guindy **MIScT**, Caroline Jarrett **MIScT**, Kranthi Maniam **MIScT**, Sarah McCafferty **MIScT**, Samantha McCormack **MIScT**, Manik Puranik **MIScT**, Clare Stevenson **MIScT**, Richard Warhurst **MIScT**.

Many thanks to CERN for Conference Sponsorship and to Cambridge Consultants and Raewyn Freestone **MIScT** for the careers advert and Ventilator blog.





<https://istonline.org.uk>

**THE
Publications**

The Technician Magazine