



Who inspired you?

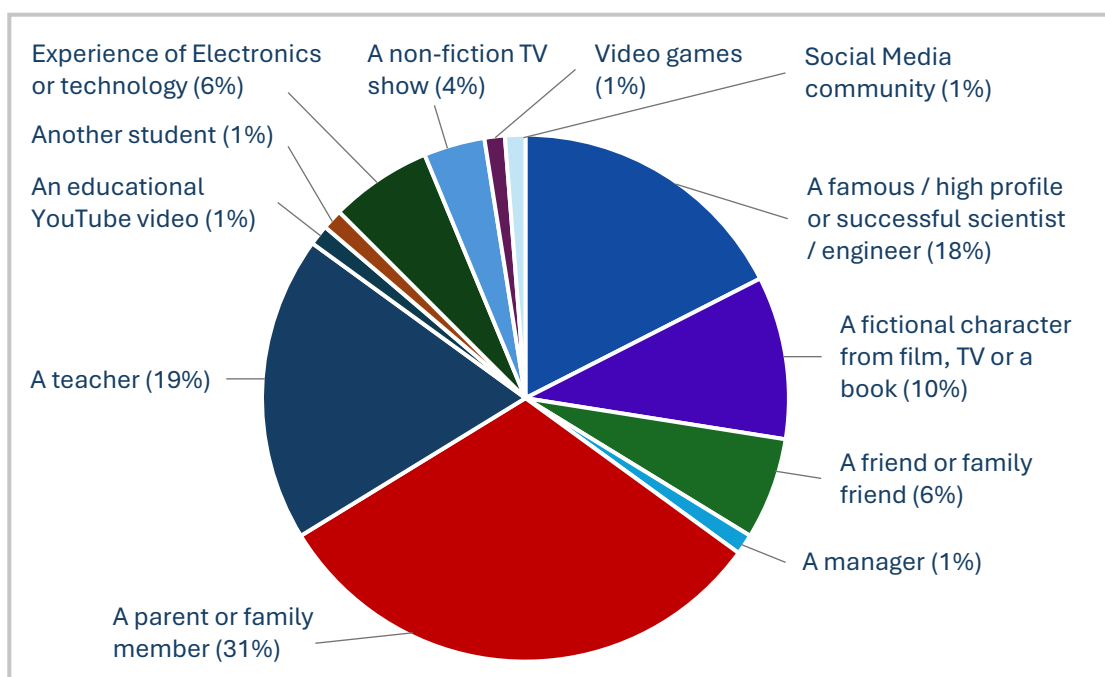
Understanding undergraduate and early career engineers' motivations for choosing Electronics

At the UKESF, our charitable purpose is to encourage more young people to study Electronics and to pursue careers in the sector.

We are working tirelessly to ensure that more young people are aware of Electronics, and we are part of a wider ecosystem of organisations that are working together to inspire the next generation with STEM.

This made us think... *who or what has actually inspired young engineers?*

We have undertaken some research to find out. We have surveyed early career engineers, who have either applied for or received a UKESF Scholarship, and are either studying for, or have graduated from, an Electrical and Electronics Engineering or related degree. We asked them to tell us who, or what, inspired them to choose Electronics. The results surprised us!



31% of respondents were inspired by their parents or a family member

Of those who provided more details about their inspiration:

- 44% mentioned their father was their inspiration, and 16% mentioned their mother was their inspiration.
- 28% mentioned that their parent or grandparent is an engineer.



“Dad always took time to tinker with me, whether it was putting together every possible circuit in an electronics kit or helping me to add new add-on cars to a racing game. Some of my earliest memories were sitting down to the first 3D accelerated games available on PC, on a computer that we built together!

The passion he inspired has never left me, I went to work directly on GPUs as soon as I could; I simply had to know how those striking 3D graphics were made possible.

He's been my number 1 ambassador all through my life and career, no question he wouldn't answer, no project we couldn't tackle together.

Thank you, Dad.”

Amrik Sadhra, Arm Ltd.



“My grandpa and mum are both engineers and they always showed me about the engineering they do. A friend recommended an electronics starter kit that he found fun, and I got stuck straight in.”

Callum Powell, University of Birmingham



“From a young age, I was exposed to technology through computers and phones, as my dad would always try and buy new gadgets and I would get the hand-me-downs.

I still remember my first laptop, which had a 180 degree rotating screen and a touch pen (very fancy for the early 2000s). I instantly fell in love with computers and always wanted to learn more about them. My Dad would often buy broken devices and repair them, which allowed me to take a first-hand look at some of the electronics, which really peaked my interest. Often, these devices were not the most reliable, which while annoying, did also teach me a lot about debugging and what can go wrong!

Since then, I was lucky enough to study Electronics at school, which furthered my interest and gave me a new technical perspective on Electronics.”

Henry Sands-Grant, Renesas Electronics



19% of respondents were inspired by their teacher

- Teachers of Physics, Maths, Computer Science, and Design Technology were all cited as inspirations.



“I wouldn't have ended up where I am today without one of my maths teachers giving me the confidence to take A Level Further Maths. I remember finishing Year 11 and not being sure that I was good enough at maths to take the further option and do well. But my teacher really encouraged me to do it and it went really well, and enabled me to follow the path into Electrical Engineering that I am on now. The teacher's encouragement and belief in me was what I needed to believe in myself too, and I have taken that confidence forwards into my degree.”

Cassia Taylor



“I've had an interest in science since I can remember but my year 10 Physics teacher, Mr. Chohan, was the person who inspired me to pursue STEM in further education. His passion for physics and teaching really shone through and I left every lesson feeling energised and motivated to learn more.”

Qali Mohamoud, Aston University



“From quite a young age I was interested in making things, which developed into an interest in computer science. As time went on, I began to have an interest in making things, from doing woodwork with family. I was later suggested trying out a hackspace/ makerspace by my secondary school computer science teacher, and the rest is history really! The space allowed me to get hands on with tools, such as laser cutters, soldering irons, 3D printers and more, giving me a space to learn and make.

Electronics became the perfect medium of the want for hands on projects while using processes and programming methods learnt from my interest in computer science!”

William Burbidge, University of York (Placement with Microelectronics Support Centre)

18% of respondents were inspired by a famous, high profile, or successful engineer

Inspirations included:

- Entrepreneurs and business people, such as Steve Jobs, Steve Wozniac and Bill Gates
- YouTubers, including Tom Scott, Ben Eater, Michael Reeves, Mehdi Sadaghdar
- Famous scientists or engineers, including Max Tegmark and Thomas Edison



“Mehdi Sadaghdar is an electrical engineer who makes fun and informative YouTube videos. I started watching them when I was in secondary school and learned a lot of interesting facts about how electronics works, and the physics and chemistry that underly it. His explanations were a major inspiration in helping me decide to go on to study Electronics and Electrical Engineering.”

Kaitlyn White, University of Southampton



“Max Tegmark and his works really gave me aspirations for what I want to achieve with my career!”

Anonymous

10% of respondents were inspired by a fictional character from a film, tv or book

- Depictions of engineers in film and TV were cited as inspirations, from a Bollywood movie called "Three Idiots", to Tony Stark.
- Depictions of engineering in film and TV, such as Robots.

6% of respondents were inspired by their experience of Electronics

Several respondents said they were inspired by their interactions with Electronics either in day-to-day life or through School or STEM clubs.



“I was inspired by a project creating a spoon for someone with Parkinson's that counteracted their tremors. The fact that engineering such a seemingly simple device could have such a profound impact on someone's quality of life really appealed to me.”

Lucy Hodgins, University of Southampton



“Comparing a PC or phone from 2000 with those developed by 2015 let alone those in 2024. It makes you think what the next 20 years will look like - and it makes you want to be involved in it.”

Matthew Cossins, cellXica Ltd



“During Cambridge Science Week, my primary school after-school club ran a series of STEM-related demonstrations and activities. One year, one of these was a demo of a load of robots, some off-the-shelf and some made by the demonstrator. I thought this was really cool, as up until that point robots had mostly only existed in cartoons. This initially kindled my interest in robotics, and electronics more generally.”

Ben Huggett, CMR Surgical

Other inspirations



“Maria, one of the girls in the year above me at school, was awarded the prestigious Arkwright Scholarship one year. This absolutely opened my eyes to the world of Engineering, as she gave me solid proof that girls, too, could succeed in the field! Fuelled by her success, my D&T teachers Simon and Gregor encouraged me to apply the following year, and I was delighted to be the second girl in my school to get an Arkwright Scholarship! The Arkwright Scheme encouraged me to explore the neverending possibilities within Engineering and discover what I'd enjoy the most, and their offer for a place on a UKESF Headstart EDT course cemented my decision to pursue Electronics.”

Oana Lazar, University of Southampton/Tessent Embedded Analytics



“It was actually Top Gear that first sparked my love of engineering, and started my interest in cars and mechanical engineering. Since joining university, my interests have moved toward electrical engineering, but that was the basis that swayed me towards engineering in the first place.”

Henry Wall, University of Cambridge



“People like Ben Heck, Make magazine, and many others that have made creation accessible to all”

Anonymous



Inspiring others to pursue Electronics

Alongside asking what inspired those who completed the survey what inspired them, we asked them what they would say to inspire others to pursue Electronics:

- 50% of respondents mention enjoyment of the subject
- 40% of respondents mention the opportunities that Electronics offer
- 35% of respondents mention making the world a better place or impact on society



“Electronics allows you to have a deeper understanding of the devices you use every day, and the opportunity to have an impact on devices of the future, whether that be helping improve energy efficiency to tackle climate change or more accessible medical devices!”

William Burbidge, University of York / Microelectronics Support Centre -MSC



“Electronics is like magic, turning ideas into reality and allowing anyone, no matter your socioeconomic background, to create and innovate. With passion and creativity, you can use electronics to solve problems and make a positive impact on the world.”

Kenville Haynes, University of Bath



“Despite having studied the same Electronic Engineering course at the same university, I don't know any two people in my cohort who have the same job. In fact, our careers are so diverse even just a year or two on, that I'm certain we wouldn't be able to swap jobs even for a day, despite having the same background. When we say that the possibilities within Electronics are endless - we truly mean it!”

Oana Lazar, University of Southampton/Tessent Embedded Analytics



“Electronics gives you the opportunity to work on anything - from aeroplanes to the tiniest chip in a piece of electronics. The sky is the limit, and it's really cool to be involved with something that is so fundamental to so much of our daily lives.”

Cassia Taylor

Conclusion

Encouraging more young people to study Electronics and to pursue careers in the sector is one of the charitable purposes of the UKESF. We want to inspire the next generation with Engineering and Technology, and to do this, we sought to better understand who, or what, inspired the current generation of students and recent graduates. We received 80 responses.

The main conclusion from our research is that parental encouragement is the biggest factor. Having a parent as an engineer, or a parent that shows interest in experimenting or 'tinkering' with engineering, was one of the main inspirations to pursue a degree or career in Electronics and Engineering.

The responses to the survey clearly demonstrate that representation matters – whether that be in the home or, more widely, in popular culture. Inspirations in popular culture come from a variety of places, from films to cartoons to YouTubers. Seeing Engineers and the fascinating work they do represented on TV and online improves access to Engineering.

For around a fifth of respondents, teachers also play an integral role in inspiring them. This resonates with our own experiences and shows the importance of supporting teachers to deliver their lessons in an engaging and purposeful way. Doing this should help encourage more young people into Electronics and Engineering.

UK Electronics Skills Foundation

We are the voice for skills in the Electronics Industry. Through engagement with Schools, Universities and Industry, it is our mission to encourage more young people to study Electronics and to pursue careers in the sector.

We are an independent charity working to address the skills gap in the UK Electronics sector through raising awareness, promoting interest in young people, supporting the development of those who choose electronics, and building relationships to ensure a thriving sector.

This can only be achieved by working collaboratively, and to date, we have worked with more than 90 employers from across the industry, 29 of the UK's leading universities, and over 800 schools.

ukesf.org
01285 862381
info@ukesf.org

North End House
Ashton Keynes
Wiltshire, SN6 6QR

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