

**UK Electronics  
Skills Foundation**

# Annual Review 2016/17



**“Moving beyond talk about the skills shortage to take positive action is what the UKESF is all about.”**

***Stew Edmondson, CEO, UKESF***

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## Emma (UKESF Scholar 2014–17), extract from guest blog post: ‘Where are the queues for the loos?’

“I met an Engineer once who said that the best thing about being a woman in an engineering environment was that she never had to queue for the toilets. I rather like that response. It’s a silly answer to the silly question, ‘What’s it like being a female engineer?’ The text book response is, of course, two-fold: a) I’ve never been a ‘male engineer’ so I wouldn’t be able to give you a balanced comparison, and b) you would never ask a ‘male engineer’ the opposing question.

“The best thing about being an Engineer is the same, regardless of gender. The problem solving, the creativity, that feeling you get when you see an idea that existed only in your mind, however long ago, as a tangible entity that functions exactly as you designed it.”

## About the UKESF

*The UKESF’s mission is to encourage more young people to study Electronics and to pursue careers in the sector.*

**362**

Scholarships have been  
awarded since 2010

In the UK, the Electronics sector is big, valuable and growing; however, the demand for capable, employable graduates is currently outstripping supply. The UKESF is an educational charity, launched in 2010, with both public and private seed-corn funding. We operate collaboratively with major companies, leading universities and other organisations to tackle the skills shortage in the Electronics sector.

We ensure that more schoolchildren are aware of Electronics and the opportunities available, helping them to develop their interest through to university study. At university, we support undergraduates and prepare them for the workplace.

Registered charity number: SC043940

[www.ukesf.org](http://www.ukesf.org)

**80%**

Graduated scholars are  
employed by Electronics  
or Technology companies

# Introduction

*Indro Mukerjee, Chairman*

Electronics is the future and it is about innovation and creativity. I'm very proud of the UKESF. With the buy-in of key individuals in our industry, we've turned good intentions into something that is making a difference. Since we started in 2010 we've built an organization with really firm foundations and we have now begun to make further strides, as evidenced by all the activity reported in this Annual Review.



As I noted in my address at our Celebration Event in July, we know that there is more to do, but I sense that we are at a key point. We've developed a clear strategy, based on rational analysis. We believe that in the short term, at least, we must be pragmatic and aim to encourage those 16–19-year-olds who are interested in technology and studying the enabling A-level subjects. In effect, we will work to promote Electronics to those who are already interested in science and technology. We will do this working collaboratively and focusing on schools and teachers to provide them with CPD and resources to deliver the Electronics parts of the curriculum in a more engaging and effective way.

I would like to sincerely thank all our partners for their continuing support and to confirm the commitment and dedication of the UKESF team to helping to build a great future for the UK and its electronic systems capabilities.

## The Year at a Glance

**10**

the 10 leading UK universities for Electronics are UKESF partners

**120**

sixth formers attended a UKESF university taster course

**40**

A-level Physics and Computing teachers participated in Electronics CPD course

**26**

leading Electronics companies sponsoring new scholars

**62**

scholarships awarded

**48**

scholars graduated

**Double**

number of Facebook likes

**Over 500**

Twitter followers

**Double**

number of website visitors

## Executive Statement

*Stew Edmondson, CEO*

This year has been another extremely busy and rewarding one for everyone involved with the UKESF. It culminated with our celebration of the fifth anniversary of the first students graduating from our Scholarship Scheme. The event was held at The IET on 3<sup>rd</sup> of July and it was fantastic to see some of scholarship alumni again and to share the occasion with all those who have helped us.



We were especially delighted that Warren East (pictured below), CEO of Rolls-Royce, was able to join us at the event, as he had been an early supporter of the UKESF when he was the CEO at ARM. In his key note address he talked about “making the impossible, possible”. This stuck a real chord with me and I’m sure with the rest of audience. It is easy to forget just how amazing our industry is at providing innovative solutions to seemingly impossible challenges. As we say:



*“Electronics is about using technology creatively to develop innovative products to help solve problems and make people’s lives better.”*

We know that our challenge to tackle the graduate skills shortage is a potentially daunting one. Nevertheless, as this Annual Review highlights, we have generated more momentum this year, which is starting to move us forward. Our Scholarship Scheme has expanded and the range and scope of our outreach projects has grown considerably this year. With our new collaborations, we will be maintaining our efforts in 2017/18.

## Values

The core values of the UKESF are shaped by our collective beliefs; they guide how we behave and conduct our work. We will:

**Strive for Excellence.** We take pride in what we do; we deliver on our commitments and always try to our best.

**Be Collaborative.** We share ideas and work enthusiastically with our sponsors, partners and all stakeholders to achieve our aims.

**Act with Integrity.** We are open and honest, and do what we believe is best to encourage greater interest in Electronics.

**Be Passionate.** We want to inspire more children about Electronics and to support their interest through to university and into careers.

**Value Creativity.** We are forward-thinking and explore new ideas and approaches, looking for innovative ways to tackle the skills challenge.

# 2016/17 Review

## Scholar Destinations

The UKESF has **information about 120 of the 125 scholars** who have graduated since 2012.

Of those, **80% are employed by Electronics or Technology companies** and 12% are studying for a PhD or doing research at a university.

Of our ex-scholars, **50% now work for a company involved with the UKESF.**

Of the 32 scholars who graduated in 2016, **63% were made offers of graduate employment by the sponsors**, and in total 75% are working in the Electronics/Technology; a further five are studying for a PhD.

## Activities & Partnerships

### *Wiltshire Festival of Engineering*

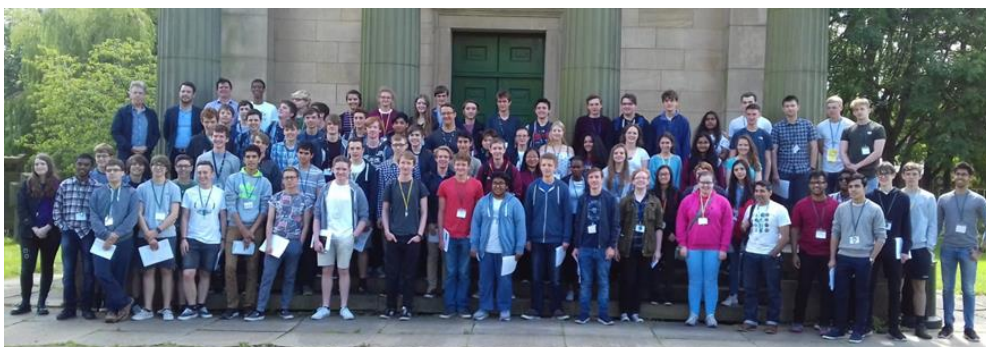
On Wednesday 28<sup>th</sup> September the UKESF took part in the first ever Wiltshire Festival of Engineering, organised by MP Michelle Donelan. Over a thousand schoolchildren and young people attended the event, which aimed to challenge the stereotypes surrounding STEM careers with a range of exciting exhibits and hands-on activities, as well as showcasing local businesses in the sector.



UKESF CEO Stew Edmondson and six volunteer scholars guided attendees through the construction of some simple hands-on projects. During the day around 60 children completed a project with the UKESF.

### *Headstart Summer School*

The UKESF-sponsored Summer School for 2016 took place in July at the University of York, organised in partnership with Headstart EDT and York's Department of Electronics. 80 STEM-focused Year 12/S5 students attended the residential week to get a first taste of university life and learn more about studying Electronics at degree level, with a variety of lectures, labs, visits and networking.





## Go4SET

118 students from 12 schools across the South-West and East of England were supported by engineers from 11 companies to take part in the fourth 'My Electronics Environment' Go4SET project. The project was developed by the UKESF in partnership with EDT, and aims to engage children aged 12–14 with hands-on design challenges that prompt them to apply STEM-related solutions to real-life problems. One participant said, "Seeing the real world of Electronics was the best bit."



## RF Engineering & Communications Competition

Launched in partnership with the Radio Communications Foundation and supported by Leonardo, this new annual competition is open to undergraduates who are completing their major individual project with a principal focus on RF. 2017's winner was Mihnea Trifan (Sheffield), who received £1,000, with two runners up, Samantha Heyes (Loughborough) and Rob Astill (Bath), receiving £500 each; all three are going to help promote this area of engineering.



### Samantha Heyes, RF Eng & Comms Competition finalist

"It was encouraging to know that my project was of interest to those judging and in this instance it was being looked at in the 'real world' and not for marks at university. It gave me a major confidence boost to have got so far in the competition and made the effort I put into the project feel worthwhile – it was a lovely ending to my degree."

## Skills 4 UK Scholar's Award

The inaugural Skills 4 UK Scholar's Award was presented to Keerthi Mukku at the NMI Awards & Gala Dinner. Keerthi studied at the University of Surrey and was sponsored by Renesas, she received a place on Skills 4 UK's award-winning Career Development Programme, as well as additional coaching. The award is open exclusively to final-year female scholars and takes into account academic performance, placement feedback and STEM-awareness contribution. Keerthi has now gone to a graduate position in Cambridge with another of our sponsor companies, Qualcomm.



### *Scholar of the Year Award*

Scholar of the Year 2016 was awarded for the first time to a female undergraduate, Joanna Taylor, who studied at the University of Bristol and was sponsored by Imagination Technologies. Joanna received a trophy and a cheque for £500 at the NMI Awards & Gala Dinner, where she also spoke alongside Stew Edmondson. Joanna has recently accepted a position in product engineering at Graphcore, an exciting start-up company in Bristol.

### *Scholar Workshop*

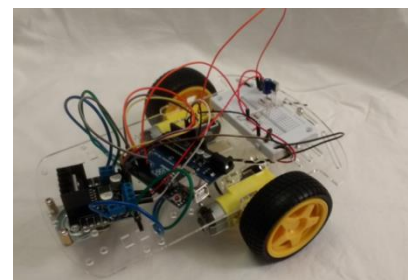
The Scholar Workshop 2016 took place in September, with more than 50 UKESF scholars travelling to the University of York to take part in the residential event. The programme featured a range of professional and personal development sessions delivered by outstanding consultants and executive coaches. More than half of the workshop attendees rated their overall experience as being 'excellent', the highest possible score, on their evaluation forms.



### *The Smallpeice Trust*

This year we have extended our partnership with The Smallpeice Trust with two activities undertaken in the summer term. We organised a residential course in Biomedical Electronics for 40 16–18-year-olds, hosted by Cardiff University. Biomedical Electronics is a rapidly growing area of societal interest. We were delighted that this course was attended by equal numbers of male and female students.

With support from ARM, we also organised an 'Ignition' course for 48 Year 9 pupils, held at the University of Sheffield in July. The course was centred around a 'Mars rover' scenario, with the pupils building and programming a remote-controlled rover buggy.



## WES Student Conference

We offered four all-expenses-paid spaces at the Women's Engineering Society (WES) Student Conference 2016 to our final year female scholars, to support their development as they move into the next phase of their careers. This annual event brings together over 150 students and engineers to celebrate a shared passion for engineering and technology, providing an opportunity to network, gain insight into emerging technologies, improve career confidence and learn from a range of workshops, panel discussions and activities. Feedback from our attendees was overwhelmingly positive.

### **Mara, UKESF Scholar 2014–17, WES Student Conference attendee**

“My favourite part about the conference was that it was all about equality and that it showed the benefit of having a more diverse working environment. Its aim was to give confidence to the attendees and to make them aware of the support available and the current activities that encourage girls to pursue a career in STEM.”

## Electronics Project for Physics A-level

The UKESF has been working in partnership with the University of Southampton on a project featuring the 'Music Mixer' circuit board, a hands-on activity that teaches core Electronics concepts for A-level Physics students.

As part of a project funded by The IET through the Engineering Education Grant Scheme, the UKESF provided 36 schools with classroom kits (15 circuit boards) and supporting materials, as well as the delivery of a two-day residential CPD course for teachers over the summer.



The teaching tool is centred around the 'Music Mixer' circuit, which combines two audio signals, for example music from mobile phones, and encourages students to control the volume by



experimenting with different electronic components, thus learning about electronic sensors (e.g. LDRs) and resistor dividers. The design exposes all components and demystifies the electronics for the students. The board also has dedicated sections for determining Planck's constant by measuring and plotting the voltage and current through four differently coloured LEDs, in addition to experimenting with capacitor discharge.

### **Keith Matheson-McLaughlin, Joint Head of Physics, Graveney School**

“The board is a great teaching tool. Having the devices on a PCB allows the learner to focus on changing parameters, taking values and getting a real understanding. No time is lost to fiddling with wires ... This board is brilliant – I love it and know it is a fantastic piece of kit.”



### *UKESF Website*

February 2017 marked one year since the relaunch of our website. A comparison of site analytics from January 2016 and January 2017 demonstrated that active sessions, unique users and individual page views have all quadrupled in number, confirming the relaunch to be a resounding success. Increased social media posts and interaction, along with a regular quarterly newsletter, have all contributed to keeping people up to date with the UKESF and driving traffic to our site

### *Fundraising at the NMI Awards & Gala Dinner*

In November we held a Prize Draw for the first time, at the annual NMI Awards and Gala Dinner, to raise funds to support our vital work in the Electronics sector. The generosity of the attendees raised an incredible £6,000 for the UKESF! The funds have been channelled into hands-on STEM activities for children, summer schools for A-level students, professional development for UKESF scholars, and much more.

## **Income & Expenditure**

### *Income 2016/17 (2015/16)*

Sponsorship and Donations – £102,900 (£60,521)

Scholarship Scheme (bursaries, management fees and workshop fees) – £293,902 (£354,832)

### *Expenditure 2016/17 (2015/16)*

Scholarship Scheme (bursaries and workshop) – £250,271 (£263,919)

Educational Activities – £50,387 (£63,400)

## With Thanks To...

The UKESF Steering Board and our Trustees: Indro Mukerjee, Dr Derek Boyd, Andrew Repton and Lynn Tomkins

Strategic Advisory Group members, scholarship-sponsoring companies and all our partner universities

All the organisations that we've collaborated with: TechWorks, Blackwell's, Skills 4 Ltd, The Engineering Development Trust, The IET, The Radio Communications Foundation, The Smallpeice Trust, The WISE Campaign

All these individuals and companies who have helped the UKESF:

Bill Simpson and his team at BHD Creative

Ben Camm-Jones and everyone at Clarity PR

Jeremy Smith and Mathys & Squire

Darren Race at Think Eleven

Neil Dickins at IC Resources, for sponsoring the UKESF Scholar of the Year Award

Special thanks to the following companies for their donations this year: ARM, AWE, Dialog, Infineon and Qualcomm

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