



IET Futures Fund

Impact Report | 2021

IET Futures Fund raises money to support the next generation of engineers, to find solutions to our most pressing problems.





Daniel Ologunleko

BEng Mechanical Engineering

University of Warwick

Engineering Horizons Bursary supported by Cundall

Daniel was the proud representative of hundreds of students and apprentices at an event in the Houses of Parliament which drew to a close our 150th year celebrations.

The event was also the launch of former President Danielle George's call for all primary schools to have an Engineering and Technology Hour.

Daniel, who grew up in South London, supported the call and said: "My father introduced me to engineering and in 6th form we had a great careers advice teacher who helped me in many ways. But not all children have those benefits."

“

The bursary has helped me financially and mentally, as I am not in a position where I get constant financial support from my parents.

”

Daniel Ologunleko

Foreword

I would like to thank all those who have helped us give much-needed support to our student and apprentice community and to deliver STEM activities to children across the UK during what has been a difficult time for all.

2021 was a year of two halves for our Education team who did an amazing job of delivering a virtual programme throughout the school closures. But we were delighted to be welcomed back into classrooms from September.

Similarly undergraduates and apprentices working in challenging circumstances told us how the wider support of the IET, as well as, their scholarship or bursary made a difference to them.

We marked the IET's 150th anniversary by awarding our 1500th award to 22 year old Hamza whose experience of life so far is propelling him to a career where he can make a difference.

His is just one of many lives that will be changed for the better thanks to the phenomenal response to our anniversary match-funding campaign.

We originally set out to raise £1 million of donations in support of all the programmes you will read about in this report. I am delighted to share that we finished 2021 just shy of £2 million.

We are matching your generosity pound for pound and the impact will be felt for years to come.

Thank you to all our donors.



Professor Bob Cryan CBE DL CCMi
CMgr FEng FIET
IET Deputy President

If, like us, you are passionate about the future of engineering, contact the IET Development team to find out how you can make a difference.

Whether you are making a personal donation or an introduction to a company, your support is warmly appreciated.

Give today at theiet.enthuse.com or contact us at development@theiet.org

IET Education

To say the 2020-21 academic year was a challenge for schools is an understatement but, yet again, staff and students in schools around the UK and Ireland rose to the challenge and took part in our STEM education programmes.

Many schools continued remote teaching from January to March 2021 and there was significant disruption throughout the academic year with staff sickness.

Our specially designed Teacher Led Faraday Challenge Days helped us to continue to support 60 schools up to July 2021. We were delighted that so many wanted to take part.

Our *FIRST*® LEGO® League programmes were also impacted although the younger age groups were able to continue within school settings to a greater extent.

Both the Faraday Challenge and *FIRST*® LEGO® League finished with virtual finals in summer 2021.

The new school year has helped us return to a more normal in-school delivery. Our aim is to build up again to the high numbers of children our programmes previously benefitted each year.

We are confident we can do this with the support of our donors. But a massive thanks is owed to all the teachers and schools who worked hard to make sure their students got the very best experiences and opportunities.



“

I found designing the whole project tested my ability of what I could create, especially using lack of materials. And of course, it was a fun project because COVID stopped us from doing projects like this.

Faraday Challenge team
member, aged 12

”



Faraday Challenge Days

Theme Partner Network Rail tasked the teams to design a prototype to help sustainably manage the increasing numbers of passengers using their network and minimise their impact on the environment.

2020/21 season:



60

events were held



1,856

students from 61 schools took part



13%

defined as hard-to-reach



50%

of participants were girls

Teams had to consider themes such as energy, sustainability and capacity for growth and the prototype had to include an electrical circuit.

With pandemic restrictions still in place the challenge was adapted to a teacher-led format to be delivered in school with the support of a Faraday Challenge Leader. The five top-scoring teams were invited to a virtual National Final in July 2021. After a close competition with impressive virtual presentations Royal Liberty

School, Romford won with their design of a prototype pressure pad and buzzer system to minimise overcrowding on platforms. Our thanks to Network Rail for their unstinting support as theme partners.

The 2021/22 season is being delivered in-school with warm support from teachers. Our new theme partner the Institute of Healthcare Engineering and Estate Management (IHEEM) has challenged teams to design improvements to a children's hospital.



Winners of the 2020/21 Faraday Challenge – Royal Liberty School

Match-funding

60 resource kits for teacher-led Faraday Challenge Days for schools to use and keep in the 2020/21 season.

21 Faraday Challenge Days in the 2021/22 season so far.

“

With Network Rail, it was a real-life problem, and that helped them to find a solution. I think it's really important for the boys to experience what engineering is.

Teacher Adam Higgins,
Royal Liberty School

”



Louise's Story

Louise, 18
Faraday Challenge Day participant

Donations and legacies from our members, grantmakers and corporate partners are helping to inspire thousands of children into thinking about a career in engineering... one of them being Louise who took part in one of the IET's Faraday Challenge Days.

"Taking part in a Faraday Challenge Day was an excellent experience and now five years on I look back and realise how influential the opportunity was to me and the choices I have made.

As a child my career plans would range from scientist to artist to firefighter all in one week! When I walked into the hall to begin the challenge, I was still an indecisive 13-year-old, however little did I know that I would be leaving determined about the career that I wanted to pursue.

The theme of the day was Coding the Future, where we had to code a BBC micro:bit for a real life application. We chose to create a relaxation and reflexes programme.

My teammates developed the app and I took the lead on the paperwork. When we did the presentation, I panicked and forgot my words, however with an encouraging smile from the leader of my group I managed to continue. Since then I have been able to improve upon my public speaking skills and more importantly I learnt that even if you make mistakes you have not failed until you throw

in the towel. Our group ended up winning on the day and we achieved a perfect score on our paperwork.

Since the Faraday Challenge Day, me and a friend started the girls+ computing club at our school. It grew to around 25 members and provided girls, transgender and non-binary kids a place to feel comfortable exploring STEM subjects without the social pressures that can come with them. I have also helped to deliver a science club at my local library and assisted in junior computing classes at my school. I'm currently finishing up my Advanced Highers and am looking forward to studying Computing at Abertay University.

I have also developed a passion for education and with that passion am hoping to go on to teach at secondary level. I am well aware that computing has many opportunities however as someone who learnt of their interest in tech whilst in high school, it is an ambition of mine to share that interest with others in the same age bracket. Without the experience that I had I would probably have not discovered a career path that I love.

The challenge gave me so much more confidence as well as teaching me a few tech skills along the way. Looking back the Faraday Challenge Day was a key milestone in helping me to discover a subject that I love and really changed my perception of computing from something that was a hobby to something that could be a career."

BECAUSE ONE STEM EVENT CHANGED MY CAREER PATH





FIRST® LEGO® League

FIRST® LEGO® League continued to guide young people through STEM learning and exploration. From Discover to Explore and then to Challenge, students applied their skills in an exciting competition while building confidence, teamwork and their knowledge. All this through the continuing pandemic.

Challenge: a global STEM competition for 9–16-year-olds.

Explore: a non-competitive STEM challenge for 6–9-year-olds.

Discover: introduces young children aged 4-6 to STEM concepts as they learn through play.



Over **15,500** children and young people participated in 2020-21



52% of participants in *FIRST*® LEGO® League Explore and Challenge were involved as part of a whole class activity



55% of *FIRST*® LEGO® League Discover participants were girls



Over **2,700** teams

The 2020-21 theme was RePlay, which focused on play, sports and getting active. Participants explored the activities we can do in different spaces and how we can ensure that our games and activities are fun and accessible for everyone involved.

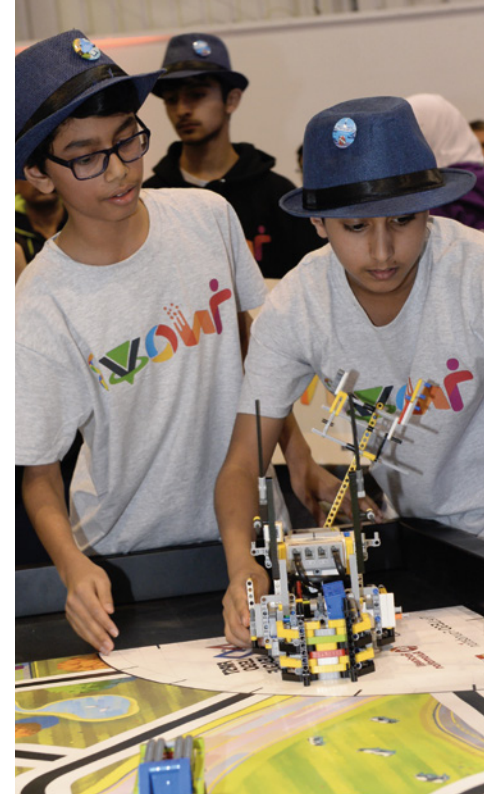
The regional tournaments were unable to take place in person but this didn't stop us. Fortunately for some, restrictions were lifted and activities were allowed to take place in the classroom.

Whilst the opportunities to engage were limited, where possible, teams made good use of technology. By working remotely together

on the challenges when schools were not open to all students, the participants were able to share the activity with their classes/bubbles when they returned to school.

The Season Celebration took place on 2 July presented by Tom Deacon, presenter of F1 Esports Pro Series and Maddie Moat, children's TV presenter and YouTuber.

Despite the challenges we faced, we did everything we could to ensure that children and young people could still enjoy *FIRST*® LEGO® League and were able to continue to offer engaging and fun remote tournaments and a Season Celebration.





Penpol Primary School

Pupils from Penpol Primary School in North Cornwall took part in *FIRST*® LEGO® League Challenge for the first time in 2021 – thanks to funding from the Wates Family Enterprise Trust.

Two teams from the school went to the Cornwall regional tournament and one – Creative Coders – won a place at the England and Wales National Final.

For their IT teacher, Jacob Woolcock, this was a moment of pride having first taken part in *FIRST*® LEGO® League as a student in 2003.



I've been keen to take part for a few years but without the incredibly generous support from the IET and the Wates Family Enterprise Trust we simply couldn't have made it work. With a closer regional event, I signed us up immediately as I knew what a powerful experience it would be for the children.

The students we took back after the regional final were not the same students we took to the competition. Their confidence, friendships, problem solving skills, stamina and resilience have all increased beyond belief. From realising that they were competing against teams made up of 16-year-olds to suddenly having the pressure of a live audience, countdown clock and referees as they were trying to concentrate. Each time it happened those children learnt a little something new about themselves and what they were capable of.

Back in 2003 I was in secondary school and loved technology and computing! I was fortunate enough to be a part of our school's *FIRST*® LEGO® League team back then and we enjoyed the experience immensely. It gave me the confidence to be myself, to speak up, to be a part of the team and to try new things. This was such a transformative experience for our primary school from a small town in Cornwall.

Jacob Woolcock



Mr Woolcock's 2003 team



Match-funding has:

- Enabled disadvantaged teams/schools to take part by funding kit and travel to competitions
- Provided teaching materials in Welsh
- Helped the Scouts Squirrels take part in Discover
- Supported Irish Girl Guides, Youth Offenders Institute and our programme in Northern Ireland



IET Awards

Diamond Jubilee Scholarships and Engineering Horizons Bursaries support those at the threshold of their career in engineering.

“

The bursary will help to reduce the pressure to work extra hours in my second job allowing me to focus more time on my studies.

Electrical Engineering
Apprentice

”

Applicants have to show their passion for engineering.

Diamond Jubilee Scholarships are awarded to those achieving a minimum of ABB at A Level or equivalent.

Engineering Horizons Bursaries are awarded to those with vocational qualifications and/or who are overcoming personal obstacles.

More than 1,500 undergraduates and apprentices have had the support of a scholarship or bursary funded by the IET or by one of our donors since 2013.

As more and more complete their studies and graduate we can see the positive impact that these awards have had on their career decisions.

In the following pages we share the experiences of current award recipients and graduates.

But first we would like to introduce you to the 1,500th recipient of an IET scholarship or bursary.

Diamond Jubilee Scholarships

67 awarded



57%

awarded to women



5

supported by match-funding



55%

awarded to people from an Asian, Black and/or Mixed ethnic backgrounds

Engineering Horizons Bursaries

67 awarded



25%

awarded to women



21

supported by match-funding



12%

awarded to apprentices



45%

awarded to people from an Asian, Black and/or Mixed ethnic backgrounds



Hamza Farah

BEng Electrical and Electronic
Engineering

University of Manchester

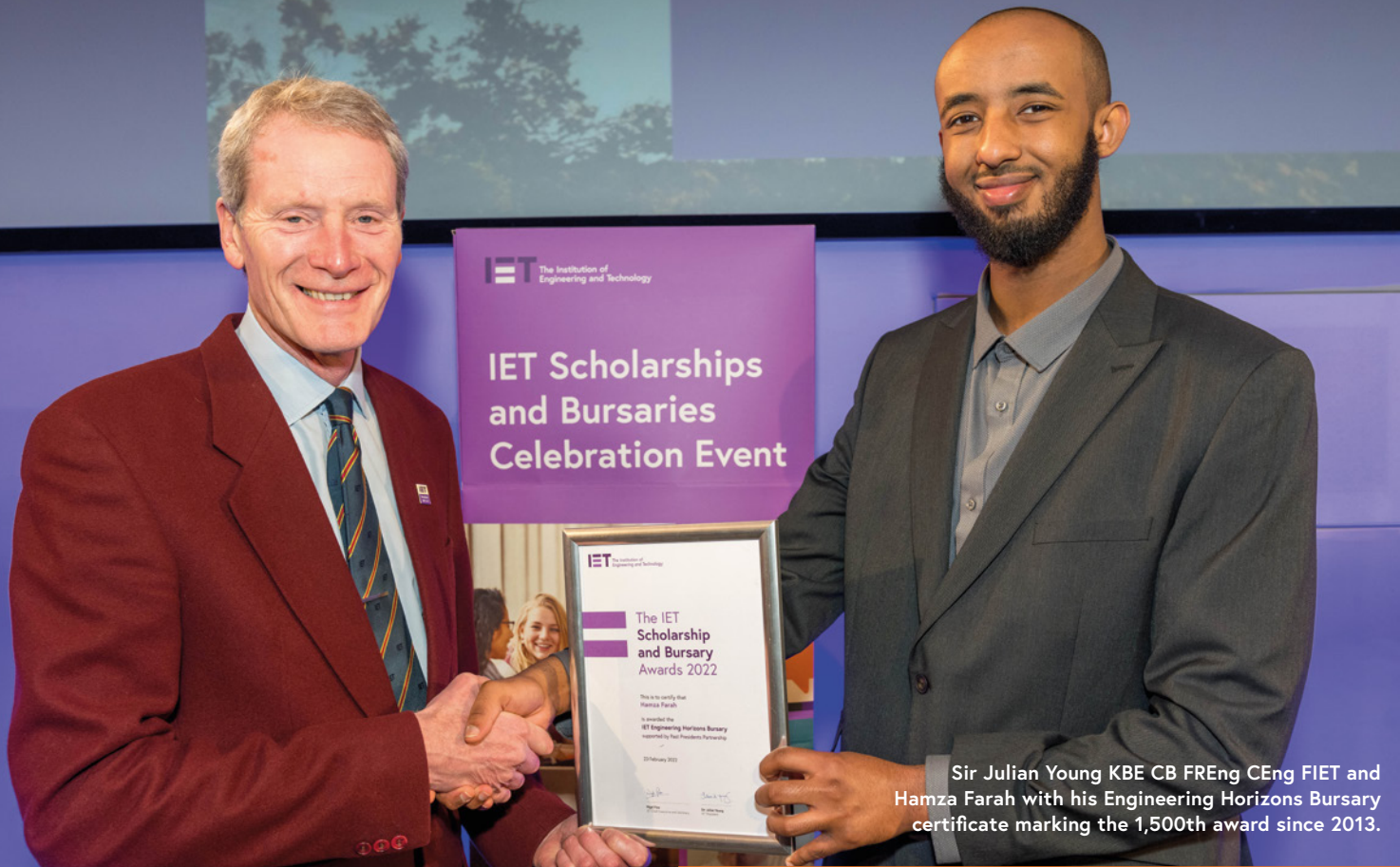
Engineering Horizons Bursary
supported by the Presidents
Partnership

Born and brought up in Battersea, south London, Hamza has also lived for several years in Zambia which has given him a clear vision of how engineering changes lives.

"Frequent power shortages and inadequate energy conservation are two recurring problems that engineers can help to find solutions for. I have visited schools around Lusaka that lacked electricity and basic schooling resources. Realising the importance of electricity in everyday life and how much it can affect people, I knew the degree that I wanted to pursue would be put to good use.

For me, electrical engineering isn't just a course, it's a journey, an experience where I'll have the chance to change lives using the skills and knowledge that I gain and applying them to various challenges that I'll surely come across throughout my engineering career.

Being awarded the IET Engineering Horizons Bursary is one of the proudest moments I have had to date. The experience I gain will no doubt be very beneficial for my future professional career. The bursary, itself, will lift a huge load off me during my studies, as I won't have to look for extra part-time jobs, giving me the chance to focus on my course."



Sir Julian Young KBE CB FEng CEng FIET and Hamza Farah with his Engineering Horizons Bursary certificate marking the 1,500th award since 2013.

“

"For me, electrical engineering isn't just a course, it's a journey"

Hamza Farah

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More than just funding

A second year of studying in a pandemic has magnified the myriad ways that the IET can offer support to students beyond the welcome financial help of the scholarships and bursaries.

Each year we ask recipients to report their academic and volunteering activities and how the award has helped them. In 2021, more than in any other year many told us how the pressures of studying under lockdown, isolated from friends and family had impacted their mental health.

The £1,000 per annum of scholarship or bursary funding was a welcome relief for many who needed the funds to support themselves.

But the benefits of membership of the IET which comes with the award was mentioned by many as helping them through a difficult – and hopefully not to be repeated experience.



The bursary had a clear impact on my grades and mental health. I would never have achieved a first otherwise, as I'd have been too busy working and stressing over trying to fit deadlines and studying in."

Himesh Patel is studying for a BEng in Electronic and Electrical Engineering at the University of Sheffield. Engineering Horizons Bursary supported by Arm

“



It is undeniable that the IET funding played a huge role in my recent academic achievements. I was able to buy a relevant laptop for my studies as well as get fast internet. This allowed for my work to be thorough and

high quality, be it coding or watching lectures, as well as meeting deadlines on time. I am extremely grateful for this opportunity.

Furthermore, the boost of confidence and self-esteem I experience being chosen to receive this award is indescribable and really helps tackle imposter syndrome.

Ikrame Bezzaid is studying for a MEng in Biomedical Engineering at City University, London. Engineering Horizons Bursary supported by Chemring



The financial support allowed me to live without cash injections from my parents, which I'm incredibly grateful for as my family, like many others recently, have faced difficult financial troubles. During an

incredibly challenging year my scholarship funded a computer monitor for both university lectures from home and my current engineering internship with Qualcomm, especially as I must still pay my Southampton household's rent and bills despite not currently living there. The scholarship inspired me to become Vice President of University of Southampton IET On Campus.

Leon Brindley is studying for an MEng in Electronic Engineering with Computer Systems at the University of Southampton. Diamond Jubilee Scholarship supported by the Belling Charitable Settlement



The IET as a whole has helped me maintain my focus on developing personally and professionally during points of COVID where it felt at times that little or no progress was being made. I personally feel that the biggest difference the bursary has made is by lifting the burden and stress associated with living month to month. Reducing this stress allowed me to focus on the tasks at hand and begin to develop a career that will hopefully resolve this burden entirely in the future.

Matthew Stanbury is undertaking an Electronic Engineering Technician Apprenticeship and studying at Wiltshire College and University Centre. Engineering Horizons Bursary supported by Presidents Partnership

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Graduate Survey

We ask recipients of the Diamond Jubilee Scholarships and Engineering Horizons Bursaries to stay in touch with us for up to five years after they graduate or complete their apprenticeship.



More than **600** responded to our survey in Autumn 2021.



72% of 2021 graduates were employed in engineering and technology or had gone on to post-graduate study.



89% of those who had graduated between 2017 and 2020 were also either working or studying in engineering and technology.



Some find employment with the company that has supported their award. Others are employed across a wide range of organisations from start-ups to the most established names in engineering.

The success of these programmes in providing opportunities to a diverse group of people was highlighted when Engineering Horizons Bursary recipient Dilani Selvanathan was awarded the Mary George Memorial Prize for Apprentices at the 2021 Young Woman Engineer of the Year Awards.

Dilani is the first in her family to go to university and chose a degree apprenticeship so that she could earn rather than take a loan. She not only went on to graduate with a first in BSc Digital and Technology Solutions from Queen Mary University of London, Dilani has devoted hours of her time to promoting STEM to others.

Now a Junior R&D engineer with a robotics company Dilani said: "I know that if I want to make a difference it is not later, later, later it is now." Dilani said she wished she had a role model who could have inspired her into STEM from a younger age. That need motivated her to continue her voluntary work promoting STEM to school children throughout the pandemic.

Dilani's bursary was supported by the Engineers Trust.

“

This bursary has impacted me in many ways and given me unbelievable opportunities.

Dilani Selvanathan

”



Dilani Selvanathan
Mary George Memorial Prize
for Apprentices

Engineering Horizons Bursary supported
by the Engineers Trust

Alumni Focus

There are now hundreds of alumni from the Diamond Jubilee Scholarships and Engineering Horizons Bursaries. They are carving out careers in the many and varied routes they can take as engineers.



The Engineering Horizons Bursary helped me through some difficult times in university and aided my search for employment. It has probably had a significant and positive impact on my career and life. Thank you very much.



Joe Spires MEng, Graduate Engineer at Roke



The bursary, events, magazine and support massively helped me to navigate university and make my career choice.

Isabella Trujillo Cortes MEng, Trainee Clinical Engineer on NHS Scientist Training Programme



The award meant I did not have to drop out of university in the first year after unexpected problems with the Student Finance company. It helped boost my confidence at a time when it felt like the universe was telling me that I'd never be an engineer and to just give up.

I was able to complete a year in industry with Siemens and determined that engineering was a career that I wished to pursue after graduation, rather than a career in finance or another, non-engineering related, industry. People with my background and gender are not expected to become engineers, the support from the IET and Siemens made me realise that I could break the mould in this regard.

Jessica Paterson, PhD student at the University of Manchester



I have started my own engineering company, ArdenCraft Technology. We're based in London, Hong Kong and Shenzhen helping start-ups and SMEs to develop hardware products and manufacture them in China. We take products a step further by working out their environmental footprint, designing them to be repair friendly and exploring sustainable alternative materials to be used within the design.

The scholarship made it easier for me to study at university but the biggest impact I felt was the network. It was easy to keep in touch with others through the networking events and community outreach programmes. This has allowed us to keep in touch after graduation and explore different projects together.

**Abid Ali, MEng. CEO and Co-founder
ArdenCraft Technology**



The bursary has been a great help and has encouraged me to become more involved in all aspects of engineering - in and out of work. I am an Engineering Ambassador for Heathrow and visit schools and colleges to promote engineering.

**Daniel Breen, Engineering Rail Technician at
Heathrow Airport**



I feel very fortunate to have been given this scholarship and have felt very well supported by the IET and my donor, Thales, throughout.

**An Vo MEng, Junior
Research Engineer
at Thales**





Apply today
**Change your
tomorrow**

Look Ahead

2022 marks the introduction of a new generation of awards replacing the Diamond Jubilee Scholarships and Engineering Horizons Bursaries.

The IET Future Talent Awards will take forward the best elements of both and will reflect current needs of society and the engineering sector.

There will be two awards:

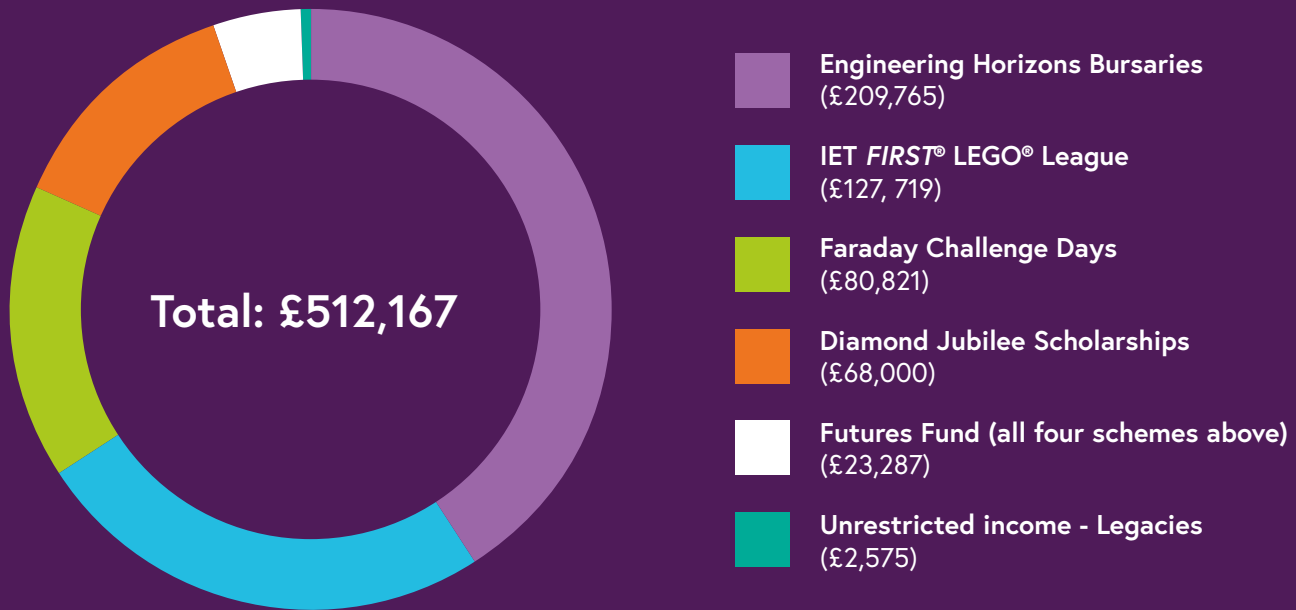
- Launch Scholarships for undergraduates, degree apprentices and apprentices with a passion for engineering and who can demonstrate a financial need or are overcoming a personal obstacle.
- Boost Scholarships for undergraduates and degree apprentices in their final two years of study who are not only achieving academically but also demonstrating their commitment to engineering.

Full details are available at theiet.org/future-talent

We believe these new awards will help us recognise and support a more diverse group of aspiring engineers than we already do.

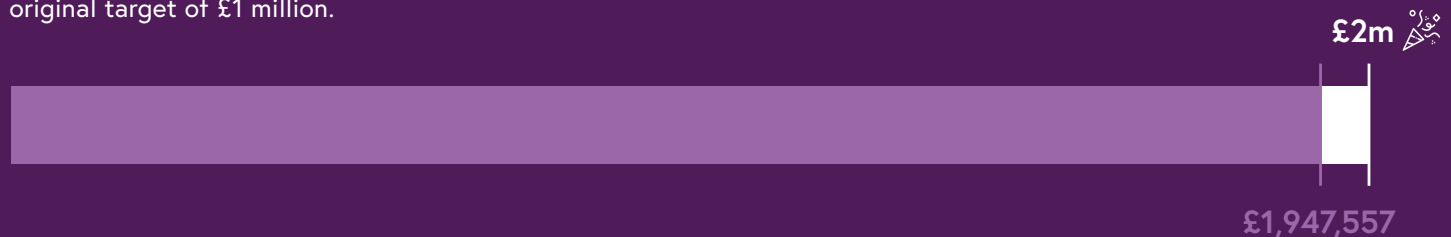
If you have any questions or would like to find out how you can support these awards please contact us on: development@theiet.org

2021 Income pledges (by funding use)



Match-funding in celebration of our 150th anniversary

Thank you to everyone who donated to IET Futures Fund programmes. Together we smashed our original target of £1 million.



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We are grateful to the many individual members who gave to the Futures Fund and through the Take Your Place option.



Make a difference today

If you're passionate about the future of engineering, contact the IET development team to find out how you can help make a difference.

T +44 (0)1438 767253

E development@theiet.org

W theiet.org/futuresfund

theiet.enthuse.com

Our offices

London, UK

T +44 (0)20 7344 8460

E faradaycentre@ietvenues.co.uk

Stevenage, UK

T +44 (0)1438 313311

E postmaster@theiet.org

Beijing, China

T +86 10 6566 4687

E china@theiet.org

W theiet.org.cn

Hong Kong

T +852 2521 2140

E adminap@theiet.org

Bangalore, India

T +91 80 4089 2222

E india@theiet.in

W theiet.in

New Jersey, USA

T +1 (732) 321 5575

E ietusa@theiet.org

@TheIET      

theiet.org

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