Royal Academy of Engineering

Engineering Leaders Scholarships

Alumni case studies

Foreword

The Engineering Leaders Scholarships (ELS) programme was established 30 years ago to support engineering undergraduates who demonstrate the potential to become leaders in engineering and to serve as inspiring role models for future engineers.

The collection of case studies in the pages that follow testify to the scheme's success in this goal, telling truly inspiring stories of exceptional engineers who have become leaders in sectors as varied as digital healthcare, international development and low-carbon aircraft.

Each of these engineers benefited from the mentoring, network building, and personal development funding offered by the ELS scheme, with many crediting the programme with setting their career off in the right direction, and giving them confidence in their ambitions. Many former scholars have kept in touch with one another, with their mentors, and with the Academy. We are thrilled to count them as part of our network and to continue to play a role in creating connections and opportunities that advance their careers and the impact they have on the world.

Engineers are critical to addressing so many of our global challenges, be it climate change, healthcare, or cybersecurity, and to enabling improvements that benefit everyone. More than ever before, we need to nurture ambitious, well-connected engineering leaders, from all backgrounds, to advance our progress towards a sustainable society and an inclusive economy. The ELS programme set out to do just that all those years ago; here's to another 30 years, and to the future leaders we will meet along the way.

Dr Hayaatun Sillem CBE
CEO, Royal Academy of Engineering

"Each of these engineers benefited from the mentoring, network building, and personal development funding offered by the ELS scheme."

Introduction

The Engineering Leaders Scholarships (ELS) programme provides support for undergraduates in UK higher education institutions who have the potential to become leaders in engineering and act as role models for future engineers.

This publication marks the ELS programme's 30th year. In that time, it has supported over 800 undergraduates from universities across the UK. It provides financial support to undertake accelerated personal development programmes, enabling aspiring leaders to acquire the skills needed to better fulfil their potential.

This publication showcases the career stories of 30 exceptional alumni who have leveraged the resources offered by the scholarship to take themselves to the next level in their development and fuel their passion for engineering as a tool for positive change.

These stories highlight the transformative power of the ELS programme and aim to inspire more young people to follow in the footsteps of ELS alumni to become engineering leaders of tomorrow.

Please share them with your wider networks and find out more by visiting **www.raeng.org.uk/engineering-leaders-scholarship**

Applications for the ELS programme usually open in early November and close in January. There are currently 38 awards available each year: 35 provide financial support to undertake personal development; and three additional enhanced awards, Sir Ralph Robins Scholarships.

Supporting the ELS programme

Over the years, the programme has been generously supported by organisations and individuals who ensure that we can continue to help ambitious and inspiring undergraduates to become engineering leadership role models. We are seeking to grow this programme to help more students to fulfil their potential and to become future leaders in engineering.

If you are interested in inspiring the next generation of engineering leaders, please contact the Royal Academy of Engineering at **development.team@raeng.org.uk**

800

Undergraduates supported

38

Awards available each year

Sir Ralph Robins Scholarship

The ELS programme offers three additional enhanced awards each year, aimed at supporting students from underrepresented backgrounds with tuition fees and the possibility of a paid internship at Rolls-Royce plc.

This scholarship was created in honour of Sir Ralph Robins FREng in recognition of his exceptional contribution to engineering and industry. Sir Ralph was Chairman of Rolls-Royce plc for many years and this scholarship was funded by Rolls-Royce plc and individual donors to mark the 30th anniversary of his momentous decision to launch the Rolls-Royce Trent engine.

Abigael Bamgboye

MBA/MA candidate at the Wharton School and Lauder Institute
Founder, Lengua

Driving positive social and environmental impact

Abigael Bamgboye won an impressive number of accolades while studying materials science and engineering at university, but it was the ELS that she credits for giving her the confidence boost to believe in her own leadership potential.

Academic success

Abigael studied materials science and engineering at Imperial College London. While at university, Abigael won numerous accolades, including the Target Female Undergraduate of the Year Award and the Imperial College Student Activity Award for outstanding contribution to extracurricular life. She also gained internships at the Bank of England, Rolls Royce and Boston Consulting Group (BCG).

But it was winning the ELS, so early on in her career, that Abigael says gave her real confidence in her leadership potential. Abigael spent her ELS funding on attending conferences, language courses, books, a 3D printer, and on a MicroMasters at the Massachusetts Institute of Technology (MIT). "I was able to travel to Toronto for a conference on digital safety, something I wouldn't have been able to access without the ELS funding," she says.

During the Covid-19 pandemic in 2020, Abigael used the 3D printer she had bought with her funding to develop an online jewellery store. "This gave me the opportunity to experience the mechanics of running a business," she says.

An interest in social impact

After graduating, Abigael worked as a tutor for STEM education. "I taught young people how to code, ran workshops on 3D printing and generally gave students exposure to new technology."

She then joined Bain and Company, a management consultancy firm, as an associate consultant and then a senior associate consultant. She worked with UK energy and utilities clients on areas such as technology strategy and

> "The experience will be **beyond what you can imagine**."

Mini CV

2016 to 2020: Materials science and engineering, Imperial College London

2020: MicroMasters in data, economics and development policy, MIT

2020 to 2021: Founder of an online 3D printed jewellery store

2021 to 2024: Associate consultant, then senior associate consultant, Bain and Company

2024 to present: MBA/MA candidate, Wharton School and Lauder Institute

2025 to present: Founder, Lengua

transformation, net zero and clean air.

In 2023, she was awarded the Academy's Sainsbury Management Fellowship and is now undertaking an MBA at the Wharton School of Business and an MA in international studies at the Lauder Institute at the University of Pennsylvania. "Through my dual degree, I'm gaining skills and experiences to support me in my future career," she says. "I want to drive positive social and environmental impact through influencing investment strategy in infrastructure, clean energy and technology."

Alongside her studies, Abigael has recently founded Lengua – an app that allows users to practice speaking their second language with an AI coach, available 24/7. She is also providing mentorship and guidance to current ELS candidates, students and to fellow startup founders including members of the non-profit community, Galvanizer, which has a mission to encourage more women to take the leap into entrepreneurship.

Advice

Abigael believes the ELS is a phenomenal opportunity that gives candidates access to an incredible community. "The experience, learning and growth will be beyond what you can imagine," she says. "Even if you are unsuccessful, the application alone encourages you to focus on where you see yourself in the future and what areas or skills you want to develop. As young people, you don't always get that opportunity."

"**It gave me formative experiences and skills** and was a true catalyst for me thinking about how I want to change the world."

How the ELS helped...

Peer network: "Being a part of the ELS community is phenomenal. I'm pleased that now, as an ELS alumnus, I've been able to mentor new ELS candidates."

Funding: "The ELS gave me opportunities and allowed me to try new things that I wouldn't have been able to do otherwise – it allowed me to attend conferences abroad, do language courses, and complete my MicroMasters at MIT."

Confidence building: "The ELS was a real confidence boost. It gave me formative experiences and skills and was a true catalyst for me thinking about how I want to change the world."

Adrian Li-Bell

Member of technical staff, Physical Intelligence

Making robots helpful

Exploring robotics

Adrian liked the idea of building things to improve people's lives and decided to study engineering at the University of Cambridge. However, he wasn't sure which branch of engineering to specialise in and applied for the ELS programme to gain exposure to the different sectors, as well as for the training and professional development opportunities.

Adrian spent his ELS funding on going to Robotics Science and Systems (RSS), which is one of the top robotics conferences in the world. "Attending RSS was a rare opportunity for me as an undergraduate to learn more about the state-of-the-art in other areas of robotics, and also participate in discussions with some of the leading roboticists from around the world," he says. After graduating, Adrian joined Google as a software engineer working on the machine intelligence team.

For a year, he applied machine learning to personalisation and recommendation products, before joining the robotics team, which has evolved into Google DeepMind robotics (formerly Google X/Everyday Robot Project). "My team worked on making robots as helpful to people in the physical world as computers are now in the virtual world. I developed algorithms and infrastructure for deep reinforcement learning, so that we can create robots that can learn and do multiple tasks, rather than being painstakingly coded to do specific tasks," he explains.

In 2022, Adrian joined a new machine learning research team at Wayve, a UK-based startup that develops AI software for self-driving vehicles. Adrian worked on large-scale pretraining and reinforcement learning to improve driving performance.

He is now a member of technical staff at Physical Intelligence, a San Francisco-based startup. "We are trying to develop a model that will allow any robot to do any task," he says. Some of his team's work over the past year includes π-0 (their first model demonstrating dexterous manipulation across multiple tasks and robots) and π-0.5 (their latest model, capable of generalising to totally unseen environments in the real world).

Harnessing networks

Adrian credits the ELS programme with helping him break into the robotics industry, but it is the contacts he has made that have proved beneficial in the long term. "Being a part of the programme has greatly expanded my professional network, and a few of the awardees from my cohort have become very close friends of mine," he says.

Advice

He encourages students from underrepresented groups to apply. "The lack of diversity in engineering is a very real problem that hurts everyone, and I hope that the ELS programme can be a force for change in promoting equity in the industry."

> "**The ELS programme has** been an important part of that journey leading me to where I am now."

Advice

Adrian believes that even students who do not know how they would spend the ELS funding should apply. "I think it is always important to **grow with every opportunity, making the most of the journey**, without necessarily knowing where it will lead you."

Aleksi Tukiainen

Entrepreneur

Helping to fuel entrepreneurial ambitions

Getting started on startups

Aleksi studied engineering at the University of Cambridge, specialising in control systems, machine learning and robotics. He joined the university's solar-powered car team, where a friend told him about the ELS programme.

Aleksi spent some of the funding on "getting up and going" as an entrepreneur. "This was themed around building some contacts, going to events and getting exposure." He also visited Stanford University and Massachusetts Institute of Technology to look at their startup ecosystems and visit their solar car teams.

Thinking about a sustainable future

After graduating, Aleksi cofounded Secondmind (formerly Prowler.io), a technology startup that uses machine learning for decision making, with applications in automotive, logistics and finance. He led the development of the finance application and helped grow the startup to 100 employees, before deciding to found another company, Sylvera, and then again, a few years later, ClimateAligned.

Aleksi has held various roles in startups both as a co-founder or in the leadership team, mostly in areas relating to product development or technology. "One of the great things about being an entrepreneur is the opportunity to work in so many different roles in a company while it grows, as well as working in many industries and applications over the course of one's career," he says. "There is never a boring day in the life of a founder."

> "**The cohort that you're in** becomes a peer group you keep for life."

Advice

"**Part of the process**, which involves writing down your interests and core strengths, forces you to think about what you want to be, and that's good. Even if you don't get in, you get many of those benefits from the interview process."

How the ELS helped...

Training: "The fact that you have to think about what you want is super valuable," Aleksi says. He made a 10-year career plan, which proved remarkably accurate. "It was helpful to look at how you want to build your skillset, network and abilities so that you can travel in the direction you want to go," he says.

Network: Aleksi says it was amazing to spend time with people with similar interests and ambitions. "The ELS programme network is a really powerful tool to understand where you are and where you want to go to in your career."

Funding: "The cash allows you to do the things you might otherwise not be able to. It goes remarkably far."

Amy Peace

Innovation lead – circular economy, Innovate UK

Finding solutions to sustainability problems

Chemical engineer Amy is helping make the world a more sustainable place through engineering and systems thinking. The ELS programme gave her the confidence to move from a role in industry extracting chemicals out of biomass, to a very different one in the public sector; providing insights on how to transition manufacturing industries to a 'circular economy'.

Interest in sustainability

Before studying chemical engineering at Imperial College London, Amy spent a year working for Imperial Chemical Industries (ICI), which, at the time was doing innovative things such as trying to extract high-value chemicals from plants for flavours and fragrances, which caught her attention. "I became interested in the sustainability aspect, which was a relatively new field and difficult to specialise in at university."

Amy's tutor suggested she apply for the ELS programme and Amy used some of the funding to broaden her interest in sustainability through trips to Italy, which included language courses and industrial visits.

"The ELS scheme helps you do interesting things. It was a licence to phone up people and ask to come and talk to them," she says.

Working on a green solution

When Amy graduated, the ICI division she had been working with became part of INEOS. She helped develop technology for extracting chemicals out of plant material, including artemisinin from wormwood, as part of research to find a cure for malaria. "That was really motivating – looking at how you apply tech to something that has real global impact potential, but I was really drawn to how we could assess which technology was the most sustainable," she says.

Consequently, Amy began to work on sustainability projects including carbon footprinting and moved to the industry cluster organisation, Chemicals Northwest, to manage the sustainable development and innovation programme. "I liked trying to set up programmes to get industry enthused by the things they should be doing, like

Advice

"**Look beyond the money.** The mentoring is a great help to a lot of people. There are fewer multinational graduate schemes from employers, so the ELS programme is a great way to have some worldclass guidance in your career."

Mini CV

1997 to 1998: Year in industry sponsored placement, ICI

1998 to 2002: Chemical engineering MEng, Imperial College London

2003 to 2008: Process engineer, INEOS Fluor

2008 to 2011: Sustainable development and innovation manager, Chemicals Northwest

2011 to 2020: Freelance sustainability consultant

2012 to 2020: Senior innovation specialist, Britest

2020 to present: Innovation lead – circular economy, Innovate UK

> **ELS helps you do interesting things.** It was a licence to phone up people and ask to come and talk to them."

climate change mitigation and adaption," she says.

Following maternity leave, Amy worked for a not-for-profit company called Britest, which helps multi-disciplinary industry teams to work effectively on process design and troubleshooting. "I came in to see how to integrate sustainability into the tools and methodologies," Amy explains. She enjoyed leading pan-European projects and teams to understand how sustainability should be evaluated across sectors, working for the benefit of the industry as a whole, rather than individual companies.

Amy made her latest transition to the public sector when she became innovation lead on circular economy at Innovate UK. She investigates where industry support is needed to improve manufacturing and address net zero challenges.

"Climate change is such an urgent problem," she says. "We have to do programmes that do not just save 5% here and there. We've got to be looking at the system level: how do we improve manufacturing, infrastructure and transport and how do all the pieces fit together? It's a big challenge but I really like it."

Advice

Amy says that while the ELS scheme supports people who have already demonstrated leadership potential, it can also be beneficial to young engineers with great ideas and a vision of what they want to do – and she should know, as she has been on the selection panel for several years. "We're looking for people who have that spark and interest, far beyond whether they tick every last academic achievement box," she says.

How the ELS helped...

An insider view: "It helped with confidence – it was an excuse to ask a few extra questions or attend conferences. It helped me infiltrate and find out how the system works to get into influential roles."

Business courses: "You don't always get to do those as an undergrad, so you feel like you're doing some really useful things – how to apply engineering in the real world, rather than more in-depth technical stuff."

Learning to influence: "There were often opportunities for people on the scheme to go to the House of Lords, for example. The experience of talking to ministers and representatives of the House of Lords about things you're working on is helpful, so when you go to try and influence people, you've had a bit of a head start."

Andy Bryant

Chief Strategy Officer, Horizen Labs

Developing the next generation of the internet

An interest in robotics

Andy had wanted to pursue a career in robotics from a young age, but at university, he realised the industry was in its infancy. So, he spent most of his ELS funding studying robotics at the Tokyo Institute of Technology for a few months and a summer in the US working at a robotics spin-off.

“By the time I graduated, I’d already worked in the robotics industry in three different countries, so that was an amazing experience,” he says.

A change of scene

Andy spent his early career designing, building and selling robots for the aerospace, medical, nuclear, and defence industries in the UK. Winning a Daiwa Scholarship – a programme of language study and work placement – enabled him to move back to Japan, where he decided to gain experience in investment banking, working in mergers and acquisitions for six years.

In 2012, Andy discovered Bitcoin, but like many people dismissed it as ‘magic internet money for nerds’. He came to realise that “blockchain was the missing piece in the internet revolution.”

He was headhunted as general manager or COO in Europe for bitFlyer, which is the first bitcoin exchange in the world to be licensed in Japan, the US and Europe combined.

“It felt good to be part of a world-changing movement that I’m truly passionate about,” he says.

In 2021, Andy founded the financial technology startup Vektor – building the world’s first operating system for decentralised finance. He sold the business in 2024 and is now Chief Strategy Officer at Horizen Labs, a leading development company of Web3 – the next generation of the internet which is focused on decentralised applications.

“While on paper my career may seem quite colourful, it has been a pretty natural progression,” he says.

Advice

Andy believes everyone who takes part in the assessment day will benefit from doing personal development planning exercises. “Those types of processes **really helped me think about next steps** rather than jumping to the next job without thinking about where it might take me,” he says.

How the ELS helped...

Ticket to travel: “Without the award, I wouldn’t have had the money to go to Japan and if I hadn’t, I probably wouldn’t have received the Daiwa Scholarship. If I hadn’t studied Japanese, I wouldn’t have got the job I have now, so it was really a great start to my career.”

A broader outlook: “It made me realise that having a high impact as an engineer means going into other areas of management and business, but always being true to your roots.”

> “**Expect the unexpected when you apply.** You can’t plan everything... it’s good to be open minded.”

Barbara Welch FREng

Director, Mace UK

From building casinos to fixing up Buckingham Palace

Barbara Welch may have chosen to build a career in civil engineering after a careers advisor told her "construction isn't for women," but over the last 28 years she has worked all over the world on some of the most recognisable and iconic buildings.

Building a future in international construction

Barbara studied at the University of Manchester Institute of Science and Technology (UMIST) and joined the university air squadron, flying in her spare time. "My degree was quite full on, but I managed to juggle the two," she says. While joining the RAF had always been on her radar, she recognised that an engineering degree could be an excellent foundation for all sorts of opportunities and decided to explore them further by applying for the ELS programme.

> "**I learnt I could use my engineering degree** in construction to work anywhere in the world. I've done that to the max."

Barbara used the award money to fund international work experience placements. "I learnt I could use my engineering degree in construction to work anywhere in the world. I've done that to the max," she says. Her first stop was Sydney to see the construction of the Olympic Stadium, before taking in Hong Kong's new airport. Barbara also completed a leg of the tall ship circuit, which she says was a good lesson in teamwork and leadership.

The work experience gave Barbara an insight into what she liked and didn't like in the construction industry, including claims-orientated projects. "I thought we [engineers] should be working more collaboratively to build better value for clients and not wasting money on legal disputes and claims," she says. So, when she was offered three jobs, she chose Mace – a company she has now been with for 28 years – because her philosophy, values and ethos aligned with the company's vision for the industry.

Barbara first worked on a rail project in Buckinghamshire, before working on redevelopment projects in the centre of Manchester. These included the redevelopment of the famous Haçienda nightclub, although she concedes that "it was sad to demolish a building I used to party in at university." After seven years of project and construction management in the UK, Barbara moved to Asia where she worked on casinos in Hong Kong and Macau, as well as projects in the Philippines, the Maldives and Singapore.

She then moved to Russia and worked throughout Eastern

Advice

"Even if you're unsuccessful, **you're better than you were**, and if you're successful, the award can be life changing."

Europe, before returning to London to run Mace's business in western Europe. "If you work in construction, you can work anywhere," she says – and that now includes HM The King's London residence.

A palace fit for future generations

Barbara is currently seconded to the Royal Household as Programme Director leading Buckingham Palace's £369million reservicing programme.

The project has 100 miles of cabling, 30 miles of pipework, 6,500 sockets, 2,500 radiators and 5,000 light fittings to check and update, some of which have not been upgraded since the Second World War. The ambitious programme will be delivered in phases over 10 years, while maintaining business as usual in the palace.

Advice from a Fellow

Barbara was recently appointed a Fellow of the Academy, in recognition of her outstanding and continued contributions to the field of engineering. As a Fellow, she joins the nation's most eminent engineers on a mission to use the power of engineering to build a sustainable society and create an inclusive economy that works for everyone. "It is a tremendous honour to have my contribution to engineering recognised by the Academy," she says. "I would not be where I am today without the ELS, which was pivotal and provided a solid foundation upon which I have built my career."

Barbara believes ELS applicants learn a lot about themselves simply by completing the application form and will meet some amazing people during the election process. "No experience is bad experience," she says. "Even if you're unsuccessful, you're better than you were, and if you're successful, the award can be life changing."

"Speak to people. Get advice. Get lots of it," she says. "Listen, but then be selective which advice you follow, because only you know what is best for you and what you are truly capable of."

Barbara urges young engineers to dream big and set goals and objectives. "Dreams are just reality waiting to happen," she adds.

How the ELS helped...

Industry knowledge:
"It made such a profound difference to my understanding of the wider industry that the career could afford me. I probably wouldn't have stayed in engineering if I hadn't had the opportunities the award afforded me. It was life changing."

Lessons in communication:
"Being able to change your communication style to align with the audience is important. The agility and flexibility to do that and manage a range of stakeholders are skills I got through the ELS programme."

Chetan Kotur FREng

Head of Technology and Innovation, Laing O'Rourke

Driving change: from the auto industry to construction

From a chance TV opportunity as a teenager to launching a new car brand, Chetan's career has been one highly charged adventure. The ELS programme not only helped him accelerate in the competitive field of car design but ultimately steered him into the world of modern construction where he is now Head of Technology and Innovation for Laing O'Rourke.

Turning an opportunity into more big breaks

Unsure whether to become a doctor or pursue his love of cars, Chetan got a lucky break when he was chosen to star in a TV programme about career dilemmas.

"It was surreal, but that show opened so many doors," he says. One of those doors led him to Jaguar Land Rover Design where he met the head of studio engineering. "I was sold; that's when I knew what I wanted to do," he says.

Chetan studied automotive engineering at Loughborough University. "It was incredibly difficult, but the challenge set me up for the future and I loved it," he says. He taught himself design and learned how to draw cars, but the ELS programme changed the direction of his ambitions. "I got to understand what industrial leadership is and the impact good engineers can have on society," he explains. "That motivated me to become the best engineer I could."

Moving up a gear

Chetan used his ELS funds to attend the biggest auto conference in the world and toured Ford's Innovation Centre in Detroit. But it was attending the Global Grand Challenges Summit in London that proved most inspirational. "The other delegates were megastars. It made me realise the impact I could have too."

A career in the fast lane

It hadn't occurred to Chetan to apply for jobs abroad before he spoke to his ELS peers. Out of three job offers, he chose Volvo Cars' graduate programme in Sweden. "I was born in Hong Kong, my parents are Indian and I grew up in the north east of England," he says. "I was a bit of a chameleon fitting in everywhere and nowhere, but at Volvo, I was around other people like me." Chetan worked in the design studio like he planned.

"My first day in the studio was the first day of the design of a brand-new car, so I got to live my dream of seeing a car go from a clean sheet of paper to final design and then to seeing people driving it on the road. Even now, my mother drives a car that I designed – it's pretty incredible."

Then, Volvo launched Polestar – an electric performance car brand – and Chetan's career shifted up another gear when he was asked to become the CEO's assistant. "As a 27-year-old, I was blown away," he says. "My childhood dream was to design a car and here I was being presented with the opportunity to design a car company."

Chetan's team launched several cars globally, and he led the design of and even named a concept car called the Polestar Precept.

Changing lanes

In 2022, Chetan's connection to the ELS led to a sudden change in industry. When the Academy celebrated the 25th anniversary of the ELS programme,

it produced it's first alumni case study brochure, which featured Chetan's inspiring story. "At the time I had no idea that agreeing to be an ELS case study would change my life," he says.

After the brochure was published, Chetan received an unexpected call from Ray O'Rourke, founder and chair of Laing O'Rourke – an international engineering and construction company. "It was surreal...he had read my story in the brochure and wanted to meet me. After one phone call I was suddenly flown to his HQ," he recalls. "As we walked around a lake, Ray asked me if I wanted to help him transform the construction industry and change the world!"

Chetan was offered the role of Head of Technology and Innovation. "I am now driving change in a totally different field but using my automotive knowledge and experience to transform how we build in the construction industry," he says.

He leads a large team of innovative engineers tackling extremely complex and sophisticated construction and infrastructure challenges, which includes working on two nuclear projects in the UK – Hinkley Point C and Sizewell C. Chetan's team has designed game-changing innovations in modern methods of construction to radically transform the building and assembly of steel-reinforcement components. Their work has led to an accelerated building programme, elimination of manual handling, improved health and safety, and increased productivity – cutting installation time on site by 75 per cent. "As a team, our main focus is to tackle some of the greatest challenges of our time by changing how we build sustainable infrastructure, in service of humanity," he says.

Outstanding achievements

Chetan won the Academy's Young Engineer of the Year Award in 2018 and was recently appointed a Fellow of the Academy, in recognition of his outstanding engineering achievements. "The Academy and the ELS have been so pivotal and important in almost every step of my career," he says. "They have ignited in me the determination to succeed at everything I try, be the best engineer I can be and do good for society."

As a Fellow, Chetan joins a community of almost 1,700 eminent engineers for a shared purpose – to deliver public benefit through engineering excellence and technology innovation. "Becoming an Academy Fellow is really the highest honour you can receive as an engineer, so this is really special to me. I feel incredibly proud to be working alongside some of the best minds in engineering."

> **"The Academy and the ELS have been so** pivotal and important in almost every step of my career."


© Polestar

Mini CV

2007: Work experience, Jaguar Land Rover

2008 to 2013: Automotive engineering, Loughborough University

2013 to 2015: Volvo Cars global graduate programme

2015 to 2017: Lead studio engineer, Polestar 2

2017 to 2021: CEO's assistant, Polestar

2021 to 2022: Head of Products APAC, Polestar

2022 to present: Head of Technology and Innovation, Laing O'Rourke

How the ELS helped...

A mentor: "I'm still in touch with my mentor from the programme. Any time I have any thoughts or opportunities I call him and he's always keen to help."

A new attitude towards risk: "I was brought up to be risk averse, but I learned through the ELS that I love taking risks and being out of my comfort zone. Any time I get into a dilemma, I end up taking the riskier opportunity. So far, so good."

Elena Brake

Trainee engineer, Fishtek, and mechanical engineering student at the University of Plymouth

Inspiring others to consider a career in STEM

Elena Brake left a successful career in the arts to retrain as an engineer and is now using her ELS funding to encourage other disabled and neurodivergent people into the profession.

Career change

Elena's path into engineering hasn't been a conventional one. She originally studied fine art at university and spent six years working as an art technician and an artist. But the demanding workload and physical nature of the job, alongside her disability, left her feeling drained.

"My dad was an engineer, and I would often ask for his advice on my most complex art projects," she says. "I realised that engineering would allow me to be creative but would be more sustainable for me long term."

> "**Engineering needs people from diverse backgrounds** to help identify and prevent design problems."

After completing an online access course, she started a part-time degree in mechanical engineering at the University of Plymouth. She is now in her fourth year and hasn't looked back.

Inspiring others

Elena is using her voice, and her ELS funding, to encourage other disabled and neurodivergent people to consider a career in STEM.

"I feel strongly that there should be more disabled people in engineering," she says. "Women currently make up 15.7% of the UK engineering workforce, and disabled people just 11% of it. When you look at me, a disabled woman with an arts background, I'm the least likely person to be an engineer."

Telling her story

Elena spent some of her funding on an intensive week-long public speaking course in London. "It was brilliant! I was nervous at first, but I must have given about 50 speeches by the end of the week. I took onboard the tips and advice and feel much more confident speaking publicly now."

She is also using the funding to learn British Sign Language, something she is really enjoying. "I'm passionate about equality, diversity and inclusion," she says. "As a disabled person, I have my own experiences of feeling excluded by society. I thought, if I want people to listen to what

Advice

Elena says that, even if you are unsuccessful, **doing the ELS application is valuable in itself.** "I felt at peace because even if I didn't get it, I now had a road map for what I wanted to achieve in the next few years," she says. "Try to structure your application so that your mission and what you are trying to achieve is clear. You will know it's right when you're really telling your story."

I'm saying, I need to be doing something to help another community as well."

The final part of her funding will be spent on a non-fiction creative writing course. "There are two ways that I would like to tell my story – through public speaking and through the written word," she says.

Elena has already written a poetry book inspired by engineering called Woven Paths, published by Shoals of Starlings Press. "I made great use of an ELS peer-to-peer group where we paired up and worked towards a personal goal. These sessions held me accountable to meet my goal of publishing a poetry collection by the end of September 2025," she says. "It goes to show that the ELS will support you in things you are passionate about."

Champion of inclusivity

As a wheelchair user, Elena uses her personal experiences to champion inclusivity in engineering and construction. She is co-chair for her university's equality, diversity and inclusion student committee and is also a trustee at Constuct Ability, an organisation that advocates to make construction accessible to everyone.

Her advocacy was recently recognised by the Women's Engineering Society, who named her as one of the 2025 Top 50 Women in Engineering. She was nominated by Vince Pizzoni, who interviewed Elena for the ELS and has since become a mentor to her. "I didn't expect it, it's quite surreal. I went to the event in London and there were so many incredible women in the room. I was really proud to be part of it."

Alongside her degree, Elena is a trainee engineer at Fishtek, a fisheries and engineering company. Fishtek provides innovative solutions to the problems facing fish populations in both freshwater and marine environments. "It is a really interesting place to work, and it feels amazing to be part of something making such a positive environmental impact," she says.

How the ELS helped...

A focused plan: "The application helped me put together my ideas and figure out what I would do with the scholarship," she says. "During the process, you learn how to tell your story in an inspiring way."

Network: "Connecting with people from all over the world is just as beneficial as the funding. It has given me the opportunity to talk to really driven and inspirational people, and I've made some truly special connections."

Inspiring others: "Engineering needs people from diverse backgrounds to help identify and prevent design problems. I am proud to be an engineer, and the ELS is enabling me to tell my story and hopefully inspire others to go into STEM."

Emil Hewage

Entrepreneur

Shaping a career in machine learning

Before attending university, Emil had more business experience than many graduates. However, he still credits the ELS scheme with giving him 'foundational' experiences that have helped him start successful machine learning companies.

The figure it out phase, before university

Emil wasn't sure if engineering was for him, so he chose to work before going to university "to figure it out". He joined a fuel cell startup as a technician. "I learnt a lot of skills, including software programming," he says.

Having lost his grandfather to a hospital-acquired infection, Emil joined another startup that developed microfluidic chips to measure infections in the blood. Working under the VP of engineering, he built the first prototypes of the medical device for clinical trials. "In the gap between school and university I had already experienced the high-tech science into product translation skillset that engineering gives you," Emil says.

Sponsored studying

While studying engineering at the University of Cambridge, Emil kept working for startups. He became the leader of the solar-powered car team and used his connections to build relationships with corporate partners.

While he was sponsored by Siemens and worked on their R&D projects each summer, he applied to the ELS programme to test out different career directions including the emerging field of machine learning. Emil used the funds and prestige to attend Intel's machine learning conference and visit autonomous car research centres in Silicon Valley. "I wouldn't have been able to do any of that without the award and pretty much every aspect of that trip became a core foundation of what I did next," he says. In fact, the researchers he met in California became collaborators and gave him the push to pursue a PhD in computational neuroscience and machine learning.

Advice

Emil believes the ELS programme offers opportunities both to students chasing a career that's "a bit different", as well as those who want to work for large engineering companies. "If you're keen to think about where engineering could take you, there are not many other opportunities that will directly affect you, your career and the capabilities you could end up with," he says.

Mini CV

2006 to 2007: R&D engineer, CMR Fuel Cells

2007: R&D engineer and programmer, Sphere Medical

2007 to 2011: Engineering at the University of Cambridge

2011 to 2014: PhD in computational neuroscience and machine learning, the University of Cambridge

2014 to present: Founder and MD, Cambridge Applied Research

2014 to present: Founder, Alchera Technologies

2015 to present: Board member and co-founder, Cambridge Cancer Genomics

2015 to present: CEO and co-founder, BIOS Health

Machine learning entrepreneurship

While he was still completing his PhD at Cambridge, a trip to Stanford University inspired Emil to set up an open innovation lab – Cambridge Applied Research – for people to collaboratively develop new applications of machine learning in a range of advanced industries, ranging from new energy and climate technologies to solutions for health and transport systems. From 2013 to date, more than 50 projects have been incubated by Cambridge Applied Research and over 15 exist as independent companies today.

Based on his own research in machine learning systems, Emil founded Alchera Technologies in 2014, which provides real-time data about how people and vehicles use smart cities. A year later, he co-founded a startup which helps optimise cancer treatments through genomics, cloud-based bioinformatics and machine learning.

Today, alongside these two active director roles, he is the CEO of startup BIOS Health which is creating a neural interface between the human nervous system and artificial intelligence.

"We have built underlying technology and the world's largest dataset for doing the equivalent of genome sequencing for neural data; now we're developing medical treatments," he says.

How the ELS helped...

Understanding engineering: "In the early days of my career, the immediate benefit of the ELS was the time, mentorship and input you require to understand the real and profound opportunities that exist as an engineer."

Contacts: Emil made friends through the ELS scheme including Sam Smith, who now works for Apple in California. "When I did my PhD, I used to crash on his sofa whenever I visited Silicon Valley," he says. "ELS contacts have been a huge part of my professional and personal development since."

Emotional intelligence: "The ELS makes you think about your potential impact actively and I think it's the emotional intelligence you develop in that scheme that helps you... you gain an understanding of how your actions can change the world. Without that, I don't think I would have the opportunities I had."

A kickstart: Emil founded his first startup in his 20s. "I don't think we would have started it if we hadn't been given that push at the ELS to understand that being an engineer is about your ability to work as a team and communicate well. Engineering is fundamentally more about that than individual technical brilliance."

Emma Kent

Managing director of Initivo, VINCI Construction

Securing the future of construction

Year in industry

Emma spent a year in industry with Costain working on Kings Cross St Pancras station before embarking on her degree.

"I thought, I want to shape the world," she says. While she was studying civil engineering at the University of Nottingham, she attended a sustainable development conference in Dubai using her ELS funds. "It was a great opportunity to network and hear some of the latest thinking," she says. She then spent a month learning Mandarin while visiting construction projects in China, including the Three Gorges Dam.

Building a career

Emma impressed a managing partner of Buro Happold at an ELS programme dinner, which led to a placement at the firm. She joined its graduate scheme and stayed with the company for eight years. "I worked on the 2012 Olympics, Battersea Power Station and some wonderful projects in Australia. That was where I got interested in creative reuse of old buildings," she says. Emma then joined Cundall, where she worked on listed buildings in Covent Garden.

Emma then spent more than five years as construction director for the Metropolitan Police, where she put her skills to the test refurbishing London's police stations. She also led the development of their decarbonisation strategy and procurement of their construction supplier framework.

Since 2023, Emma has been managing director of Initivo, a specialist subcontractor in the VINCI Construction Group. Initivo is focused on securing longevity for structures, assets and building products through expert testing, engineering and consultancy services. "I manage a specialist testing and laboratory facility, and a nationwide team of engineers and technicians," she says. "My role allows me to combine my engineering knowledge with my leadership abilities."

Advice

Emma believes the ELS brings great mentoring and networking opportunities. "You might meet someone who gives you your first job. I did," she says. "Plus, there's a network of people that you wouldn't otherwise meet. That's useful if you change course or are looking for jobs."

> "**The ELS gave me a confidence** in the soft skills and presenting at a senior level. I think that helped me accelerate my career."

How the ELS helped...

A great network: "I still know now that I could call up someone on the ELS programme and ask for advice."

Confidence: "The ELS programme gave me a confidence in the soft skills and presenting at a senior level. I think that helped me accelerate my career."

A commitment to professional development: "It's played through my own career. I got chartered very quickly and graduated with an MBA from the University of Cambridge in 2021. I think getting that boost early on fast-tracked my career and made me more focused."

Felicity Milton

Senior Director, TECH, Global Team Sports, adidas

From competitive running to digital strategy at adidas

After a childhood dream of becoming a ski instructor, Felicity went off-piste to study mechanical engineering. An ELS-funded trip to a conference and competitive running led to a career-defining work placement. Entrepreneurial experience, another degree and injuries followed, but Felicity ran with it to secure a career at adidas.

Quick off the blocks

From a young age, Felicity knew she wanted to work in sport, but thanks to her talent for sciences, she decided to study mechanical engineering at Durham University, which had a strong biomedical module, "to keep the doors open."

At university, Felicity wanted to explore the world of sports engineering. Thanks to the ELS funding, she was able to attend a sports engineering conference in Biarritz, where she met adidas' senior director of engineering. "I came away from that conference and introduction really inspired."

> "**It all started from** that engineering conference."

At the same time, Felicity was running for Great Britain. She was sponsored by adidas and secured a work placement at the company's headquarters. "I met Tim Lucas – the same guy I met at the sports engineering conference – and we started talking about research projects," she says. "I felt that 'this is where I want to work,' but I had a few things left to do first." After she graduated, she went to run for Oklahoma State University, which has a strong track and cross-country team.

Running with it

In order to benefit from this sporting opportunity, Felicity had to enrol on another course and chose a Master's in entrepreneurship. "I ended up patenting my own product," Felicity says. Her scholarship ended after 18 months and she returned to the UK to study at Loughborough University and to be around UK Athletics.

She enrolled in another Master's in biomechanical engineering and took advantage of the university's business incubator to develop an electroconductive compression product. She won UK's Young Entrepreneur of the Year award, but realised it would take a long time to get her healthcare device out into the world, as it would need to go through medical trials, which she saw as a "very lonely, hard route". So, Felicity applied for an internship at adidas.

Advice

"**You need to find your own route**. Even if you don't really know exactly what you want, the ELS is an opportunity to help you get there."

If the shoe fits

Felicity thought she would be most interested in product innovation, but she went into 'creative direction', which used her engineering background to work on creating a 3D creation pipeline from design, development to production and marketing.

A few years later, adidas launched its new five-year strategy "creating the new," and Felicity landed a place on the brand strategy team. "Almost immediately, I started working on a new business model, which was driven by our engineering team, based on automated manufacturing, local production and real-time consumer driven insights," she says.

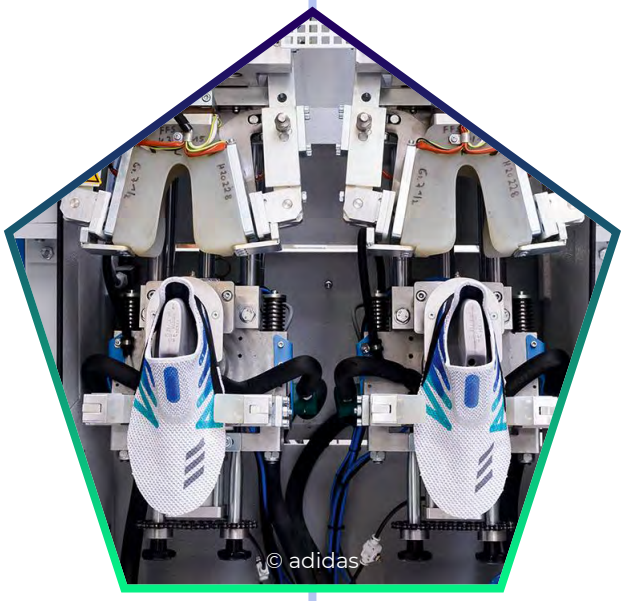
Instead of sending goods to manufacture in Asia and having massive global supply chains, the idea was to create smaller ecosystems to better serve local markets; more sustainable, more culturally relevant and faster creation times.

"With all the automation, you'd be able to respond to individual needs and market trends, and it would be more sustainable. It's the future of where things are going," Felicity explains.

She worked on that project for three years and made "huge learnings." While she now works in the digital strategy and innovation team on business model innovation, building, testing and scaling new revenue development opportunities, her background enables her to take a systems-driven approach.

Advice

Felicity believes applicants should be themselves and play to their strengths in the competitive applications process. "I don't think you need to comply or copy," she says. "They [the panel] want to meet candidates who have the potential to be future leaders – that's the whole point. So, lead, don't follow."



Mini CV

2005 to 2009: Mechanical engineering, Durham University

2006 to 2008: Athlete, UK Athletics

2008: Intern, adidas

2010 to 2011: Entrepreneurship, Oklahoma State University

2010 to 2013: Founder, 1point6

2012 to 2013: Sports biomechanics, Loughborough University

2013 to present: Various roles, now Senior Director, TECH, Global Team Sports, adidas

How the ELS helped...

A strong start: "You start to get these types of recognitions and that goes a long way. It's on your CV for life."

Support: "The ELS offered so much in terms of development, planning, focus, mentoring, and, obviously, better funding to go out and explore. It was a catalyst."

A network: "I'm still in touch with my mentor." Felicity is now in touch with his son too, who is a keen cyclist and physicist, so the helpful relationship has come full circle.

Fiona Howarth

Founder and director, Octopus Electric Vehicles

Protecting the environment one gadget at a time

"I always wanted to make the world a better place," says Fiona. Winning a place on the ELS programme helped her see her ambitions in energy and transport were achievable. Having helped make central heating greener, she is now running Octopus Electric Vehicles, driving take-up of electric vehicles in the UK.

Getting into gear

Fiona's ELS programme interview gave her the idea to investigate hydrogen-powered cars. She used part of her ELS funding to go on a German language course before her work placement on hydrogen fuel cells at BMW in Munich. She also spent the following summer attending the World Hydrogen Energy conference in Japan, with five other ELS members, visiting the world's first hydrogen and petrol station in Singapore, and test driving a hydrogen fuel cell vehicle in California with Toyota.

> "**So many pieces of the ELS programme** have led me to where I am today."

Interested in how to commercialise cleantech, Fiona honed her business skills as a consultant. She worked on strategic projects for energy companies and utilities, advising on investment decisions in oil and gas. "It was fascinating, but I knew I wanted to be working to create a smarter energy system powered by renewables," she says.

Fiona did a secondment with the UK government, looking at the future of the energy sector, before joining a startup developing products to remotely control home heating systems, which led to her helping to launch the Hive thermostat and brand with British Gas. There, she decided how Hive would be sold and what features it would have. "That was super exciting and it's now in nearly two million homes," she says.

Between two maternity breaks to have her daughters, Fiona worked with smart meter companies, and became fascinated by how electric cars could be charged overnight when there is little energy demand. Following a conversation with the CEO of Octopus Energy about electric cars and demand response, she joined the renewable energy supplier.

A greener future

Fiona focuses on how smart charging kit could accelerate adoption of electric vehicles. She ran a vehicle-to-grid (V2G) demonstration project, exploring how to optimise the energy system for drivers of electric vehicles. "It looks at allowing their car batteries to be used as energy storage to support the grid, charging up when there is abundant green energy and using a bi-directional charger to give back to the grid at peak times," she explains.

Fiona designed Octopus Electric Vehicles to help make it easy for

drivers to switch to electric. It has now raised £1.4 billion of funding and leased 30,000 electric cars. It was voted by 500 staff as a Sunday Times Best Place to Work in 2024 and 2025.

Advice

"Back yourself," is Fiona's big tip. She says the ELS programme has 'turbocharged' the projects she has wanted to do and believes everyone should put their name forward. "The worst thing that can happen is that you meet some interesting people in the interview process. What's the best that can happen? Significantly more."

How the ELS helped...

Funding: "The funding helped me develop skills and be able to do internships that I might not otherwise have been able to afford."

Emotional support: "The interviewers validated that my ambitions were achievable. Being given the award was confirmation of support. It was a great first boost and provided encouragement."

A big network: The ELS programme helped Fiona establish a network of contacts and find great colleagues, such as Octopus Electric Vehicles's founding director of technology. "She's brilliant and has been an inspiration to me," Fiona says.

Connection: Fiona is still in touch with friends she met on the ELS programme trip around Asia. "I ended up living with one of them in London and actually met my husband via him," she says.

Mini CV

2000 to 2004: Engineering, economics and management, University of Oxford

2005 to 2006: Internship, the Carbon Trust

2006 to 2011: Consultant, Bain & Company

2010 to 2011: Policy lead, Department of Energy and Climate Change (now BEIS)

2011 to 2012: Client services director, AlertMe.com

2012 to 2015: Head of product and commercial, Hive by British Gas

2015: Head of transformation, OVO Energy

2015 to 2017: Independent consultant

2017: Director of smart projects, Octopus Energy

2017 to 2024: Founder and CEO, Octopus Electric Vehicles

2025 to present: Founder and director, Octopus Electric Vehicles

Floriane Fidegnon-Edoh

Deployment strategist, Palantir Technologies

Leading the conversation on ethics and inclusivity in STEM

Floriane is a prominent voice on technology and its ethical implications and a champion of equality, diversity and youth engagement in STEM. She describes her ELS experience as 'inspiring' and says that without it, her approach to her career and her way of thinking would have been very different.

Early passion for STEM

Floriane began making her mark on the world of engineering while still at school. She won the prize for sustainability at the National Science + Engineering Competition, was a member of the British Science Association's CREST Youth Panel and was a keynote speaker at the Bill and Melinda Gates Grand Challenges Annual Meeting.

She went on to study manufacturing and mechanical engineering at the University of Warwick, where she co-founded and was president of the Warwick Women in Engineering and Science Society.

> "**The interview was a great experience,** chatting with people who were as enthusiastic about the future of engineering as I was."

A future leader

Floriane wanted to build on her proven leadership skills and decided to apply for the ELS. "I enjoyed the application process," she says. "I was able to talk passionately about engineering and all the work I had done up to that point. The interview was a great experience, chatting with people who were as enthusiastic about the future of engineering as I was."

She says meeting the rest of her ELS cohort was inspirational. "It was motivating to meet people from all different backgrounds who had a similar ambition to me – to change the world."

Floriane spent some her funding on leadership courses and memberships to a number of professional institutions, but she says the most impactful use of the funding was on two international trips.

Her first trip was to San Diego, where she attended the Society of Women Engineers conference. "I got to hear an inspiring keynote talk on ethics in tech and AI and how it relates to diversity, equality and inclusion. It was my first time going to the US and my first big conference," she says. Off the back of this event, Floriane was asked to become an ambassador for Itripoli Global Tech Ethics and was invited to chair several sessions on AI ethics at conferences in the US and UK.

Floriane then travelled to Guatemala with one of her ELS colleagues, Isabelle Russell (featured on page 23). "We visited rural areas and got to see what infrastructure and agriculture in Central America looks like. We spoke to local engineers about the specific engineering challenges in Guatemala and how they compare to the UK," she says. Floriane also undertook

some personal challenges while there, such as hiking and staying overnight on a dormant volcano. "It was very difficult," she says. "I almost gave up, but it taught me about resilience. I enjoyed it so much because it was such a unique experience and I wouldn't have been able to do it without the funding."

Problem solver

After graduating, Floriane joined pharmaceutical manufacturer GSK as an industrial placement engineer. She then became Head of Industry, Technology and Innovation at the cross-party think tank, Policy Connect. She led a team of policy managers and project coordinators to engage with civil servants and parliamentarians on manufacturing, data analytics and innovation. "I was able to help write policies and give actionable recommendations to the government," she says. "I got to use my STEM background on areas I cared most about."

She then joined BMNT as an innovation consultant, where she was able to put her think tank work into action. "I worked with the government to embed innovation practice and solutions in the defence sector," she says.

She is now a deployment strategist at Palantir Technologies, a company that builds and deploys software platforms for numerous high-profile organisations around the world. "I work in the UK government stream, harnessing data and solving data challenges," she says. "Making positive organisational changes and solving problems is what gives me joy."

An engineering role model

Floriane has become a leading voice in the field of tech ethics and innovation. She is a policy expert at the Institute of Engineering and Technology (IET), a member of the British Standards Institute AI expert group and an IEEE Global Tech Ethics ambassador.

"I have a keen interest in the ethical implications of technology," she says. "My mission is to spread understanding of the future of technology, empowering people to grasp the implications, both positive and negative, of our rapidly evolving world."

Floriane is also extremely passionate about equality, diversity, inclusion, and youth engagement in STEM. As a trustee at Stemettes, a social enterprise that promotes gender representation in STEM and the Arts, she helped write a white paper (government policy document) on diversifying role models in science textbooks. She also visits and mentors at her former secondary school's STEM club. "I love working with the next generation of STEM enthusiasts," she says.

Advice

Floriane says future applicants should "be super honest about what you want out of the programme. Think outside the box when using the funding and ask yourself – what would transform the way you think about your career in engineering?"

How the ELS helped...

Network: "All the annual events are so important. I have built a network of senior leaders and still have peer-to-peer mentoring with some of the alumni that I connected with."

Personal development: "The ELS taught me broader things like building a personal brand, creating my own website and putting myself out there. Without the ELS, I think my approach to my career and my way of thinking would have been so different."

> "**It was motivating to meet people from all** different backgrounds who had a similar ambition to me – to change the world."

Isabelle Russell

Aerospace account manager, Siemens

Leveraging cutting-edge technology to advance the aerospace industry

Isabelle is an accomplished aerospace account manager, partnering with global companies to help them modernise their manufacturing operations. She says the ELS gave her the confidence to succeed in her career and taught her to value her own authenticity.

A passion for aerospace

Isabelle's interest in aerospace started early. "My mum worked in the aerospace industry, and I would go with her to the Fairford Airshow every year," she says. "I'd look up and think that those big metal tubes flying around in the sky were the coolest things in the world."

She studied electrical and electronic engineering at the University of Nottingham.

> **Having the ELS on your CV** makes you a 'pre-approved' person."

While studying, she secured a sponsorship programme with Siemens and undertook three summer internships with the company. She won the Nottingham Society of Engineers Engineering Graduate Award and joined the Siemens graduate scheme, where she won the company's Graduate of the Year Award.

She was promoted to her current position as an aerospace account manager while still on the graduate scheme and now works with leading, global aerospace companies to modernise their manufacturing practices, drive cost efficiencies, and foster rapid growth.

Perseverance and rediscovery

Isabelle applied for the ELS in her second year at university but was unsuccessful, so she tried again the following year. "The first time I applied I overanalysed it to death, but the second time I wrote the application in one day and just did what felt right."

She spent the funding on three international trips, including the 2020 Dubai World Expo, which she attended with three people from her ELS cohort.

She then spent a month in the US, where she visited the Siemens office in Philadelphia. "Visiting the US office gave me a better understanding of how a global company works," she says. "The extensive travelling also made me feel ready for my current job and helped with my overall confidence."

While in the US, she attended the Society of Women Engineers Conference in San Diego. "It was inspiring being in a room full of women engineers," she says. "The generic advice you receive

as an engineer doesn't always apply when you're a woman as we have challenges that are unique to us. It was great to receive that impactful, tailored advice."

Isabelle's final trip was to Guatemala, a place she explored with her ELS colleague, Floriane Fidegnon-Edoh (featured on page 21). "I had reached a point where I had settled into my job but was struggling to value myself outside of accolades and awards," she says. "I realised I had met all the arbitrary goals I had set myself at 16 and yet still felt stressed and unhappy."

She says her trip to Guatemala was an untraditional way of using the funding, but that "it helped me to redefine my self-worth and rediscover joy." She visited rural areas and learnt about specific engineering challenges in the country, and at the same time was able to enjoy activities like kayaking and hiking up a dormant volcano.

Reframing rejection

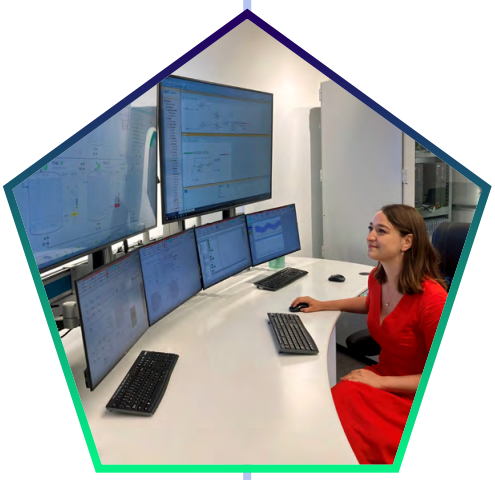
Isabelle remains actively engaged with the ELS and ran a session on failure at the programme's annual conference. "I almost didn't reapply for the ELS after my first application was unsuccessful, but I was being harsh on myself," she says. "I have learnt that rejection is not final – there is just a gap that you need to close before trying again. If you're not getting rejected, you're not reaching high enough."

In her role at Siemens, Isabelle is committed to sustainability and leveraging cutting-edge technology to advance UK manufacturing. "I'm really excited about the future of the aerospace industry – it is about to hit a revolution," she says. "It is a slow-moving industry, but it is ready for change. I'm passionate about solving industry challenges, including the adoption of advanced technology, rate increases, and the skills shortage."

Advice

Isabelle advises potential applicants to be cautious of self-rejection. "There isn't one type of person the ELS is looking for, so you don't have to fit in a certain box," she says. "Let the panel decide if you're ready and if you don't succeed the first time, absolutely try again."

> "**It made me feel ready** for my current job and helped with my overall confidence."



How the ELS helped...

Opportunities: "Having the ELS on your CV makes you a 'pre-approved' person. It helps when going for opportunities that you might feel are out of your reach."

Confidence: "The ELS built up my confidence and taught me to prioritise my authenticity rather than chase predefined expectations of success."

Community: "I went to every meet up and wanted to spend as much time with my cohort as possible. Everyone is so impressive and intimidating, then you get to know them, and you realise they feel the same way about you. You end up seeing yourself as an impressive person through the eyes of impressive people."

John Armstrong FREng

Chief executive officer, British Pipeline Agency

Keeping the UK moving

John has built an impressive career in the energy industry and is now responsible for 'keeping the UK moving' as Chief Executive Officer of the British Pipeline Agency. He credits the ELS with raising his profile early on in his career, building his confidence and even helping him land his first job. Now, as Vice Chair of the ELS Steering Committee and a newly appointed Academy Fellow, he is helping other engineers benefit from the programme.

Career foundations

While at school, John won a scholarship through the engineering charity Smallpeice Trust, which allowed him to undertake training courses and spend four months on a work placement at a shipyard in Norway. The experience solidified his decision to pursue a career in engineering.

He studied mechanical engineering at Birmingham University and applied for the ELS during his second year. He says the experience "helped broaden my opportunities." After his graduate job unexpectedly fell through, John turned to his ELS mentor, Ian Peerless, for advice. "Ian was brilliant and helped me secure a new role," he says. John returned to Norway to join MW Kellogg (now KBR) as a mechanical package engineer, where he worked on the construction of onshore gas facilities.

> "The ELS **helped me get noticed** in my company."

Invaluable opportunities

While in Norway, John used his ELS funding on various courses and trips. "The ELS helped me get noticed in my company," he says. "I would ask to do courses or go on trips and would pay for it myself with my funding." John spent several weeks in Mexico learning Spanish and visiting the sites of some of MW Kellogg's construction projects. He also went to Florence and Pisa in Italy to visit some of the company's other projects. "All of these visits were incredibly valuable and helped raise my profile in the company."

The future of energy

After two years at MW Kellogg, John returned to England to join energy company, E.On. He held a variety of positions at E.On over a 15-year period, including Head of Asset Risk and Corporate Safety, Head of Operations, and Head of City Energy.

"I led a national team of 150 engineers to design, build and operate decentralised energy systems," he says. He was responsible for the construction of energy systems for major real estate projects, including Westfield Shopping Centre and Elephant Park in Elephant and Castle. "Working in engineering has suited my need for variety and kept things interesting," he says.

In 2020, John joined the British Pipeline Agency (BPA) as chief operating officer, before rising to chief executive officer in 2021. BPA is jointly owned by Shell and BP and is responsible for the management of around 1,000 km

of liquid fuel pipelines around the UK. “I head up a team of more than 200 engineers and our role is to transport fuel around the UK safely, and ultimately keep the country moving,” he says.

John has published a book called The Future of Energy, that has sold worldwide and won multiple awards. He was also recently made a Fellow of the Academy, in recognition of his outstanding and continuing contributions to the engineering profession. The appointment is something he describes as “an honour” and says, “as someone who has received encouragement and support from the Academy’s programmes, it’s a privilege to be able to give back as a Fellow.”

Ongoing connection

John’s connection to the ELS remains strong as he is now vice chair of the ELS Steering Committee. He helps with ELS interviews, assessments and annual events. “It is such a positive award,” he says. “We get a broad range of people from engineering that apply and who are all fantastic. It is fabulous to see all the different pathways people take. I’m really passionate about working with the ELS team.”

Advice

John says it is important to “share your passion for engineering” and to not be afraid. “Applications that shine through are ones where it is clear to see what they are interested in and what they want to do with the award,” he says.

Mini CV

1999 to 2003: Mechanical engineering, University of Birmingham

2003 to 2005: Mechanical package engineer, MW Kellogg (now KBR)

2005 to 2020: Various positions at E.On, rising to Head of City Energy

2009 to 2013: MBA in global energy, University of Warwick (Warwick Business School)

2020 to 2021: Chief operating officer, British Pipeline Agency

2021 to present: Chief executive officer, British Pipeline Agency

How the ELS helped...

Confidence: “The ELS gave me the opportunity to do different things, which I wouldn’t have had otherwise. It built my confidence and my profile.”

Network: “I’m still in touch with people from my cohort now. It’s a big community and I still bug them to help with various things!”

John Puddy

Director – Land Systems, Ultra PCS

Helping an aerospace engineer land on his feet

Opening doors

John wanted to be an RAF pilot, but when it became clear his colour blindness meant that wasn't an option, he decided to become an engineer instead. He used his ELS funds on a tour of five US aerospace companies, which helped set his future course, noting, "it wouldn't have happened if I hadn't been on the scheme. The ELS programme opened doors."

Using new technologies

After graduating, John joined Westland Helicopters' research and development team and then moved to join BAE Systems' Advanced Technology Centre to pursue his interest in robotics. He worked on a variety of autonomous systems programmes including looking at how driverless cars could be used by the military. John helped lead BAE Systems' MO-ATV project, designing a driverless robotic vehicle to carry soldiers' bags for them while on patrol. "Driverless cars have been a massive career highlight and it's been amazing to be at the cutting edge of this new technology" he says.

Following a period as head of technology, where John was responsible for leading the technology and innovation strategy for the business, a new opportunity arose with Ultra PCS – a company that designs and manufactures control systems for military and civil platforms.

Originally leading the engineering function, John was quickly able to shape the innovation landscape in the company. He launched an agile research and development team to deliver rapid innovation within a business that was more used to traditional engineering systems and processes. With more than 20 agile projects delivered in just two years, John then seized an opportunity to take one of those concepts forward to market, delivering modular electronic solutions for military land customers. As Director – Land Systems, John is now responsible for driving the strategy, product innovation, delivery and operational execution for land systems.

> "The Academy's name and the ELS programme **opened doors**."

Advice

"**The further I get in my career**, the more important my purpose in engineering has become. For me, finding the sweet spot where a passion for innovation combined with a desire to deliver, has enabled me to shape a role where I can have a real impact but enjoy it at the same time"

How the ELS helped...

Additional skills: "All of the training and development that we got through the programme added to my technical university skillset. I was able to deal with people, problems and projects that most degrees don't focus on."

Breadth of opportunities: "Gaining an awareness of the breadth of engineering opportunities means that when you're starting work, you're more competent than if you just had a degree."

Lars Blackmore

Senior Principal Mars Landing Engineer, SpaceX

Designing rockets for SpaceX

Reusable rockets are expected to change the economics of space travel, and one ELS programme alumnus is helping to make them a reality. Lars led the team that figured out how to make SpaceX's Falcon 9 rocket vertically land on a ship in the ocean, and the ELS programme put him on the right trajectory.

Dreaming of NASA

Seduced by space exploration and the search for life beyond our planet, Lars made it his mission to use creativity and innovation to overcome fundamental challenges. "In the words of JFK, 'dream of things that never were and say, why not?'", he says.

He studied engineering at Trinity College, Cambridge, where he took part in extracurricular activities such as the International Robot Design Competition in Japan. "To this day, I don't think anything has been more important for my career than a solid basis in the fundamentals of engineering," he says. He also spent an exchange year at the Massachusetts Institute of Technology (MIT) where he worked on a satellite to test the effects of Mars gravity on mice. "The idea that students could work on an actual space mission blew my mind and made me think that perhaps my dreams of working for NASA could become reality."

Making the dream a reality

Lars wanted to work on the cutting edge of space travel and the most exciting work was being done in the US. However, getting a paid internship at NASA was impossible in the aftermath of 9/11 as there was an almost total ban on non-US citizens working on space technology. Luckily, Lars was able to use his ELS funding to take part in the Planetary Science Summer School at NASA's Jet Propulsion Laboratory. "This was instrumental in letting me see NASA from the inside, and I formed some professional and personal relationships that have lasted to this day," he says.

Lars did a PhD at MIT's aeronautics and astronautics department, which enabled him to work at NASA's Jet Propulsion Laboratory where he split his time between working on a climate change satellite and developing new methods for precision landing on Mars. During that time, he first heard about SpaceX's ambition to make a reusable rocket capable of precision landing. "I moved there with my sole focus being to work out how to land their Falcon 9 rocket," Lars says.

At the time, Falcon 9 was putting payloads into orbit, but it was not yet capable of return. "After four years and many failed attempts, we finally landed the first Falcon 9 rocket in December of 2015, and watching it from Mission Control, I could not have been prouder of the team," he says. Since then,

Advice

His advice to future applicants is to be flexible and take advantage of mentoring and networking opportunities. "There is so much to learn (good and bad) about the way industry, entrepreneurship and business work that you will not learn at university, but that mentors can teach you informally. Having someone that can answer your questions as you're deciding your path is an invaluable resource," he says.

> **Engineering is for me using creativity and innovation** to overcome fundamental challenges, and, in the words of JFK, to "dream of things that never were and say 'why not?'."

SpaceX has landed 70 rockets, making reusability "just another part of the business of space launch".

Not content with making space history, since 2018 Lars has been leading the team developing entry and landing of SpaceX's newest space transportation system, Starship. If successful, it will be the world's first completely reusable rocket, since it will reuse both the booster stage (like Falcon) and the upper stage (which Falcon did not achieve).

"Making an upper stage that can land from orbit required a fundamental rethink of the architecture of a rocket," Lars says. It was an effort that, led by Lars, has so far achieved three successful ocean landings from orbit. "The next step is to fly the ship back to the launch site to be caught at the launch tower where its mission started – something that would allow for truly aeroplane-like reusability."

How the ELS helped...

Professional route: Lars believes the ELS programme has contributed to his professional journey. "Giving students a merit-based chance to take part in extracurricular experiences that may be financially unattainable is extremely important and it definitely propelled my career at a critical time."

Mini CV

1999 to 2002: Engineering at the University of Cambridge

2002 to 2003: Master's degree in electrical and information sciences, University of Cambridge

2003 to 2007: PhD in estimation and control and research assistant at MIT

2007 to 2011: Staff engineer and senior technologist, NASA Jet Propulsion Laboratory

2011 to present: Various roles, now Senior Principal Mars Landing Engineer, SpaceX

Laura Steedman

Project engineer at bp

From art to energy: how the ELS programme empowered an engineer to drive change

University and the ELS programme

Laura didn't initially plan to pursue engineering. Her passion for art shaped her early interests – until an opportunity through the Duke of Edinburgh Gold Award opened the door to a new path. "I didn't realise where creativity and science met, but it's solving engineering challenges," she says.

Laura joined the ELS programme while studying mechanical engineering at the Robert Gordon University in Aberdeen and used her funding to attend the Global Challenges Summit in Beijing, of which the Academy was a partner. "It really was crucial to my career," she says.

> "The network the ELS programme has given me is **irreplaceable**."

When Laura interned at bp she didn't shy away from the challenge of energy transition. "The inspiration I gained from that summit gave me the confidence to influence the energy industry from the inside out," she says.

Doing ELS programme exercises, such as creating a business case for a carbon sequestration company, prepared Laura for her career. "I'm using the skills I learned during the ELS in my role now," she says. "It got me thinking, how do I influence stakeholders and take a great idea and make it valuable?"

Career

Laura joined bp as a graduate and soon became a production support engineer in the offshore leadership team. "Being part of the leadership team meant I gained understanding of how work is conducted offshore and I needed that to become a better engineer," she says. Laura was a mechanical engineer responsible for providing expertise and judgment in service of North Sea assets, and a carbon champion. "I worked on finding ways to reduce greenhouse gas emissions and how to prioritise those projects within the business," she says.

Laura won the SPE Offshore Achievement 'Young Professional of the Year' award in 2018 for working with a supplier to develop an upgraded turbine air filtration system for a North Sea platform and creating a business case to get stakeholder buy-in. "That resulted in large cost and time savings, but more importantly emission reductions too," she says, crediting the ELS programme with helping her develop business skills and match them with engineering knowledge to begin influencing.

Advice

"**There is nothing to lose**. Look at me – I didn't go to one of the most recognised universities and thought people from elsewhere would have had a better chance than me. But I went for it and it was the best experience ever. Even completing the application process will improve your skills."

She is now based in Paris working as a project manager on a first-of-a-kind power plant and carbon capture network project for the UK in Teesside. The project perfectly aligns with her ambition to contribute to society and the energy transition, with the vision to kick-start industrial decarbonisation in the UK and deliver an innovative, flexible, low-carbon power solution.

Giving back

Laura is a passionate mentor and STEM ambassador, committed to breaking down barriers for future generations. She has chaired the IMechE Young Member's Panel, served on the Engineering Development Trust board, and regularly hosts inspirational events in schools worldwide. A keen traveller, she integrates her outreach with global experiences—most recently working with a school in Nepal to promote the UN Sustainable Development Goals. "When I engage with many of the younger generation, they claim they aspire to be 'influencers', so let's foster that to influence the right things. We need creativity and influence to change the trajectory of the world."

How the ELS helped...

Network: Laura is still in touch with ELS programme alumni. "We brainstorm together and there are zoom calls. The network that it's given me is irreplaceable." The group mentors each other. "If we're in different industries, it's great because we bring different ideas together and share them."

Early access to developing business cases: "It's given me exposure to the Sainsbury Management Fellows mentorship for business cases, which I often use to this day to help build compelling cases to gain buy-in for sustainability and safety initiatives."

Mini CV

2010 to 2012: Drawing office and engineering work experience placements, Subsea 7 (UK and Singapore)

2013: Manufacturing engineer internship, Rolls Royce (UK, Singapore & China)

2014 to 2015: Mechanical engineer internships, bp (UK)

2016 to 2022: Mechanical engineer CEng, bp (UK)

2013 to 2022: Young member volunteer and chair, Institute of Mechanical Engineers (UK)

2020 to 2023: Board member of trustees, Engineering Development Trust (UK)

2022 to present: Project engineer CEng, bp (UK, China, Paris)

Marek Kubik

Director of energy storage, NEOM

Financial crisis led to a change of engineering direction

Every graduate dreads losing a dream job offer, but when this happened to Marek as the result of the worst financial crisis since the Great Depression, he pivoted and embraced a new engineering opportunity.

Marek completed an Engineering Doctorate (EngD) in renewable energy integration, which kickstarted a 'new' career. He now works on the world's largest sustainable infrastructure project, NEOM, and advises the UN on energy storage.

Gearing up for big things

Marek decided to specialise in civil engineering: "I wanted to work for a Buro Happold or an Arup, and then potentially launch my own consultancy further down the line and do it for myself," he says. He applied for the ELS programme hoping to meet similarly motivated engineers from different disciplines.

In 2009, he organised a trip to Japan to explore his interests, including a trip to see Hitachi's robotics work and a nuclear power station where he donned a radiation suit and went into the reactor chamber. Marek also visited a sustainable housing community near Mount Fuji. "The Japan trip was one of the biggest and most unusual things I got to do as part of the scholarship, which otherwise I wouldn't have done," he says.

A big change

Marek was sponsored at university by the Happold Trust and did summer placements at Buro Happold. He had a job offer but lost it before he started in the height of the 2009 recession. "This is when I pivoted and my career took me in a different direction," he says. Marek decided to do a doctorate in renewable

Advice

"**Don't underestimate the benefits of knowing** other people going through the same exams and experiences," Marek says. He believes the network he gained from the ELS programme is invaluable, but he made good friends as well as contacts in different places "which is useful from a business perspective."

Mini CV

2005 to 2009: Civil engineering, Durham University

2009 to 2013: EngD in technologies for sustainable built environments while working as a research engineer, The AES Corporation

2013 to 2014: Renewable energy consultant, Electricity Association of Ireland

2013 to 2016: Business strategy consultant, then customer solutions and commercial projects manager at The AES Corporation

2016 to 2017: Market director, AES Energy Storage

2018 to 2020: Market director, Fluence

2019 to present: Energy storage expert, United Nations

2021 to 2023: Managing director, Fluence

2023 to present: Director of energy storage, NEOM

energy integration, looking at the challenges of renewable variability on grids. “I got an attractive salary and got to do PhD level research – working on a problem that really mattered – in industry,” he says.

Afterwards, he worked at a power station near Belfast, slowly moving into designing largescale energy storage systems to help link to the grid, and before leading the development of Europe’s first commercial battery engineering project, which involved developing the project, raising investment, getting approval and seeing it built.

Next, Marek moved to Amsterdam to launch and scale an energy storage technology company, Fluence. “I joined as one of the founding team and we scaled very fast, ultimately with a $4.7 billion stock market IPO in under three years to fuel our growth,” he explains. “Post-IPO I stayed on as managing director of Western Europe, leading the regional sales organisation for energy storage products, software and services.”

At the end of 2023, Marek relocated to Saudi Arabia to work on the world’s largest sustainable infrastructure project, NEOM. The project is best known for its iconic car-free city, THE LINE, one of the FIFA World Cup host cities in 2034. The whole region is to be powered by 100% renewable energy, requiring very significant energy storage development and deployment.

Advice

He says the funding is helpful for doing something you otherwise wouldn’t be able to do. “Think as big as you can and find a way to be able to justify it,” he advises. “Being able to blend something that’s memorable, fun and useful to my development was one of the key benefits of the ELS programme.”

> “**Having the award on my CV in the early days** helped me get the opportunities I got.”

© Fluence

How the ELS helped...

A kickstart: “Having the award on my CV in the early days helped me get the opportunities I got. It helped my application to get into the doctorate and then the roles after that.”

Deep knowledge: “The trips and things I did helped round my knowledge.” Marek thought the best way to increase the use of renewable energy was by working inside a large fossil fuel energy company and changing it from the inside. He gained an understanding of the pros and cons of different types of energy generation at AES, except for nuclear. “But I’d seen that through the ELS programme so I could talk and argue either side of the fence for CCS and nuclear, for example. Having the ability to see all of those and debate all of them is helpful, because it gives you a lot of credibility,” he says.

Megan Hale

Co-founder and CEO, Team Repair

A repair revolution

Through her company Team Repair, Megan is helping to tackle the world's electronic waste crisis and inspire the next generation of engineers. Megan credits the ELS with giving her the resources and network she needed to turn her business idea into an award-winning startup.

Fixing the future

Growing up, Megan loved taking broken things apart, figuring out the science behind how they work, and fixing them. Diagnosed with dyslexia and dyspraxia, she says she preferred practical work at school and would tell people she wanted to be an inventor. But when a female engineer visited her school to give a talk, Megan realised what she actually wanted to be was an engineer. "I got home that evening, found the design engineering degree at Imperial College and told my parents, 'I'm going to go to this university and study this degree and be an engineer,'" she says.

At Imperial College, Megan was part of the Mums & Dads scheme, which matches up first year students with returning undergraduates on the same course. "My 'mum' was in the ELS cohort above me and encouraged me to apply," she says. "I wasn't sure if it was for me at first, so I left it until the day of the deadline but decided to give it a go."

> "**The ELS was the catalyst for me** starting my own business."

Resolving the electronic waste crisis

Megan says that the interview process ended up being one of the most impactful parts of her ELS experience. "I had always said that I wanted to start my own business," she says. "My interviewer, Catriona Schmolke, asked me 'Why don't you just do it?' It gave me the confidence I needed and got me to think about what was holding me back."

Megan's business idea came about during an entrepreneur module in her final year of university. "I had studied the UN's 17 Sustainable Development Goals and felt inspired to find a way to help resolve the world's electronic waste crisis. Around 60 million tonnes of electronics are being thrown away globally every year," she says. "Taking onboard what Catriona had said to me in my ELS interview, I wanted to make the most of my business idea and it sort of spiralled out of control from there... in a good way!"

Through a subscription service, Team Repair teaches children science by giving them the tools and confidence to take apart a broken electronic product, diagnose the issue with it and then repair it themselves, either at home or at school. "Our goal with this business is to help solve two problems – the UK's STEM skill shortage and the e-waste crisis," Megan says.

Megan used her ELS funding to help get Team Repair off the ground. She did courses on startups and sustainability,

Advice

"**Don't overthink it,**" Megan says. "**Just give it a go** and apply as soon as you can. Even if you don't get it this time, you learn so much for next time."

> **I got to meet people who were already doing amazing things** outside of their degree and I found that inspiring."

bought equipment to record video pitches and used the funding to help with international pitches.

"The ELS was the catalyst for me starting my own business," Megan says. "As well as the funding, it gave me resources and a network I wouldn't have had without it. I got to meet people who were already doing amazing things outside of their degree and I found that inspiring."

Award-winning startup

In 2022, while Megan was still at university, Team Repair won the Mayor of London's Entrepreneur Award. "We were pitching for the Mayor's award in the same week I was finishing my Master's – it was a very stressful week! My degree ended up feeling like a side project, but the award really turned our idea into a business."

Since then, Team Repair has won numerous awards and competitions, including the Innovate UK Unlocking Potential Award and the Santander X Global Challenge. Megan was named on the WISE100 2024 list, awarded as an inspirational woman in STEM at the House of Lords, and won the Innovate UK Young Innovator award.

"We have reached 12,000 children and young people so far, from all different abilities and backgrounds," Megan says. "We are focused on the UK at the moment, but have plans to take Team Repair international.

"I want to see a world where everyone has the confidence to repair."

How the ELS helped...

Confidence: "My parents didn't go to university, and I wasn't privately educated, so I didn't necessarily have the network or confidence already there. The ELS gave me the opportunity to have that confidence."

Community: "It was amazing meeting all the other engineers that were part of my cohort. I got to be part of such a fantastic community that I hadn't found anywhere else."

Funding: "The ELS funding allowed me to have so many opportunities that I wouldn't have been able to afford without it."

Mike Hunting

Complex Programmes Director, AtkinsRéalis

Engineering a career at one company

Volunteer engineer

Mike originally chose his degree at Durham University to keep his options open. “If you have an engineering degree you can do all kinds of things,” he says, but he decided to focus on civil engineering and hasn’t looked back.

Initially the funding attracted him to the ELS programme. Mike knew he wanted to work on major projects abroad, so having spent his third year at university studying in Berlin he took a long summer in Peru where he volunteered with a charity and designed clean water and sanitation systems for rural locations. “I was aware getting this scholarship would help in getting funding to work overseas and it helped both with a language course in Germany and then my initial costs for travel and set up in Peru,” he says.

The ELS funding also covered the cost of volunteering in Sri Lanka, where Mike assumed responsibility for the construction of 110 houses, in response to the devastating tsunami in 2004.

Building a career

After returning to the UK, Mike started at AtkinsRéalis (formerly Atkins) and has worked there ever since. In his 20-year career, he has worked on major projects across sectors including highways, bridges, water, buildings, oil and gas, nuclear fusion and aviation, as well as taking wider roles including operational, risk and commercial leadership, honing his strategic and business skills along the way.

His highlights include working on the striking Supreme Education Council Headquarters in Qatar, the Swansea University Bay campus in Wales and the ITER fusion project. “I was the delivery manager for ITER, which is a huge experimental fusion reactor in the South of France. It is one of the most exciting and complex projects on the planet and has the potential to change the future of energy supply” he says.

Advice

“Think of it as an opportunity to explore what you might want to do and the various opportunities in front of you – don’t just explore a path that somebody else has taken.”

> “**If you have an engineering degree** you can do all kinds of things.”

How the ELS helped...

Preparation for work: “I think the award definitely opened my eyes and provided awareness and recognition of the different factors that make up engineering success.”

Network: “I’m still in touch with people from my cohort and we catch up when we can. There’s definitely a network that gives you a point of contact, particularly early on in your career. You can ask someone for help and learn from others’ experiences.”

Real world experience: “The ELS provided the opportunity to develop skills and gain experience that I would not have been able to otherwise achieve. It gave me broad real world engineering experience and helped me consider what I enjoyed and what I wanted in my career. The chance to meet with people through conferences, work placements and mentoring whilst learning how to engage and work effectively with others was just as valuable as the overseas experience.”

Naomi McGregor

Founder and Chief Executive Officer, Movetru

Knee injury inspires ELS candidate to launch award-winning wearable tech startup

After a knee injury ended her dream of becoming a professional ballet dancer, Naomi decided to pursue a career in engineering. During her final year at university, while on the ELS programme, she developed a concept for wearable technology that helps athletes reduce the risk of injury and improves athletic performance. Naomi says that the ELS gave her the confidence to take a risk and launch her own startup.

From ballet to engineering

Naomi started ballet lessons aged four and hoped to one day be a professional dancer, but after suffering a knee injury at 14, she was told she may never dance again. She decided to pursue a career in engineering instead, after excelling in STEM subjects at school. She studied product design engineering at Queens University Belfast.

> "**I watched other ELS candidates take huge** risks and launch their own startups. It was inspirational and gave me the confidence to do the same."

Naomi applied for the ELS after seeing how the programme had benefited some of her peers. "These were people I saw as role models so I thought I should be following their footsteps," she says. "I saw how the ELS had helped them in terms of funding, the network and the wider experience, and how they had used this to go on to do impressive things."

She was unsuccessful in her first application but tried again the following year. "The first time I applied, I tried to sound as much like an engineer as possible. Reading it back, I could see that my application had no personality, energy or drive," she says. "The next year, I wrote it as my most authentic self, as natural as possible, and I got it."

International study

Naomi used her funding to attend two summer university residentials – the first in China and the second in Denmark. "Financially, I wouldn't have been able to do it without the ELS," she says.

She also used the funding on a virtual training course on early-stage prototyping and development within sports science. "A lot of what I learnt on this course helped me develop my future startup, Movetru."

From university project to successful startup

Movetru was born out of Naomi's final year dissertation

at university. Using her personal experience as a former ballet dancer, Naomi developed a wearable technology product that aims to reduce injury risk and advance athletic performance. “I really wanted to put the wellbeing of athletes at the forefront of my project,” she says.

After finishing university, she decided to defer her graduate job and develop Movetru. “I watched other ELS candidates take huge risks and launch their own startups. It was inspirational and gave me the confidence to do the same,” she says.

Injury mitigation on a global scale

Movetru gives real-time on-field movement quality analysis. Through research with more than 100 athletes – 70% of whom are female – the company has already developed insights to help reduce injury risks, particularly for women who are up to eight times more likely to suffer ACL (knee ligament) injuries.

Movetru is now in its fifth year, and Naomi says that it has been an incredible experience. “I spent the first two years building the company in my parent’s garage during a global pandemic. Then the next three years have been spent expanding the business,” she says. “We have just received international investment and are now looking to scale the business globally. We want to be at the forefront of wearable technology and transform athlete wellbeing on a global scale.”

Naomi has won numerous accolades. She was awarded the Academy’s Enterprise Scholarship in 2021 and was recently named in the Forbes 30 Under 30 Europe list for Social Impact.

Advice

Naomi is now on the ELS steering committee and advises potential applicants to be their true selves. “Bring your passion into the application,” she says. “The entire point of the ELS is to find the next leaders in engineering and you’re only going to get people on board with your ideas if you are passionate about them.”

“**The entire point of the ELS is to find the next** leaders in engineering and you’re only going to get people on board with your ideas if you are passionate about them.”

How the ELS helped...

Inspiration: “I saw that the ELS alumni in the cohort above me were taking highly calculated risks and launching their own startups. I’d never known anyone who had done this before. It became a huge driver for me to take my own risk and build my startup.”

Network: “I am still in touch with my ELS cohort and some were first team members within my company.”

Soft skills training: “The ELS gives soft skills training that is not taught at university. These skills are hugely beneficial in helping us improve as leaders. For example, workshops on personality types helps you to understand and empathise with team members early on, regardless of the industry you go into.”

Rebecca Wooding

Associate project manager, Arcadis

Supporting remote community development

With her sights set on becoming a rollercoaster designer, but no mathematics A level, university initially proved a bumpy ride for Rebecca. But the ELS programme funded a trip to Uganda, which led to a successful career in international development.

An uphill battle

"I always wanted to be a rollercoaster designer," says Rebecca. But despite being good at physics, nobody told her she needed to study mathematics to be an engineer, which restricted her choice of university. She chose the University of Warwick, which offered an equivalent to A Level mathematics as a module, but it was tough. "I think getting through my first year of university is my greatest life achievement," she says.

Back on track to Africa

Rebecca realised rollercoaster engineering wasn't for her and developed an interest in international development. She set up the University of Warwick branch of Engineers Without Borders, along with two other students.

Her lecturer travelled to Uganda every summer to teach and Rebecca decided to use her ELS programme funding to join the trip, having spoken to a local hydropower turbine manufacturer in the Midlands that donated some turbines.

The team worked with the community to build a small hydropower scheme for a school in the mountains. "The ELS programme funding enabled me to get there and to sustain myself while working on the project. I learned how to weld, design, build, construct and project manage in really difficult circumstances."

While she spent the rest of the ELS funds on a return trip to Uganda and a tour of China to look at water structures, her first visit to Uganda was her stand-out experience. "That trip completely defined my career trajectory."

> "The ELS programme trip **completely defined** my career trajectory."

Around the world in infrastructure projects

Rebecca started working at Mott MacDonald as a sustainability masterplanning engineer, but found that it wasn't the right fit. She took a sabbatical and worked in Mexico with Engineers Without Borders, where she designed a filter for a biogas system with farmers.

When she returned, she joined Mott MacDonald's hydropower team in Brighton as a Mechanical hydropower engineer. "That really kicked the international career off," Rebecca says. She worked on projects in Georgia, Pakistan, Slovakia and Uganda, before moving to Albania for a year to work on a large-scale

Advice

"**Be creative with how you spend the funds.** Contacts are really important, but actually investing in yourself as an individual and the kind of skill set that you want to build, I think is much more powerful."

hydro power construction. It led to her becoming chartered and "really defined my career and my skillset," she says.

After six years, she left Mott MacDonald for the Foreign and Commonwealth Development Office (FCDO), where she was an advisor in the Democratic Republic of the Congo (DRC) for water infrastructure and was focused on doubling the capacity of water networks in two cities in the east of the country. "The project I was the technical lead for was the largest urban water project in the DRC and the first project to bring the private water sector into the country. It was completely pioneering as well as being FCDO's largest urban water project at that point in time."

Rebecca is now an associate project manager at Arcadis, a design and consultancy firm, which she joined in 2021. Her latest project was as an integration manager on Thames Tideway for Thames Water – a £4.5 billion investment to clean-up Thames river through new infrastructure.

"I've gone from being told I don't belong, to feeling like I belong nowhere else, and the engineering sector is kind of like an extended family," she says. "The ELS programme was incredibly empowering, because it was something from the profession that says, 'yes, you can, and yes, you belong'. It really gives you motivation."

Mini CV

2008 to 2012: Mechanical engineering with appropriate technology, University of Warwick

2012 to 2013: Graduate sustainability master planning engineer, Mott MacDonald

2013 to 2017: Mechanical hydropower engineer, Mott MacDonald

2018 to 2021: Infrastructure adviser in the DRC, Foreign and Commonwealth Development Office (FCDO)

2021 to present: Associate Project manager, Arcadis

How the ELS helped...

Big concepts: Rebecca still applies lessons about teamwork and communication that she learned on ELS programme weekends away. "It has been really vital," she says. She believes the scheme opened up new opportunities and career paths by allowing her to explore the wider profession and move into the civil service, for example.

Confidence: "I think it was empowering, because it was something from the profession that says, 'yes, you can, and yes, you belong', which I hadn't had," she says. "It's an incredible experience, and it really gives you motivation."

Rebecca Wray

Senior Portfolio Director in Oncology, AstraZeneca

Curiosity and courage in leadership

A route into healthcare

Rebecca's career in pharma oncology was kickstarted when she won a placement at GlaxoSmithKline (GSK) while studying at Queen's University Belfast. Her lecturer encouraged her to apply for the ELS programme. "It was a combination of feeling inspired by people I met and also the idea that I could achieve something that gave me the courage to apply," she says.

> **The ELS really did** help shape my journey into healthcare – it was a transformative opportunity."

Rebecca spent the award money on an immersive language course in France. "A few years later and I can speak to my clients and colleagues in French. It's something that really has made an impact," she says.

Focused on strategy

Rebecca spent time on international assignment in Japan with GSK, and upon returning to university, realised she wanted to specialise in healthcare. "The ELS really did help shape my journey into healthcare – it was a transformative opportunity that provided the critical resources and mentorship I needed to accelerate my leadership trajectory," she says. "I had access to a world-class network of engineers, industry placements, and global exposure."

Rebecca did a placement at TTP – a tech consultancy that she later joined after graduating from university. She rose to the position of a leading digital health strategist in pharma, managing a wide range of areas, from defining strategy to business development. "It was across the whole spectrum, which was amazing to get so early on in my career," she says.

Redefining standards of care

Rebecca is now Senior Portfolio Director in Oncology at AstraZeneca. She leads a diverse portfolio spanning lung, gastrointestinal, and head and neck tumour types. Her work involves overseeing a $20M internal investment fund designed to accelerate bold, high-potential ideas that could redefine standards of care and drive long-term value for patients, healthcare systems, and shareholders.

"While my title today doesn't have 'engineer' in it, the critical thinking and problem-solving mindset I developed through the ELS programme remain at the core of my work," she says. "From finding clarity

> **While my title today doesn't have 'engineer' in it,** the critical thinking and problem-solving mindset I developed through the ELS remain at the core of my work."

in complex science, to connecting the dots between research, patient needs, and commercial impact."

Advice

"Effective leadership starts with curiosity – not just the impulse to understand, but the courage to look closely, even when the answers are uncomfortable or uncertain. It is about caring enough to ask and being humble enough to listen.

Grounding ourselves and our work in empathy and connection allows us to see the people behind the challenges – our colleagues, our teams, and the lives we impact through our work– reminding us that true leadership is not just about the problems we solve but how we understand each other."

How the ELS helped...

Early validation: "The ELS gave me self-confidence, validation and inferred trust from others."

Inspiration and new horizons: "I was able to not just build a network but be inspired by everyone on the programme – people with drive, curiosity and new perspectives that pushed me to aim higher."

Ongoing connection with the Academy: "Whether I am meeting aspiring young engineers through the ELS interview process or speaking on a panel to venture capitalists looking to connect with the Cambridge ecosystem, my ongoing connection to the Academy continues to challenge and inspire me."

Richard Farquhar

Managing Director of Africa and India Regions, ALSO

Amping up the electric car industry

After starting his career with Lotus and having spent almost 15 years at McLaren Automotive engineering some of the world's best high-performance Propulsion systems, Richard joined a US based electric car company. Despite a wealth of experience and success in the automotive industry, he credits the ELS programme with inspiring him to aim high and be the best at what he does.

Sparking a deep interest

Richard was sponsored through his Master's degree in mechanical and manufacturing engineering at Queen's University of Belfast by Takata Corporation which designs, develops and manufactures automotive safety systems.

During this sponsorship period, Richard spent time in Japan with the Central Japan Railway Company working on the Shinkansen bullet trains.

He describes applying for the ELS programme as being a 'no brainer' and planned to use the funding to help him stand out. He travelled to Detroit to attend the Society of Automotive Engineers World Congress and decided to learn German through an intensive language course in Germany, which he knew would be beneficial for a career in the automotive industry.

"It was really special as people were coming from all nations to immerse themselves in the German language... it really increased my language adoption," he says. The remaining funds were used to buy technical publications and books, which he still has on his shelves.

> "**I'm a product of this scheme.** I've had a great career and am privileged to be doing some world class stuff. The ELS programme was one of the enablers for that."

Watt a career

Richard joined Lotus Cars' graduate engineering programme where he discovered what he loved doing, and what he didn't. His interest was in propulsion systems, which eventually led to a 15-year career at McLaren Automotive building and leading the powertrain team.

In 2018 Richard joined electric car company Rivian as vice president of propulsion. For six years he led a team of more than 500 engineers working on the design and development of high voltage batteries, power electronics, electric motors, electric drive trains and thermal systems for all Rivian vehicles and charging and energy products. He then took on a new role in 2024 as senior vice president, future R&D, with a strategic focus on establishing

Advice

"There are many people who get degrees and have good experiences, **but to be the best, you need to stand out**. You can do that by doing something exceptional, special things and the ELS programme is one of them," Richard says.

Rivian's business in global emerging markets.

Richard is now managing director for Africa and India at ALSO, Rivian's new global micromobility business. "At ALSO we are developing a portfolio of exciting, small electric vehicles building on Rivian's technology and expertise," he says.

Richard is responsible for building and leading an end-to-end business that is developing technology, products and services to enable the adoption, at scale, of renewable energy in transportation and electricity distribution in global emerging markets. "We are working to meet growing energy demands across the world while also offering customers lower costs of product ownership with all the benefits that come from this" he says.

Mini CV

1995 to 2000: Mechanical and manufacturing engineering MEng, Queen's University of Belfast

2000 to 2004: Joined Lotus' graduate scheme, rising to assistant vehicle project manager

2004 to 2018: Various roles at McLaren Automotive, including powertrain and vehicle engineering director

2018 to 2024: Vice president of propulsion, Rivian

2024 to 2025: Senior vice president, future R&D, Rivian

2025 to present: Managing Director of Africa and India Regions, ALSO

"I'm still deeply involved in technology and engineering and am energised by the challenge of continuing to be the best and aiming high. That really stems from the ELS programme all those years ago."

How the ELS helped...

A positive impression: "When I came to graduate, it was one of those jewels companies look for. And now, as an employer for the past 25 years, you look for those with something special on top."

The annual event: "It was a highlight to go back every year and talk about how our careers were progressing and to exchange notes."

Sparking potential: "At the time, the ELS programme highlighted to me that I had potential and I wanted to realise it. I've kept coming back to that. For example, I took on a big role at McLaren when I was relatively young and that was because I had potential. The ELS programme was a catalyst to take on new challenges."

Rowan Hewson

Director of asset management, Blackfinch Investments Ltd

From margarine to wind farms

Learning the language

Rowan used his ELS funding to learn Spanish in Ecuador, where he visited a renewable energy factory. “The ELS allowed me to travel, which was mind expanding and helped with my languages, and I learned a lot about industry and engineering too,” he says.

Going green

After leaving university, he joined Unilever’s leadership graduate programme, where he had early management opportunities. After working in several different roles, he became responsible for leading half of one of Unilever’s flagship factories making margarine. “I had 30 people reporting to me and I was only 27,” he says.

After becoming chartered, Rowan realised he wanted to change direction. “I took a step sideways and moved into renewable energy,” he says. He joined RES as a turbine engineer managing contracts and specifications for new windfarms, and then worked for several different technical consultancies advising investors on windfarm transactions.

Rowan then decided to branch out from the world of consulting, before joining green utilities company, Ecotricity, as head of operations and maintenance. He looked after a national portfolio of wind and solar generators as well as a team of people ‘on the road’ fixing turbines and providing technical support.

In 2021, Rowan became director of asset management at Blackfinch Investments Ltd where he heads up the management of their 150MW real asset portfolio of utility scale wind and solar projects. “I lead a small internal team and an extended network of contractors focussing on the technical and commercial aspects of optimising the portfolio’s performance,” he says. “I am pleased to continue my career in renewable energy, contributing towards net zero targets and being part of the crucial fight against climate change.”

Rowan has also been a fellow of the IMeche since 2021 and continues to monitor engineers towards professional chartership. “I have supported five candidates to date. I have also participated in a number of ELS selection events, supporting the interview panels and selection process, giving back to this great scheme and helping fantastic new engineering talent start their career journey.”

Advice

He urges candidates not to waste the opportunity and funding. “See it for what it can do for you rather than just a tick in the box and something for your CV. Make it your business to spend every last penny!”

Advice

Rowan’s top tip is not to be intimidated by other candidates. “Put your hat in the ring. There will be some practiced gong collectors, and for them, it [the ELS] might be another one on the wall, but for people who haven’t had so much fortune or investment in themselves, it’s a really good way of starting yourself along a path.”

How the ELS helped...

A big boost: “I wasn’t particularly confident at university. When I joined the ELS programme it was a big leg up. I was given a chance to be launched ahead of where I was confidence-wise.”

Validation: “I think the Academy gave me a sense of worth and was interested in the fact I’d chosen engineering.”

Endurance: “The ELS programme probably kept me in engineering. It was a really positive thing for me.”

Sarah Surrall

CTO, Health Navigator

From instruments and energy to digital healthcare

Work experience at a local electronics company inspired Sarah to study engineering. But it was the ELS programme that showed her how varied the profession can be and highlighted how much she enjoys problem-solving.

A healthy interest

Sarah decided to study engineering at university after taking a women in engineering course. She enrolled on the Academy's Year in Industry scheme, spending her 'gap year' working at Malvern Panalytical, a manufacturer of laboratory analytical instruments. "The Year in Industry scheme gave me a huge amount of freedom to try different things and own some projects," she says.

While there were times when she sat in meetings about scientific principles that she had not heard of, the experience came into its own at university. "When I was in maths lectures, I could see the applicability because I could remember a conversation and see that's what was going on. It was really motivating during the course," she says.

At university, Sarah joined the ELS programme, using her funding together with assistance from Malvern to spend three months working in China, where she took a month-long language course, met customers and created training videos for the company. "The placement was more focused on the commercial side and that was really good exposure for me. It was a fantastic experience and I learned a huge amount from it," she says.

> "In my first role, **the award added a lot of credibility and experience** at a point when I was very early in my career."

A move from instruments to digital healthcare

While Sarah gained valuable experience working for Malvern Panalytical before and during university, after graduating she decided to join a University of Oxford spin-out, Navetas Energy Management, which built smart meters to make itemised energy bills. "I joined that company as a researcher and became a project lead. I ran a number of different projects with them, including a fun one that involved running different appliances in my house while charging an electric car."

In 2015 she joined Oxehealth, a startup working on vision-based patient monitoring and management. At the time, the company had just started commercialising its technology. "I became the solutions lead and looked at the overall systems architecture. We didn't have a commercial team, so I also spent time going out to meet potential customers so I could feed their needs back to the technical team for

Advice

"The network of peers **can inspire you to think** about what you might be capable of."

development," she says.

Sarah spent eight years with Oxehealth where she was promoted to vice president of engineering and then again to CTO. "I had a huge range of opportunities during my time there, from developing algorithms to leading the company's COVID-19 response. It was deeply rewarding to grow my skills and experience alongside the business," she says.

Sarah joined Global Pathogen Analysis Service (GPAS) as CTO in 2023. After building a pathogen genomic analysis platform that could identify the specific antibiotic resistance of a given sample, GPAS became the first research programme at the new Ellison Institute of Technology and was renamed EIT Pathogena. "The programme's mission is to revolutionise infectious disease prevention and treatment on a global scale," she says. "It was amazing to be part of that."

She has recently joined Health Navigator, a company that uses AI to predict and prevent care needs, as CTO. "We use machine learning to predict patients who may be at risk of unplanned emergency care admissions to hospital," she explains. "Our clinical coaches then help support those patients to reduce this risk. We are currently rolling out across North East London where we will be supporting around 11,000 patients."

Mini CV

2003 to 2008: Assistant systems engineer, Malvern Instruments

2004 to 2008: Engineering and computer science, University of Oxford

2009 to 2015: Senior research developer and project lead, Navetas Energy Management

2015 to 2023: Various positions at Oxehealth, rising to CTO

2023 to 2025: EIT Pathogena (formerly GPAS), CTO

2025 to present: Health Navigator, CTO

Advice

Sarah believes students should apply because the ELS programme offers opportunities they might not otherwise be able to take advantage of.

"The network of peers can inspire you to think about what you might be capable of," she says.

How the ELS helped...

Broader horizons: "The award gave me an insight about the broader opportunities for someone with an engineering background, which has influenced the direction of my career. Without it, I would probably have stayed on the technical side of engineering," she says. "Part of what I discovered thorough the ELS programme is that I really enjoy solving problems – and those can be technical or organisational."

Job prospects: "I think that when I was interviewing at Oxehealth and in my first role, the ELS programme added a lot of credibility and experience when I was very early in my career. I don't know whether project leadership roles would have been as fast to come without it."

Lessons from workshops: "The exercises on running a business were useful and helped me consider broader viewpoints of businesses while I've been working, which has helped me to progress in my career and take on wider roles at organisations."

Friends: "I've built lasting friendships and we see each other regularly. At a previous job I persuaded one ELS programme friend to come and work with me."

© West London Mental Health NHS Trust

> **Part of what I discovered through the award** is that I really enjoy solving problems – and those can be technical or organisational."

Shafae Ali

CEO and co-founder, SHAPE SHOES, and staff mechanical design engineer, Ohsnap

Taking the unconventional path

From wearable tech to gaming on the go, Shafae's passion for innovation has led to an exciting career.

A love of wearable tech

Shafae has always loved making things. As a child he built his own workshop at home, sourcing second hand tools and equipment. But it was aged 12, after watching the science fiction film Total Recall, that his love of wearable technology began. Shafae was inspired by the idea of having a communication device implanted into the palm of one's hand. "I took a Bluetooth headset and rewired it into a glove so there was a speaker in the thumb and a microphone in the pinkie finger, allowing users to take phone calls without touching their phone," he says. "You could then tap your fingertips with your thumb to control programmable actions on your phone. I think this is where my love for wearable tech really started."

> "**To get unconventional results** you need to take the unconventional path."

Shafae studied design engineering at Imperial College London and says he felt 'guilty' at first for not choosing a more conventional engineering degree. "I always thought I needed to do traditional engineering, but I believe you should go to where your passion draws you."

A gap in the market

While at university, Shafae could see that wearable technology wasn't being taken advantage of in the UK, particularly in areas like healthcare and sport. "I really wanted to advance wearable tech and get to a place where technology truly serves us, rather than us serve it. That was the basis of my ELS application."

Shafae made the most of his ELS funding, spending it on a website portfolio, travel and accommodation during internships, and to travel to schools to host 3D printing workshops.

He credits the ELS for changing his outlook on spending money on personal development. "Growing up, I was taught to be frugal. But the ELS gave me a capital boost that allowed me to change my outlook. It taught me to invest in myself, and my career, and I still apply that mindset today," he says.

Shafae's internships included three months at Dyson, where he got to work on the Dyson Zone – a wearable device that combines noise-cancelling headphones with an air purification system. "I got to directly develop the filter presence detection mechanism, iterating the design with engineering analysis. It taught me a lot," he says. He also spent six months as a junior design engineer at Rheon Labs, working on the design of helmet inserts and athletic garments that integrate a non-Newtonian polymer, helping to absorb impact but remaining flexible and lightweight.

Shafae's ELS funding also allowed him to attend the 2020 Dubai World Expo where he networked with people across sustainability and medicine. His attendance there coincided with two of his university projects being featured in the Dubai Global Grad Show. The projects were a personal skin scanner that allows early remote diagnosis of skin diseases, and sustainable 3D printed shoes with self-healing capabilities.

The second of these projects also won a Global Footwear Award.

“Being in Dubai was an incredibly valuable experience. I made so many connections,” he says.

A step into entrepreneurship

While still at university, Shafae led one of the first projects at the student design consultancy, Dreamteam Design. “It was during the pandemic, and we were just starting to return to campus,” he explains. “We wanted to build a sense of community in a time of uncertainty, so we created branded Imperial face masks – our goal was to make students feel safe and unified. We presented the project to an executive panel at Imperial and received funding. It was my first successful entrepreneurial venture.”

After graduating, Shafae joined Samsung Research America on an internship as a mechanical design engineer, before being promoted to senior mechanical design engineer. Based in Silicon Valley, California, his ELS funding helped with his travel and accommodation expenses.

Mini CV

2018 to 2022: Design engineering, Imperial College London

2019 and 2020: Design engineer intern, Dyson

2021: Junior design engineer, RHEON LABS

2020 to 2022: Technical lead, Dreamteam Design

2022 to 2024: Mechanical design engineer intern and then senior mechanical design engineer, Samsung Research America

2024 to present: Staff mechanical design engineer, Ohsnap

2024 to present: Co-founder and CEO, SHAPE SHOES

Then in 2024, Shafae joined Ohsnap – a US-based smartphone accessory brand. He is the engineering lead for a new product called MCON, a wireless gaming controller that magnetically connects to the back of your phone. “MCON is small and can fit in your pocket, so you can game on the go. I’ve always enjoyed gaming, so it is a really fun product to work on and presents a lot of interesting engineering challenges given the new form factor.” MCON has raised $1.7million on Kickstarter so far and has already won a Red Dot Design award. The company hopes to bring the product to market in 2025.

Shafae is also the co-founder of SHAPE SHOES, a footwear company that uses 3D printing and computational design to produce shoes for artists and creatives, aiming to tell their stories through design. “I have always had a passion for innovation, and my focus is on the interaction between the digital and physical world, creating products with both function and meaning,” he says.

Advice

Shafae believes that pursuing what keeps you interested and passionate is key. “Think about what you want to leave as your mark in your career,” he says. “To get unconventional results you need to take the unconventional path – I truly believe this.”

How the ELS helped...

A new outlook on spending: “The funding allowed me to spend on my professional development without worrying about the cost. It opened up a whole new avenue for my career and changed my outlook on investing in myself.”

Network: “I have met many different people through the ELS, and I have learnt so much from them. It has opened so many doors for me.”

“[The ELS] **taught me to invest in myself, and my career**, and I still apply that mindset today.”

Tom Grundy

CEO, Hybrid Air Vehicles

Accelerating into an aerospace career

Tom embarked on an aeronautical engineering degree at the University of Bristol, and his career swiftly took off, thanks in part to the ELS programme. Tom has worked on fighter jets and jumbos. His latest venture is in low carbon aircraft.

Ready for take off

To complement his undergraduate degree, Tom joined a team competing in a university rocketry competition. "It led to standing in a wet field in Lincolnshire and launching this thing up into very low clouds. But having the joy of seeing it reappear and float back down on its parachute is a great memory," he says. He applied for the ELS programme to "open as many doors and opportunities as possible."

Among other things, the award enabled him to fly to Australia and work at the University of Sydney, where he helped build wind tunnel models and get flight simulator devices up and running. Tom also enjoyed the ELS programme residential weekends at the University of Cambridge. "That network building opportunity gave me academic insight into some of the challenges facing engineering and society, including the manufacturing sector. It was a really important part of the course," he says.

Gaining altitude

Tom joined BAE Systems when he graduated. "I was extraordinarily fortunate to join SIGMA, its fast-track scheme for accelerating engineers into positions of engineering accountability. I think the ELS programme was a big part of that because there was a high bar to entry," he says. SIGMA allowed him to move around the company, working on the Eurofighter Typhoon early on.

Tom then joined the Airbus team working on the Airbus A380 superjumbo. He then ran a programme developing big winglets, which gave him experience in systems engineering, rapid prototyping, and flight test. He rose up the ranks to become an assistant chief engineer for BAE Systems unmanned aircraft business, developing and testing UAVs in the UK and overseas.

In his final three years at BAE Systems, Tom ran the business delivering engineering and maintenance support to the Royal Air Force Tornado fleet, wherever they were based. "I'm proud that we made a big difference there. We decreased the costs of doing that job and at the same time provided more service. So that was a big programme and a big deal," he says.

New destination

For the last twelve years, Tom has been working for a smaller company – Hybrid Air Vehicles – as operations director and now CEO. The company is developing a new type of aircraft called Airlander, which is designed to deliver very low carbon emissions flight.

"We are pushing it towards being a zero emissions aircraft," Tom explains. "Our next goal is to be able to fly 10 tonnes of

Advice

"**Go for it. Meet people.** The moment that door opens, there's a great network, new opportunities and a relationship with the Royal Academy of Engineering that carries on in one way or another."

© Hybrid Air Vehicles

> **My whole career has been based on that weaving in of academic learning** and practical exercise that began with the ELS programme alongside my university studies."

equipment or 90 people with 10% of the carbon emission footprint of other aircraft. Reducing emissions is an imperative for aviation.

Airlander shows how there are new ways to deliver more services from the air with less impact – and less cost."

Mini CV

1996 to 2000: Aerospace engineering MEng, University of Bristol

2000 to 2002: Engineer, BAE Systems

2003 to 2007: MSc in advanced systems engineering, Loughborough University

2006 to 2013: Assistant chief engineer, new business project manager, head of business management – Tornado ATTAC BAE Systems

2013 to present: Various roles at Hybrid Air Vehicles, rising to CEO

2019 to 2021: Completed an MBA at the University of Cambridge

How the ELS helped...

Breadth: "The ELS programme was a really good way for me to learn about different applications within aerospace and which directions I would like my career to go in."

The network: "I still have contacts in my network [from the ELS programme] and keep up to date."

Real-world experience: "I came out of those four university years, not only with academic experience but real currency in delivering in engineering and a strong network. It bridged that gap between academic learning and practical application."

Good habits: "While I've been working, I've been awarded a second degree in advanced systems engineering and I completed an Executive MBA at Cambridge Judge Business School. That's a habit that the ELS programme drilled into me – learn and apply and carry on doing that."

Tim Bushell

Infrastructure adviser, UK Foreign Commonwealth and Development Office

Equipped for a career in infrastructure development

A global outlook

Having a strong interest in the built environment, Tim decided to build a career in structural engineering. To support his studies in civil and environmental engineering at Imperial College London, Tim used money from the ELS programme to undertake engineering-related work experience placements around the world. From an internship on the Lötschberg tunnel in Switzerland, to a bridge construction project in Bangladesh and fixing wind turbine pumps in Kenya, Tim's aim was to broaden his perspective and gain skills on the ground.

Seizing opportunities

Upon graduation, Tim spent two years working at the construction firm Sir Robert McAlpine, gaining formative site experience. He then became a chartered engineer while working at design consultancy WhitbyBird, getting a grounding in design, calculations and structural design. "They were the bedrock engineering experiences that I gained, which I chose to further in overseas work," he explains.

Next, he managed a small NGO's construction programme in Uganda, followed by doing a graduate diploma in economics. "It broadened my thinking into the underlying rationale for doing engineering projects – the economic justification, cost benefit analysis and international finances as well."

All these experiences paved the way to his present role as an infrastructure adviser in the UK Foreign Commonwealth and Development Office, where he oversees UK development funding for infrastructure such as ports, rural roads and water projects in developing countries. "I've broadened from my original engineering, construction and design training, and now use those skills in the development sector which is really interesting and impactful."

> "**The award really broadened my perspective** and that's why I'd recommend it. If you make a good case, then the support is available."

How the ELS helped...

The broader outlook of the ELS programme opened doors for Tim, because it gave him the opportunity to look at the big picture, which can be difficult when work demands your full attention.

"The initial ELS programme provided opportunities to do international work experience and planted a seed that was able to come to fruition later, once I had the practical engineering experience and professional grounding from working in UK companies," he says.

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