The Institution of Engineering and Technology

# IET Achievement Awards

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# Programme

#### Thursday, 20 October 2022

De Vere Grand Connaught Rooms, London

**18:00** Arrival drinks and canapés in the Drawing Room

**19:00** Ceremony begins in the Edinburgh Suite

**20:00** Refreshments and entertainment in the Edinburgh Suite

22:00 Event concludes



# Welcome



The IET Achievement Awards are all about celebrating the incredible talent within our profession and recognising those who have contributed to the advancement of science, engineering and technology, whether that be through leadership, research or development.

It is so important that we acknowledge and appreciate the talented and dedicated professionals whose outstanding contributions have impacted the engineering and technology communities, as well as society. We are immensely proud to celebrate the incredible innovators and leaders who are engineering a better world for us all.

Our Achievement Awards encourage all engineers and technicians, aspiring and established, to strive for excellence and help inspire the next generation to pursue careers in engineering and technology.

This year, we celebrate 100 years of our Faraday Medal which is awarded for notable scientific or industrial achievement. We are delighted to be able to host an in-person awards ceremony once again, giving us the opportunity to meet and celebrate this year's brilliant winners.

I'd like to congratulate all the winners and finalists this year. I hope that this recognition opens up many opportunities for you and I look forward to seeing your successes in the future.

Ed Almond MSc MBA FCA FIET Chief Executive and Secretary, IET

## **Your Host**



Suzi Ruffell is an award winning comedian, actor and writer.

Widely acclaimed as an emerging standup star, she's been described as "instinctively, exquisitely funny" by the Evening Standard, and as delivering an "excellent hour of stand up" by The Sunday Times.

A natural and engaging storyteller, Suzi balances personal tales of anxiety and awkwardness with a defiantly up-beat, cheery demeanor and a constant reminder of the positive things in life - from good hair days to modern kitchen appliances.

Popular on the club and festival circuit, Suzi's also supported the likes of Romesh Ranganathan, Alan Carr, Joe Lycett, and Kevin Bridges on tour. A regular on TV and radio, Suzi's appeared on Live At The Apollo, Mock The Week, 8 Out of 10 Cats, Comedy Central's Live from the Comedy Store and Radio 4's The News Quiz. She also co-hosts the Like Minded Friends podcast with Tom Allen.

### IET Postgraduate Scholarships

Awarded to help researchers share advancing knowledge throughout the global science, engineering and technology community to enhance people's lives around the world.

Jia Ge

IET Postgraduate Prize Awarded £2,500

Jia is a PhD student at the School of Mechanical and Aerospac

Engineering, Queen's University Belfast. After graduating from Northwestern Polytechnical University, Xi'an, China, Jia started his PhD in Aerospace Engineering, where he is the recipient of an EPSRC fully-funded PhD studentship. His research focuses on advanced manufacturing of aerostructures consisting of novel sustainable thermoplastic composites. He addresses the urgent needs of decarbonising the aerospace industry through enhanced manufacturing efficiency and use of sustainable materials.

The IET Postgraduate Prize will help Jia to further his research objectives and sign up for training courses to expand his expertise and skill set. This award can also fund his travel to conferences to disseminate his research. Jia aims to pursue a post-doctoral research role in the field of manufacturing of sustainable aerostructures to contribute to the net zero target.

### IET Postgraduate Scholarships

Awarded to help researchers share advancing knowledge throughout the global science, engineering and technology community to enhance people's lives around the world.

Saylee Jangam

IET Postgraduate Prize Awarded £2,500

Saylee is a PhD student in Bioengineering at Imperial College London. Her research focuses on

the development of wearable microneedle biosensors for infection monitoring, to detect early warning signs of sepsis and optimise antimicrobial drug dosing.

Prior to her PhD, Saylee was a Research Assistant at the Indian Institute of Science where she co-developed SPECTRA-tube, a novel clinical specimen collection and transportation device to provide remote diagnosis of tuberculosis for patients in rural India. As the former Vice President of GapSummit, a bio-entrepreneurship conference addressing the biggest gaps in biotechnology, she co-led the organisation on the first virtual GapSummit during the pandemic. This brought together 100 Leaders of Tomorrow from more than 40 countries.

The IET Postgraduate Prize will allow Saylee to further her research in biosensors and present her work at international conferences.

### IET Postgraduate Scholarships

Awarded to help researchers share advancing knowledge throughout the global science, engineering and technology community to enhance people's lives around the world.

#### Valeria Raffuzzi

IET Postgraduate Prize Awarded £2,500

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Valeria is a PhD student in Nuclear Engineering at the University of Cambridge

Her research focuses on accelerating high-fidelity computational methods for neutron transport simulations via optimised representations of nuclear data. This work is crucial to support and accelerate the design phase of nuclear fission and future fusion reactors.

Valeria is also one of the lead developers of SCONE, the first high-performance Monte Carlo particle transport code written in the UK in 40 years. SCONE is also the UK's only open source reactor physics tool. After the end of her PhD, Valeria hopes to keep working on SCONE to broaden its scope to other fields, such as nuclear medicine and space applications.

The IET Postgraduate Prize will help Valeria to promote her research and pursue a career in the international nuclear industry.

### IET Postgraduate Scholarships

Awarded to help researchers share advancing knowledge throughout the global science, engineering and technology community to enhance people's lives around the world.

**Ronnie Smith** 

IET Postgraduate Prize Awarded £2,500

Ronnie is a PhD student at the Edinburgh Centre for Robotics, as part of the EPSRC Centre

for Doctoral Training in Robotics & Autonomous Systems at Heriot-Watt University and the University of Edinburgh. His research focuses on enabling pro-active robotic assistance for people who need support during activities of daily life at home.

Ronnie's research brings together a number of topics to bring humans 'in-the-loop' and give them ownership over their own assistive technology. This includes applying active learning to activity recognition, using a novel conversational interface. This reduces the need for supervised learning and helps to deal with long-term changes in user behaviour or environment. Currently, Ronnie is focusing on using the conversational agent to allow the user to ask the robot for help during activities, in order to intelligently provide pro-active assistance when that activity is detected in the future.

Recognition of his work through the IET Postgraduate Prize will help Ronnie in promoting his work and stimulating engagement with industry stakeholders in the care sector. The prize will also support him in disseminating the results of his work. Ronnie hopes to continue his work on assistive robotics through post-doctoral research.

### IET Postgraduate Scholarships

Awarded to help researchers share advancing knowledge throughout the global science, engineering and technology community to enhance people's lives around the world.

#### Krishanu Dey

Hudswell International Research Scholarship Awarded £5,000

#### Krishanu is a Cambridge India Ramanujan

PhD scholar in Physics at the Cavendish Laboratory

University of Cambridge and is a member of Churchill College. Belonging to a remote border town in the state of Assam in India, Krishanu was always fascinated by light-electricity or photon-electron interactions that have revolutionised many modern-day electronic inventions. Solar photovoltaic research really appealed to him and he had experience of working on solar-driven water splitting and a variety of photovoltaic material technologies.

n his PhD, Krishanu is using a host of optical spectroscopy and electrical methods to unravel various fundamental optoelectronic properties of mixed lead-tin halide perovskite materials, which are key components of the next generation all-perovskite tandem solar cells. He also uses many of the insights to fabricate lab-scale high efficiency mixed ead-tin perovskite solar cells with minimised loss channels.

The Hudswell International Research Scholarship will help him to explore halide perovskite naterials for the reverse process of light emission by developing several internal and external collaborations. The scholarship will support him in disseminating his work at najor international scientific conferences in the coming year.

### IET Postgraduate Scholarships

Awarded to help researchers share advancing knowledge throughout the global science, engineering and technology community to enhance people's lives around the world.

Xianghao Zhan

IET Postgraduate Scholarship for an outstanding researcher Awarded £10,000

Xianghao is a PhD candidate in the Department of Bioengineering, Stanford University, USA.

Xianghao comes from China with a BEng in Control Science and Engineering and a BA in English Language and Literature from Zhejiang University. Xianghao focuses on the optimisation of computational modelling of traumatic brain injury (TBI). His research enables a better understanding of the brain deformation mechanism and how the biomechanical loading results in blood-brain barrier disruption. He is developing a fast, accurate and generalisable computational model that significantly reduces the time expenditure on the TBI research. His work will enable clinicians to monitor TBI risks in a real-time manner. With a combination of sensor signal recordings and processing in wearable devices, the risk of a head impact can be evaluated.

Xianghao has published 15 journal and conference articles as a first/co-first author on NPJ Digital Medicine, IEEE Transactions on Biomedical Engineering. He was one of three international grand finalists of the IET PresentIn10 contest 2021. This award served as the motivation for him to start another journey on his research work. With this motivation and encouragement, he will dedicate himself to delve into the missing link between the brain deformation and the TBI pathologies and try his best to model the relationship for the benefit in the prevention of TBI.

### Engineering and Technology Apprentice Award

Awarded to an individual on an IET Accredited Apprentice Scheme, who has made substantial contributions towards their employer or operational area.

#### **Katie Allerton**

Finalist

#### Katie graduated from MBDA's Generalist

Engineering Apprenticeship in September and is

now a full-time Product Assurance Engineer. She has been working as a Product Assurance Engineer in her final placement since December 2021, enjoying the ability to combine her passion for engineering with the desire to achieve the highest quality outputs. This has been challenging, often having to drive teams to improve their working practices to meet the customer's expectations. As a young member of the business this often involves challenging behaviour of senior colleagues, a role that requires confidence and integrity.

Aside from her day job, Katie is an active member of the TECN (Tempest Early Careers Network); which is made up of four partner companies all working as part of Team Tempest to deliver the next generation of combat aircraft. Katie worked in a multi-organisational scrum with other TECN members to deliver solutions to complex questions and problems set by the senior leadership team. She took her interest in Agile further and has recently become a qualified scrum master.

### Engineering and Technology Apprentice Award

Awarded to an individual on an IET Accredited Apprentice Scheme, who has made substantial contributions towards their employer or operational area.

#### Benjamin Martin

Finalist

Ben has recently completed a four-year Engineering Apprenticeship at MBDA UK Ltd, which has seen

him undertake several manufacturing-based placements. The latter two years of the apprenticeship focused on engineering-based activities, such as test and diagnostics, as well as placements within the materials laboratory and environmental stress screening team. Ben was relied upon to work independently, to meet key deadlines and deliverables, and was an important member of the team that delivered the first Sky Sabre Air Defence System.

Having successfully completed an HNC and HND in Electrical and Electronic Engineering, Ben is currently in his final year of a BEng delivered through UCLan University and is on track to achieve a first-class degree. Ben was involved in a range of STEM based activities, including attending schools and colleges for career days as well as supporting the company work experience programme - acting as a mentor for students on placement. Earlier this year Ben was awarded Alliance Learnings Electrical and Electronic Engineering Apprentice of the Year.

### Engineering and Technology Apprentice Award

Awarded to an individual on an IET Accredited Apprentice Scheme, who has made substantial contributions towards their employer or operational area.

#### Laura McLaughlin BSc

#### Finalist

Laura is an Overnead Linesperson at

Level-3 apprenticeship in electrical power engineering and is now employed full time within the company. As an apprentice, she gained knowledge and skills that enable her to contribute to the construction, maintenance and refurbishment of the distribution and transmission overhead line network across Northern Ireland. Alongside that, she achieved a BTEC in Electrical and Electronic Engineering and a Level 3 vocational qualification. Prior to joining NIE Networks, Laura studied a BSc in Psychology.

Laura consistently contributes to and leads her team, where she is the only female, always striving for better results. She is proactive in a number of NIE Networks' Outreach programmes and continues to support initiatives including Skills NI, NIE Networks and Sentinus STEM Careers Roadshow events including Primary Futures, a primary and secondary school educational STEM visit programme. Laura has embarked on her engineering journey with enthusiasm, dedication and confidence in a male-dominated career pathway. Laura strongly epitomises an ideal role model for apprentices and for women getting into engineering.

### Engineering and Technology Apprentice Award

Awarded to an individual on an IET Accredited Apprentice Scheme, who has made substantial contributions towards their employer or operational area.

Jared Newnham

Finalist

Jared attended Brockenhurst College where he acquired A-level qualifications in Maths, Further

Maths, Physics and Chemistry. Seeing an opportunity to flourish his personal development, he joined Defence Equipment & Support as an Aerospace Engineering Degree Apprentice, where he is now studying for a BEng in Aerospace Engineering alongside involved industry placements.

Jared's first placement exposed him to the challenges of aircraft defensive aid systems, where his primary responsibility was managing the achievement of cyber security accreditation for operational systems. As a secondary duty, he produced an auditable, regulatory compliant technical query process to formalise Design Organisation technical advice. Currently, as an Airworthiness Certification Manager, Jared is responsible for increasing air system operational capabilities through risk reduction and type design change embodiment, liaising with international stakeholders where appropriate. He coordinated an outreach event to promote degree apprenticeships to sixth form students. He also participated in the Tom Nevard Memorial Competition as a project manager. Outside of work, Jared has a keen interest in exploring the outdoors through hikes and amateur astronomy.

### Engineering and Technology Apprentice Award

Awarded to an individual on an IET Accredited Apprentice Scheme, who has made substantial contributions towards their employer or operational area.



Finalist

Niamh is a second year Environmental Engineering Degree Apprentice at MBDA. She is currently studying for a degree in Mechanical Engineering at the University of Hertfordshire. Being an Environmental Degree Apprentice allows her to train in niche skills in material testing and work on innovative internal research and development projects. She is the current project manager of Robot Rumble, an outreach sponsorship program where MBDA sponsors VEX robotics kits to local schools. The scheme encourages year 8 students to build robots using VEX Robotics kits with the support of a team of graduate volunteers.

She became a Junior Sea Cadet Civilian Instructor where she planned and taught online interactive STEM Activities. She continues to teach STEM activities online once a month. These lessons inspired her to become an Air Cadet Civilian Instructor and teach in person at her local squadron. She teaches STEM lessons with her cadets and is open with her choice of career so they can ask questions about higher level STEM Degrees and Apprenticeships. She is also an active member of STEM Ambassadors where she runs interactive sessions for young people, promoting careers in STEM. This summer she spoke at Bedfordshire University as part of their 'Steps into STEM' program aimed to encourage local school children into STEM careers.

### Engineering and Technology Technician Award

Awarded to a professionally registered technician in an engineering and technology technical support role to recognise the exceptional dedication to the profession.

Finalist

Joshua Green EngTech TMIET

Joshua gained an extended National Diploma in engineering. At 18 he joined MLM Group as a Trainer

CAD Technician, and two years later he transferred into the engineering team to pursue electrical engineering. MLM Group funded his education, first at Colchester Institute for an HNC in Construction (Building Services Engineering) and then a BEng (Hons) at London Southbank University.

When MLM Group became part of SWECO he found ways to improve his own and his colleagues work output, trialling new technology, enquiring with manufacturers and organising CPD to further his understanding of the industry. At SWECO he mentors junior colleagues and has aided in the improvement of processes by volunteering for the digitalisation program currently being trialled.

Joshua takes on a number of roles and responsibilities. He has been heavily involved in the reconstruction of Norwich Castle, becoming a key individual in the transformation of the Keep's internal spaces by designing its medieval floors to enhance the experience for all visitors. Joshua has led multiple rail projects as the designated Contract Responsible Engineer and has since achieved repeat business with many clients in this sector. He has found a real passion for providing intuitive solutions to issues that arise on projects, and developing himself as an engineer.

### Engineering and Technology Technician Award

Awarded to a professionally registered technician in an engineering and technology technical support role to recognise the exceptional dedication to the profession.

Charlotte Huntley EngTech TMIET

Finalist

Charlotte is a Junior Electrical Instrumentation

Control and Automation Engineer at Arcadis. She works

as part of a multi-disciplined team, producing design and engineering solutions for clean and wastewater projects with values up to £80m for multiple water industry clients. Charlotte has obtained her Diploma, HNC and HND with Distinction grades. She is currently studying a BSc in Electrical and Electronic Engineering which is due to finish May 2023.

Charlotte started as an apprentice with Arcadis and is passionate about promoting the opportunities available to those interested in Engineering. She is a STEM ambassador and volunteers as a bilingual mentor to support disadvantaged young people who are interested in engineering or apprenticeships. Charlotte became professionally registered as an Engineering Technician with the IET in 2018, and has since published case studies with the Engineering Council discussing the benefits of professional registration in the hopes this will inspire others.

From 2019-2022, Charlotte was the Safety, Health, and Environment lead for Arcadis' water sector for Wales and Southwest England. She was responsible for the teams' health and safety (H&S) compliance, driving H&S initiatives and emphasising the importance of going home safely at the end of every day.

### Engineering and Technology Technician Award

Awarded to a professionally registered technician in an engineering and technology technical support role to recognise the exceptional dedication to the profession.

Padmawantee (Neeta) Bahadoor Oogarah EngTech TMIET

Finalist

oorn in Mauritius. Despite a difficult

money to allow her to complete her secondary education, she later went on to study for a three-year diploma in Mechanical Manufacturing at Lycée Polytechniquel. She was the only girl from her city who went to the technical school and the only girl in her class.

Starting her worklife as a Draughtsperson, she would sit at a drawing board with various tools to prepare drawings by hand on grease paper, and errors were erased by a small blade. She left her job to marry and start a family. When her husband became ill, she pushed herself out of her comfort zone and retrained in Computer Aided Design and returned to work as a CAD technician. She learnt new skills and embraced the learning, becoming proficient in a number of software programmes, including AUTOCAD, TEKLA, PDMS and REVIT.

Now with more than 18 years of experience as an Engineering CAD Technician in 3D and 2D, she specialises in Building Services MEP Drawings (Plumbing, Electrical, HVAC, Fire Fighting, Public Health, and Infrastructure Site Plan). She became a professionally registered engineer after gaining her EngTech registration in 2020.

### Armed Forces Technician Award

Awarded to an individual to recognise an exceptional engineering contribution to their area of operation. Armed Forces Technicians are current serving members of the United Kingdom Armed Forces.

#### Sgt Nathan Kelly FDSc ICTTech TMIET

#### Finalist

\*

Sergeant Kelly joined the Royal Air Force (RAF) in 2005 as an Information Communications Technician, graduating from No 1 Radio School in 2006. Initially employed to work on Airfield Navigational aids at RAF Kinloss, he was later posted to RAF Waddington. Since then, he has been employed in a broad range of locations and roles and has developed his Network Engineering skills, an area he now specialises in. His specialisation has afforded him the opportunity to be involved in the design and delivery of networks across defence.

Currently based in Cyprus, he is responsible for the maintenance of numerous bespoke MOD IT systems, requiring him to use all the skills and knowledge gained throughout his varied career.

A committed individual with a thirst for learning, he was awarded an FdSc in Information Communication and Technology in 2017 and is currently writing his dissertation for his BSc(Hons). A STEM ambassador with a desire to promote all aspects of engineering to future generations, he facilitates events for local schools and communities. He was awarded the Afghanistan Operation Medal with clasp in September 2019 and received his Long Service and Good Conduct Medal after 15 years' service in July 2020.

### Armed Forces Technician Award

Awarded to an individual to recognise an exceptional engineering contribution to their area of operation. Armed Forces Technicians are current serving members of the United Kingdom Armed Forces.

Sgt Claire Robertson EngTech TMIET

Finalist

Sergeant Robertson joined the Royal Air Force (RAF) as an aircraft engineer, at age 17. She was posted to

RAF Halton for basic training and DCAE Cosford for trade specialisation. Upon completion, she was posted to the Tornado Sky Shadow Bay at RAF Marham and then at RAF Lossiemouth, where she mentored both engineers and pilots through Electronic Warfare functionality and Electronic Countermeasures. She is also an RAF Liaison to the Air Cadets. As an advocate for Help for Heroes, she was involved in publicising and educating the local communities on injured servicepersons' recovery.

Posted to RAF Waddington in 2012, she led and implemented new software and tooling to Reprogramming, Mission Data. She facilitated training and mentoring of more than 60 personnel through the new processes, facilitated the new local authorisations for Mission Data, and briefed these to industry. Sgt Robertson formed part of the original station liaison team working with the Prince's Trust. She has been a STEM Ambassador for the station, facilitating STEM activities both on and off station for 10 years. She is also a low ropes facilitator and facilitates leadership and team bonding exercises for various events. She won the Station Withers Award for her contribution to STEM and youth engagement in 2021 and the Talent Award for her contribution to Projects for the Joint Electronic Warfare Operational Support Centre (JEWOSC) in 2022.

### Armed Forces Technician Award

Awarded to an individual to recognise an exceptional engineering contribution to their area of operation. Armed Forces Technicians are current serving members of the United Kingdom Armed Forces.

Cpl Craig Taylor FdSc EngTech TMIET RITTech MBCS

Finalist

\*

Corporal Taylor currently serves in the Royal Air Force (RAF) as a Cyberspace Communications Specialist. He joined the RAF in 2009 and, after completing basic training, was posted to the Ground Radio Maintenance Section at RAF Marham. His primary role was the maintenance of the airfield support equipment. During his time there he was also deployed to the Falkland Islands for four months.

In 2016 he was posted to RAF Wyton in a service desk support role. He was promoted to Corporal in 2018 and posted to RAF Honington to teach the BOWMAN radio equipment. He is currently posted to RAF Cosford, where he teaches cyber security training to Phase 2 and Phase 3 trainees. This includes teaching the CompTIA Security+ and Cyber Security Analyst courses. He was recently deployed to the Falklands to maintain the remote radar equipment.

He is also a STEM ambassador, encouraging everyone to get into STEM activities and egister with professional registration to demonstrate their skills and professional experience. He is a Registered IT Technician (RITTech) with the British Computer Society BCS) and also an Engineering Technician (EngTech) with the IET.

### Armed Forces Technician Award

Awarded to an individual to recognise an exceptional engineering contribution to their area of operation. Armed Forces Technicians are current serving members of the United Kingdom Armed Forces.

Sgt Gary Wathan BEng IEng MIET

Finalist

Sergeant Wathan joined the Royal Air Force (RAF) as an Aircraft Airframe Technician in 2003. In 2008,

after successfully completing his trade assimilation course, he became a Mechanical Aircraft Technician (Airframe/Propulsion). During his career he has predominantly been employed on Front Line Tornado GR4 Squadrons, covering Flight Line operations aircraft rectification and carrying out independent inspections.

Whilst on the Tornado Force, he was deployed on numerous Operational deployments and exercises around the world, undertaking various roles from Maintenance Engineer to Mechanical Trade Leader. Whilst studying for his BEng (Hons) in Mechanical Systems Engineering, he identified an issue with Vortex Generators becoming detached during flight on the Tornado GR4. Identifying the cause, he designed and implemented a fixing tool and made improvements to the maintenance procedure.

His current role in Engineering Standards and Evaluation at RAF Marham sees him mentor over 450 maintainers across both the Royal Air Force and Royal Navy, ensuring they work within the 'box of standards', whilst researching and presenting innovative solutions, enhancing capabilities for the Royal Air Force. He is an active STEM Ambassador who delivers workshops throughout the region, with the focus on inspiring the next generation to pursue a STEM based career.



# Solving challenges takes a team

Whether it's developing our digital future, innovating with robotics, or helping to secure a zero-carbon world – teamwork is critical to success. Our brand new Impact in Society Awards are all about celebrating the world's greatest teams.

Apply today theiet.org/impact-in-society

### **Paul Fletcher Medal**

The Paul Fletcher Medal is awarded to an Early Career volunteer for outstanding achievement in contributing to the activities of the IET.

Tegan Forbes MEng MIET

Finalist

### Tegan currently holds several interrelated volunteering roles with the IET. She chairs the Futu

Talent Forum for UK-based award winners, which she has been a member of since being awarded an Engineering Horizons Bursary in 2018. She is co-opted to the Young Professionals Committee, enabling the two groups to pilot a Career Mentoring programme as a new offering for members. Tegan has been an active Local Network volunteer, setting up an On Campus group at Loughborough University, and a Young Professionals forum for the East and West Midlands, as well as utilising her role in the On Campus working group to develop and sustain international collaborations.

At the start of 2022 Tegan relaunched the Bristol Young Professionals network, which now attracts more than 350 registrants per event for the newly established technical webinar series.

She is an Engineering and Technology Graduate at Rolls-Royce plc, specialising in Digital Manufacturing. Tegan co-founded and leads a small team at LavLab, a humanitarian biotech NPO, and is a Global Advisors Board member for RS Group plc.

### **Paul Fletcher Medal**

The Paul Fletcher Medal is awarded to an Early Career volunteer for outstanding achievement in contributing to the activities of the IET.

#### Dr Ivan Ling Ting Yang MIET MIEEE

#### Finalist

Ivan started his IET journey in 2011 as a student member during his Bachelors study at Swinburne University of Technology. Ivan completed his PhD at the University of Southampton and is currently an Assistant Professor at the University of Southampton, Malaysia. Ivan served as the Vice-Chair of the Young Professionals Section (YPS) Malaysia in 2020, and was elected as Chair in 2021.

He was recently re-elected in 2022 to continue his role. Internationally, Ivan is an active volunteer in the IET Young Professionals Committee, leading the Courses team and serving as the Asia-Pacific Representative.

He was also appointed as the Young Professionals Representative and Singapore Communities Committee lead in the IET Communities Committee Asia Pacific. Currently, Ivan is an early career researcher and educator, holding grants worth up to approximately £173,000 to study sensor fusion technologies for drone applications, and Laser Induced Graphene (LIG) for sensor design applications.

### Paul Fletcher Medal

The Paul Fletcher Medal is awarded to an Early Career volunteer for outstanding achievement in contributing to the activities of the IET.

Sam Presley MEng MIET

Finalist

Sam has been an IET Volunteer since 2013 and has contributed towards both local and global activities. He is currently based in Oslo. Norway where he is a Techn

Nordic Semiconductor. Sam holds a Masters of Engineering in Electronics Engineering from the University of Southampton.

Throughout his time volunteering for the IET, Sam has contributed to many committees including the Diamond Jubilee Scholarships Committee, Young Professionals Community Committee, Communities Resourcing Committee, Council and the Future Talent Awards Panel. He has also served as a judge for the Young Woman Engineer of Year Award, the Innovation Awards and Present in 10. Whilst studying in Southampton he established the University of Southampton IET On Campus Group to provide greater access to professional development opportunities to engineering students.

Sam has a passion for inspiring the next generation into careers in engineering and technology, and in 2017 Sam was awarded the BrightSparks award by Electronics Weekly and RS Components.

### Mike Sargeant Medal

Awarded to an Early Career Professional who has been judged to have made the most significant progress in their career over more than three years.

#### Professor Mayank Kejriwal MBA PhD

#### Finalist

Mayank holds joint appointments as a

research assistant professor and research team leader

in the University of Southern California's Viterbi School of Engineering. His research is interdisciplinary and uses applied Artificial Intelligence to address difficult social challenges such as human trafficking, financial corruption and tax evasion, and disinformation on social media. He has published almost a hundred peer-reviewed articles and contributed pieces, including Nature Machine Intelligence, Applied Network Science, and PLOS Digital Health. His work has also been covered by press outlets and international forums such as the BBC, Popular Science, CNN Indonesia, Big Think, and the World Economic Forum.

Beyond his academic research, Mayank has given invited talks and tutorials to senior researchers and executives in major corporations such as Netflix, Microsoft, The Home Depot, Kaiser Permanente and SAP. In 2022, he was the recipient of a SIAM Science Policy Fellowship for his mentorship and outreach efforts in business and policymaking. He also received a USC Excellence in Mentoring Award. He has authored three books, the most recent of which is an authoritative 2021 MIT Press textbook on knowledge graphs that is now being translated into several languages, including Mandarin.

### Mike Sargeant Medal

Awarded to an Early Career Professional who has been judged to have made the most significant progress in their career over more than three years.

#### Dhwani Rupali Vani

Finalist

Dhwani is a 16-year-old space scientist and researcher. She has two diploma degrees in Astron

and Cosmology with distinctions in both. She has presented several research papers including some published in NASA Sagan 2021, CERN beamline, the society of scientific development and research, and many others.

She is a member of UN Women, representing Asia and the Pacific Region. She also works on her two not-for-profit organizations. Despite being only 16, she has three years of work experience with many research-based organizations and institutions. She is currently studying A levels at Fravashi International Academy in India and plans to get her Undergraduate degree in Astronomy. Her interest lies in Archeoastronomy, Astrochemistry, Cosmology, and much more.

She has also been a part of CNRS, the centre for scientific research in France, to research the Orion-B data and molecular emission lines. She has won a Child Prodigy Award, Rising Leader Award and Young Research Award.

### Mike Sargeant Medal

Awarded to an Early Career Professional who has been judged to have made the most significant progress in their career over more than three years.

#### Dr An Xiao BSc MSc PhD MIET CEng

#### **Finalist**

An is currently working as an Operational

the Electricity National Control Centre of National Grid. He works in the forefront of electricity net zero transition by leading the real-time energy team to balance the electricity system securely and economically on a second-by-second basis.

Alongside his operational role, he is also leading, and involved in, projects including British electricity market reform, interconnector operational policy and methodology setting and grid ancillary service strategy.

He received his PhD degree from the University of Manchester in 2014 and went on to join the National Grid Control Centre. Since then he has had various roles in National Grid, including Lead Scheduling Engineer, National Balancing Engineer, Product Owner and European Congestion Forecast Manager. During the Covid-19 lock down he and his team successfully managed many challenging system conditions to keep the lights on and achieved the greenest electricity grid day on Easter Monday of 2021.

### Sir Henry Royce Medal

Awarded to an Early Career Professional who has excelled in the workplace within the last three years.

Dr Jack-James Marlow BEng PhD CEng FRAeS

Finalist

Jack-James is a Space Engineering Manager and PRINCF2 certified Project Manager, experien

in working with, and designing launch vehicle systems - most notably liquid rocket engines. He is experienced in running an Engineering department, focusing primarily on qualification activities of launch vehicles to European Cooperation for Space Standardisation (ECSS) standards. He has 10 years of propulsion experience including design, manufacture, and testing. He attained a BEng (Hons) in Astronautical Engineering, went on to complete a PhD in Liquid Propulsion and spent four years lecturing. Dr Marlow is a Chartered Engineer and Fellow of the Roya Aeronautical Society.

At Skyrora, Marlow leads the UK Engineering department, managing the development of the XL Launch Vehicle. Marlow's recent achievements include overseeing the design and commissioning of the UK's largest Rocket Engine Test Facility, which has seen multiple engine firings as part of qualification programmes. For this project, he won the 2020 RAeS Specialist Award. His most recent success was in the role of Project Executive of a fully integrated stage test fire. This was for the second stage of Skyrora's XL Launch Vehicle, a first in the UK since the Black Arrow / Blue Streak programmes.

### Sir Henry Royce Medal

Awarded to an Early Career Professional who has excelled in the workplace within the last three years.

#### Mona Faraji Niri PhD MIET

#### Finalist

\*

Mona is an Assistant Professor in Warwick Manufacturing Group (WMG), University of Warwick

She has a PND in Control Engineering from Iran University of Science and Technology. She is a Fellow of the Alan Turing Institution in Artificial Intelligence, and a member of the IET. She holds an Associate Fellowship from the Higher Education Academy and have been working at WMG for four years.

Mona is specialised in modelling, control algorithms and machine learning for energy storage systems, in particular, Lithium-ion batteries. She is an expert with battery management as well as electric vehicle powertrain modelling. Beside her research activities Mona has been actively promoting STEM outreach activities and has been the champion of Equality, Diversity, and Inclusion for the Faraday Institution.

Mona has been endorsed as "Exceptional talent, Future Promise" in her field by the Royal Academy of Engineering in April 2021 and was the recipient of a TechWomen100 UK Award in December 2021. She was recognised as an Early Career Researcher of the Year 2022 at WMG.

### Sir Henry Royce Medal

Awarded to an Early Career Professional who has excelled in the workplace within the last three years.

#### Dr Richard Taylor PhD MIET CEng FIES

#### Finalist

Richard is joint-founder, Director and Chief Technical officer of Vector Photonics, the designer

and manufacturer of all-semiconductor, photonic crystal surface emitting lasers (PCSELs). Richard co-invented PCSELs during his PhD at the University of Sheffield. He held several research fellowships, including at the University of Tokyo, developing the technology further. In 2017, Richard moved his research base to the University of Glasgow, one of the world's optical and photonics centres of excellence.

In March 2020, Richard span Vector Photonics out of the University of Glasgow to commercialise this revolutionary technology and prove it in commercial semiconductor labs. He has now secured government funding of £3.8 million, equity investment of £1.65 million, and developed supply contracts with some of the world's largest companies. It is the dream of many engineers to take a great idea from the lab to full production, building a business in the process. Richard is doing just that, as he continues his journey in commercialising this unique, PCSEL technology.

### **Volunteer Medal**

The award recognises the importance of volunteers to the IET in its mission to inspire, inform and influence the global engineering community.

#### Justina Chun Yin Ho MIET

Finalist

\*

#### The Hong Kong Local Network (HKLN)

members, and Justina was the very first IET volunteer to introduce the idea of STEM to HKLN and the Hong Kong education community, even before the local government decided to promote it. She had restructured the local IET programs for young engineers to support the STEM concept and established the HKLN STEM Task Force and local STEM programmes, such as the Hong Kong STEM Ambassador Programme, and STEM 4 Girls Mentorship Programme. The IET has become one of the well-recognized organisations in the local government and STEM community in Hong Kong as a result.

A strong advocate of Equality, Diversity and Inclusion in the local industry, Justina helped the IET Young Woman Engineer (YWE) Award to launch in Hong Kong for the first time in 2019. Together with the STEM 4 Girls Program and the Women In Science and Engineering (WISE) Training Program, the Hong Kong YWE created an ecosystem for women to develop their talents in technology and contribute to the next generation.

### Volunteer Medal

The award recognises the importance of volunteers to the IET in its mission to inspire, inform and influence the global engineering community.

#### Professor Wai Yie Leong CEng FIET

Finalist

Wai Yie received her PhD in Electrical Engineering from the University of Queensland, Australia. Wai Yie

is passionate about promoting Equality, Diversity and Inclusion in engineering. She is the Chair of the IET Malaysia Network, the IET Industry 4.0 Technical Network and the Women in Engineering Committee of the World Federation of Engineering Organisations. Wai Yie has been an Engineering Accreditation Panel member and Chair at more than 13 university visits, ensuring that the highest quality of engineering education is upheld and the continual improvement of their respective Standards.

She has conducted various surveys related to Women in Engineering (WiE) and has compiled reports that have been uploaded for open access to create awareness worldwide on the challenges of WiE. Wai Yie has received many awards during her career, including WFEO GREE Women In Engineering Award 2022 and UN Women Empowerment Leadership Award 2021. She has represented women engineers at meetings and discussions at the United Nations.

### Achievement Medal

Awarded to nominees who have made major and distinguished contributions in any field of engineering and technology.

#### Professor Tom Crick MBE CEng FLSW FAcSS FIET

#### **Finalist**

\*

Tom is Professor of Digital and Policy, and Deputy Pro-Vice Chancellor at Swansea University.

Whilst his disciplinary background is in computer science, he has been heavily involved in education, digital economy, and infrastructure policy in the UK for over 10 years, especially national curriculum and qualifications reform. Tom chaired the Welsh Government's 2013 review of the ICT curriculum, the development of a statutory cross-curricular Digital Competence Framework and has recently led the development of the Science and Technology area in the new Curriculum for Wales. Tom was also chair of the National Network for Excellence in Science and Technology, a £4m strategic investment by the Welsh Government. He is Editor-in-Chief of The Computer Journal, published by Oxford University Press.

Alongside his academic roles, Tom is a Non-Executive Director of Welsh Water, Swansea Bay University Health Board, Ofcom's Advisory Committee for Wales, and Industry Wales, and a member of the UK Government's DCMS College of Experts. He has previously been an inaugural Commissioner of the National Infrastructure Commission for Wales (2018-2022).

### **Achievement Medal**

Awarded to nominees who have made major and distinguished contributions in any field of engineering and technology.

Professor Antonio De Maio PhD

Finalist

Antonio was born in Sorrento, Italy. He received his DEng (with honors) and his PhD in information

engineering, both from the University of Naples Federico II, Italy, in 1998 and 2002, respectively. In 2004 he was a Visiting Researcher with the U.S. Air Force Research Laboratory, Rome, NY. He was a Visiting Researcher with the Chinese University of Hong Kong in 2007.

Antonio is a Professor with the University of Naples Federico II. His research interest lies in the field of statistical signal processing, with emphasis on radar detection and optimization theory applied to radar signal processing. He is a Fellow of the IEEE and the recipient of the 2010 IEEE Fred Nathanson Memorial Award as the young (under 40) AESS Radar Engineer 2010, whose performance is particularly noteworthy as evidenced by contributions to the radar art over a period of several years, with the citation for "robust CFAR detection, knowledge-based radar signal processing, and waveform design and diversity".

### **Achievement Medal**

Awarded to nominees who have made major and distinguished contributions in any field of engineering and technology.

#### Professor Shiyan Hu FIET FBCS MEASA

#### Finalist

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#### Shiyan is a Professor and Chair in

Cyber-Physical System Security at University of Southampton,

and he is regarded as a world-leading expert in the field of Cyber-Physical System (CPS). He carried out ground-breaking work in developing the first smart home CPS scheduling framework considering various uncertainties, the first smart home aware electricity market model, and the first POMDP based CPS attack detection scheme, which produced highly influential impact in academia and industry.

His publications on these topics have received distinctions such as the 2018 IEEE Systems Journal Best Paper Award, the 2018 IEEE TCSC Most Influential Paper Award, and multiple Thomson Reuters Highly Cited Papers. He is a recipient of the US National Science Foundation CAREER Award and IEEE Computer Society TCSC Middle Career Researcher Award. He is the Chair for IEEE Technical Committee on Cyber-Physical Systems, and the Editor-In-Chief of IET Cyber-Physical Systems: Theory & Applications. He has served as the 2020 Editor-in-Chief Search Committee Chair for ACM Transactions on Design Automation of Electronic Systems. He is an Associate Editor and was Guest Editor for several IEEE and ACM Transactions and chaired various conferences. He is a Member of the European Academy of Sciences and Arts, a Fellow of the IET, and a Fellow of the British Computer Society.

### **Achievement Medal**

Awarded to nominees who have made major and distinguished contributions in any field of engineering and technology.

Professor Jian Li FIET FIEE PhD

Finalist

Jian received her MSc and PhD degrees in electrical engineering from the Ohio State Uni

Columbus in 1987 and 1991, respectively. She is currently a Professor in the Department of Electrical and Computer Engineering, University of Florida, Gainesville. Her current research interests include spectral estimation, and statistical and array signal processing and their applications to radar, sonar, and biomedical engineering.

Jian's publications include Robust Adaptive Beamforming (2005, Wiley), Spectral Analysis: The Missing Data Case (2005, Morgan & Claypool), MIMO Radar Signal Processing (2009, Wiley), and Waveform Design for Active Sensing Systems -- A Computational Approach (2011, Cambridge University Press).

She is a Fellow of the European Academy of Sciences (Brussels), a Fellow of IEEE and a Fellow of IET. She is a co-author of the paper that has received the M. Barry Carlton Award for the best paper published in IEEE Transactions on Aerospace and Electronic Systems in 2005. She is also a co-author of a paper published in IEEE Transactions on Signal processing that has received the Best Paper Award in 2013 from the IEEE Signal Processing Society.

### Achievement Medal

Awarded to nominees who have made major and distinguished contributions in any field of engineering and technology.

#### Professor Bikash Pal PhD FIEEE

#### Finalist

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Bikash is Professor of Power Systems at

Imperial College London. He obtained his PhD from Imperial

College London as a Commonwealth Scholar. His research in power system stability, control and computation is sponsored by ABB, GE, National Grid, EU and UKRI. He led three multi-university research consortia between the UK and China, and the UK and India. His research, analysis and solutions have been adopted by Siemens, GE Grid solutions, and UK Power Networks. The United Nations have consulted him for solving technical problems in power transmission. He has graduated 24 PhD students, published approximately 145 IEEE and IET journal papers, and co-authored four books. He received an IET annual premium paper and two best annual IEEE Trans paper awards. He was founding director (2014-2019) of the MSc course in Future Power Networks at Imperial College.

He is Editor of Elsevier series on Sustainable Energies, Fellow of IEEE and the IET. He was Editor-in-Chief (EiC) of IEEE Transactions on Sustainable Energy between 2012 and 2017 and EiC of IET Generation, Transmission and Distribution between 2005 and 2012. He is Vice-President of Publications, PES, IEEE. He was Mercator International Professor in Germany and Otto Monstead International Professor in Denmark.

### **Achievement Medal**

Awarded to nominees who have made major and distinguished contributions in any field of engineering and technology.

Professor Jean-Pierre Raskin FIEEE

Finalist

Jean-Pierre received his MSc and PhD degrees in applied sciences from Université Catholique de Louvain (UCLouvain), Belgium in 1994 and 1997, respectively. In 1998, he joined the EECS

Department of the University of Michigan, USA, for a post-doctorate of two years. In 2000, he joined the Microwave Laboratory of UCLouvain as Associate Professor, and he has been a Full Professor since 2007.

During 2009-2010, he was a visiting professor at Newcastle University, UK. His research interests are in the modelling, wideband characterisation, and fabrication of advanced Silicon-on-Insulator (SOI) MOSFETs as well as MEMS / NEMS sensors and actuators, including lab-on-chip for the extraction of intrinsic material properties at nanometre scale. He has been IEEE Fellow since 2014. He received the Médaille BLONDEL 2015, the SOI Consortium Award 2016, the European SEMI Award 2017, the Médaille AMPERE 2019, and the Georges Vanderlinden Prize 2021, in recognition of his vision and pioneering work for RF SOI which today impacts the industry of microelectronics all around the world. All smartphones, tablets and laptops have inside the novel trap-rich SOI technology (RF-SOI), invented by Professor Raskin's group, for the wireless communication front end modules.



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David Gillespie Applied research specialist CEng MIET SMIEEE

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### **Mountbatten Medal**

Awarded to an individual who has made an outstanding contribution, over a period of time, to the promotion of electronics or information technology and their application.

Dr Santokh Badesha PhD DSc MNAE FNAI FRSC CSci

Winner

### Santokh is a Corporate Fellow, and Manager of Open Innovation for the Xerox Corporation.

He is responsible for leading inter-organisational efforts with both internal and external value chain partners, building academic and industrial partnerships, and providing critical technical support for product programs. He oversees strategic research partnerships to design, develop and deliver functional materials, components, and marking subsystems. Dr Badesha is one of the most prolific inventors in the history of the Xerox Corporation, with 262 US Patents that have also been filed in multiple countries. One would be hard-pressed to find individuals that have not used a copy machine or printer that his inventions went into.

His most recent awards include induction into both the National Academy of Engineering (NAE) and National Academy of Inventors (NAI) in 2021, being named as Honorary Member of the Society of Imaging Science and Technology (2021), and the American Ceramics Society's Rishi Raj Medal for Innovation & Commercialization in Ceramics in 2022. Badesha is a Fellow of the Royal Society of Chemistry UK and a Chartered Scientist of the Science Council of UK. He received an Honorary Doctor of Science (DSc) from Clarkson University in 2007. Badesha received his first PhD in organic chemistry from the Punjab Agricultural University, India, and a second PhD in organic chemistry from the University of East Anglia, Norwich, UK.

### Faraday Medal

Awarded either for notable scientific or industrial achievement in engineering or for conspicuous service rendered to the advancement of science, engineering and technology or for lifetime achievement in science, engineering or technology.

Professor Chad Mirkin PhD

Winner

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#### Chad is the Director of the International

Institute for Nanotechnology and the Rathmann Professor

of Chemistry, Chemical and Biological Engineering, Biomedical Engineering, Materials Science and Engineering, and Medicine at Northwestern University, USA. He is a chemist and nanoscience expert, known for his invention and development of spherical nucleic acids and Dip-Pen Nanolithography and related cantilever-free nanopatterning and materials discovery methodologies. He is also known for his contributions to additive manufacturing, supramolecular chemistry, and nanoparticle synthesis.

He has authored more than 840 papers and 1,200 patents worldwide (with more than 400 issued), and founded nine companies. Chad has been recognised with over 230 awards. He served for eight years on the President's Council of Advisors on Science and Technology, and he is one of very few scientists to be elected to all three US National Academies. Chad has served on the Editorial Advisory Boards of over 30 scholarly journals, is the founding editor of the journal Small, was an Associate Editor of Journal of the American Chemical Society, and is a Proceedings of the National Academy of Sciences of the United States of AmericaEditorial Board Member. He has given over 870 invited lectures and educated more than 300 graduate students and postdocs worldwide.

## Congratulations to all our winners and finalists!



# Meet the role models the next generation need.



Join us and celebrate the young women inspiring the future.

Our awards celebrate the thousands of women engineers doing groundbreaking work and paving the way for the STEM superstars of the future. **Find out who will join our family of YWE winners.** 



**#IETywe** 

Register now for a place at the ceremony: theiet.org/ywe IET Young Woman Engineer of the Year Awards | Thursday, 1 December 2022

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# **Key dates**

Travel Awards for International Travel - Open now Travel Awards for National Travel - Open now

Postgraduate Research Awards - Open now Closing date: Thursday, 6 April 2023

NEW: Impact in Society Awards - Open now Closing date: 9 December 2022 Presentation event: Tuesday, 28 March 2023

**E&T Innovation Awards ceremony** 10 November 2022

#### Achievement Awards

Open for applications and nominations: February 2023 **Closing date:** Monday, 15 May 2023

Young Woman Engineer of the Year Awards Thursday 1 December 2022

IET Harvey Prize Lecture March 2023

Details are subject to change.

For more information and to browse our full selection of awards and prizes, please visit our website:

### theiet.org/awards



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