



University of Essex

**IDENTICAL  
TWINS?**

ALUMNA TUESDAY  
WATTS-OVERALL  
TALKS SEXUALITY  
AND GENETICS

**ESSEX  
EFFECT**



**ESSEX IN NUMBERS**

East 15 Acting School, Loughton

**NO. 1** FOR DRAMA IN THE TIMES GOOD UNIVERSITY GUIDE

**30** MINUTES FROM CENTRAL LONDON

OVER **£16m** INVESTED IN PURPOSE-BUILT FACILITIES

ONE THEATRE AND MORE THAN **20** REHEARSAL SPACES

AROUND **100** LIVE PERFORMANCES STAGED EVERY YEAR

**C**hallenging. Bold. Authentic. Inquisitive. All attributes we aspire to at Essex, where difference is celebrated and compassion encouraged. Perhaps that's why we have such a strong heritage of progressive values, both in terms of academic research and student life. In this issue we feature alumna Tuesday Watts-Overall's research into the sexual identity of twins, and take a look at LGBT+ life on campus in Memory Lane.

You can read incredible alumni stories, including that of Peta Bayley – who grew up in small-town Canada and went on to become an award-winning animator – and Martin Galpin who tells us about life as a software engineer at Red Bull Racing.

Find out how our research is addressing global challenges such as blood shortages, and what our students are doing to change the world.

As ever, we hope that reading about campus news, student stories and research breakthroughs will help you stay connected to Essex, and perhaps even inspire you to get in touch and tell us your story.

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9 Grounds staff steer Wivenhoe Park to awards success



10 Life as an animator: Peta Bayley



12 Find out how graduates are making an impact



14 Students making a difference around the world

## LIFE ON MARS?

Microbes entombed in salt deposits deep beneath the Mediterranean Sea may hold the answer to the age-old question of whether there is life on Mars. Our microbiology experts are undertaking a four-year project into the longevity of these salt-loving microbes, which could give a better understanding of what could be contained in salts identified on Mars. Lead researcher Dr Terry McGenity explained, "Salt crystals can be up to 5% liquid and microbes can live in pockets of brine within the salt. On Mars there is no obvious water available for life but there is evidence of salt which could hold evidence of past life."

**Dr Terry McGenity, School of Biological Sciences**



## CHILDREN'S FITNESS LEVELS FALLING FAST

Worrying research which showed UK children are becoming less fit and at a faster rate than ever before made national and international headlines this year. On average, muscle strength and endurance in 10 year olds has fallen by up to 30% over the course of the 16-year study. Dr Gavin Sandercock explained, "The findings speak for themselves. Year-on-year we find lower and lower fitness levels suggesting children are doing less exercise. Inactive lifestyles are a health risk and physical fitness is the single best measure of health in childhood, adolescence and on into adulthood. Poor fitness leads to multiple health problems in adult life." He added that increasing fitness testing in schools would lead to a more accurate picture of children's health.



**Dr Gavin Sandercock, School of Sport, Rehabilitation and Exercise Sciences**

## VICTORIANS BETTER AT REHABILITATION

Re-offending rates among young people in the past were much lower than they are today. Research co-authored by Professor Pam Cox identifies consistent 'aftercare' and a job to walk into as key reasons why the Victorians may have done a better job of rehabilitating young offenders than we do today. In Victorian times, only 22% reoffended after release – and only 4% went on to commit more serious offences. Today, the reoffending rate for those who've been through our youth justice institutions is over 50%. Professor Cox explains, "With no means to guarantee 'through the gate employment' and a more fragmented support network, it's hard to see how our current system can succeed in rehabilitating young people". The book contains the first ever-cradle-to-grave study of children in the early English juvenile justice system.

**Professor Pam Cox, Department of Sociology**



## PREDICTING CONFLICT

There's a new Regius Professor of Political Science in our Department of Government. This professorship was first conferred on Essex by the Queen in 2013 in recognition of 50 years of excellence in the field. It's now held by Professor Kristian Gleditsch, an expert in peace and conflict, who's researching using artificial intelligence to predict war, so conflicts can be resolved before violence erupts. He says, "Our current systems for predicting conflict are just not sophisticated enough. Future systems need to offer explanations for violence and strategies for preventing it."



**Professor Kristian Gleditsch,**  
Department of Government



## RESEARCH REVEALS DNA OF 'PRINCES IN THE TOWER'



Historian John Ashdown-Hill, whose research was crucial in identifying the remains of Richard III, revealed the mitochondrial DNA of the so-called 'Princes in the Tower.' The discovery has made it possible for the first time to prove whether bones held in Westminster Abbey are those of Edward V and his brother Richard of Shrewsbury, Duke of York, the only sons of Edward IV. After helping academic Glen Moran prove that opera singer Elizabeth Roberts is a descendant of the boys, Dr Ashdown-Hill's findings were published in his book *The Mythology of the Princes in the Tower* posthumously. He sadly died in May 2018.



**Dr John Ashdown-Hill MBE, PhD History 2008**

## SHAPING THE GLOBAL DEBATE ON AUTONOMY



Mental and physical disability can mean people struggle to make or communicate decisions about their own care, and healthcare workers face dilemmas in balancing care with respect for a person's right to choose. Professor Wayne Martin, from our School of Philosophy and Art History, has been leading the Essex Autonomy Project which aims to support professionals in healthcare with their decisions, and has informed a recent review by the Ministry of Justice into whether the UK's legislation complies with the UN Convention on the Rights of Persons with Disabilities.



**Professor Wayne Martin, School of Philosophy and Art History**

### IN BRIEF

It's been an amazing year for Essex...

#### 100,000TH GRADUATE

There was extra cause for celebration at Graduation 2018. Sofie Samuelsson became our 100,000th graduate when she received her Masters in Linguistics. Sofie is currently working at Universal Web Design, based at the University's Knowledge Gateway.



#### MUSTARD THE MOVIE

Dr John Haynes, a lecturer in our Department of Literature, Film, and Theatre Studies, has put together a website and documentary about the "traumatic but defining" events of 1968, when student protests brought the University to a standstill. Find out more at [mustardthemovie.org](http://mustardthemovie.org).



#### DON'T WORRY, YOU'RE LIKED

Working with academics at Cornell, Harvard and Yale, Dr Gillian Sandstrom from the Department of Psychology has found that many of our insecurities about meeting new people are unfounded. In fact, strangers like us much more than we anticipate.



#### CHANGE OF APPROACH

An Essex mental health expert is campaigning for a fundamental rethink of UK depression treatment guidelines. Dr Susan McPherson, working with mental health organisations and doctors, says draft guidelines from the National Institute for Health and Care Excellence aren't fit for purpose and could harm patients.



#### STUDENTS ADVISE

Essex students working on an Amnesty International project to verify alleged human rights abuses published on social media have produced a guidebook for fellow investigators. The guide is helping people across the world who use open source information to document and report on crimes.



To find out more about these stories: [www.essex.ac.uk/news](http://www.essex.ac.uk/news)

## WORKING WITH BUSINESS



Essex is now top 10 in the UK for our number of collaborations known as Knowledge Transfer Partnerships (KTPs). KTPs are an established and successful initiative funded by Innovate UK and Research Councils UK that bring together business and academic research expertise to develop innovative, technology-driven new products and services. A high-calibre postgraduate is recruited to work within a business managing a particular project, facilitating the collaboration with researchers at Essex. This is great for the student, who gets hands-on experience in the commercial sector, and great for our business partners who get help accessing our expertise and facilities. Pictured above, London tech company Signal Media with Professor Udo Kruschwitz.

## ESSEX SHORTLISTED



Essex is on the shortlist for University of the Year in the Times Higher Education Awards 2018 – the most prestigious awards in the sector. We're going from strength to strength, welcoming a record number of students this academic year and also attracting record levels of research funding. We're seen as a sector leader on key issues, including being the first university to take action to close the gender pay gap for staff. At the same time we're one of just a handful of universities to be recognised by government assessments of excellence in both education and research. Our Vice-Chancellor Professor Anthony Forster said, "I'm really proud to see the University shortlisted as University of the Year."



**SQUARE 1  
SCIENCE HUB**

In autumn 2018, we started using the new £13.2m STEM (science, technology, engineering and maths) Centre on our Colchester Campus. The five-storey building includes a 200-seat learning space, an exhibition space, labs, a new café, and a 180-seat wet lab for biological sciences students. Professor Philip Mullineaux, Head of our School of Biological Sciences, says, "We have bags more room, and all of us in the Faculty of Science and Health have a new home, with meeting and exhibition spaces. We hope this means that students and staff from each of our departments will mix more and learn from each other."



**WIVENHOE PARK  
HONOURED**

Wivenhoe Park has been named one of the nation's favourite parks, winning a top 10 place in the Green Flag Award People's Choice vote covering more than 1,500 parks and green spaces. Essex Grounds Manager Marcus Clayton called the award "absolutely fantastic. I'm lucky to be the custodian of this historic parkland. It's a huge honour, and I couldn't do it without my team." As well as over 2,800 trees – including a 300-year-old English Oak, a rare Japanese Chestnut Oak, and a magnificent Cedar of Lebanon – Wivenhoe Park is home to grasslands, woodland and reed beds, and has three man-made lakes which attract a number of waterfowl and wader species.



**HI-TECH HOTHOUSE**

As *Essex Effect* goes to press, we're finishing another project... Our Innovation Centre opens in 2019, and will provide space and hands-on start-up support for 50 businesses and organisations. It joins a thriving community of 20 small businesses at our Parkside Office Village, many of them set up by, or employing, Essex students and alumni. The plan is eventually to see 2,000 people working on the Knowledge Gateway on our Colchester Campus.

# ART IMITATING LIFE

Alumna Peta Bayley has worked on some of the most successful and award-winning animated movies of the last decade

## I GREW UP ON A FARM OUTSIDE

**A SMALL VILLAGE IN CANADA**, with my brother and sister, and an extended family of step-sisters and step-brothers. My mother is an amazing artist, my father has always been full of unique business ideas, and my sister and brother are creative, too. I couldn't have had better role models.

## I STUDIED ANTHROPOLOGY AND

**ARCHAEOLOGY** at McGill University without much thought to where that would lead. I met incredible people and had a wild time falling in love with Montreal and its musical scene. My favourite lecturer introduced me to the work of neurologist Oliver Sacks.

## I JOINED MY FATHER'S ICE

**SCULPTURE COMPANY** after university, designing ice carvings and making pictures with fruit and vegetables suspended in the crystal clear blocks. I would carve and shape the fruit, gluing pieces down and layering the composition in as the blocks were freezing. For a challenge I once spent nine hours making a three-foot dollar bill out of green veggies and a carved honeydew melon for the Queen's head.

## I WANTED TO LEARN MORE ABOUT

**THE WAY OUR MINDS WORK** and study cases like Oliver Sacks had described, so I came to Essex for my Cognitive Neuropsychology MSc. Again, I didn't put too much thought into the outcome, I was just fascinated by the subject matter and wanted to go somewhere new. I met some great people and had some laughs out and about in Colchester. My favourite course was on visual perception with Peter Bex [now at Northeastern, Boston], who I worked with on my dissertation related to 3D motion perception. The way our visual system works still boggles my mind.

## I STARTED A DOCTORATE

, but I was missing my creative calling. I was studying Psychology in Toronto, doing experiments with stereo Imax technology, and I found myself enjoying the stimulus more than the research. After years in academia, and in debt, I stumbled on a 3D animation course. From the moment I started bouncing a ball in Maya [animation software] and bringing something to life through motion I was hooked.

## I'VE BEEN WORKING IN ANIMATION

**SINCE 2002**, and I've worked with – and learned from – artists from all over the world on visual effects for films like *The Chronicles of Narnia* (2008, 2010), *Guardians of the Galaxy* (2014) and *The Jungle Book* (2016). Our projects can range from a few to well over 1,500 shots on a film, each one with its unique challenges. As animators, we study all kinds of animals, people, and objects in motion, and try to understand what motivates or limits them, and how to tell their story through motion.

## I MISS ANIMATING CHARACTERS

as an animation supervisor, but I find it incredibly satisfying to bring a character to life in a scene with live actors and have them occupy the same physical world in a way the audience can accept as reality. With the success of *The Jungle Book* in 2016, I feel it was the first time people outside this industry could appreciate that challenge, and start to understand the amount of work behind many of the films you see. I am so proud of that work.

## MY CAREER HAS GONE IN SOME

**INTERESTING DIRECTIONS**, but there have been common threads, and my time at Essex was part of what led me to where I am now.

## I CAN'T DISCUSS MY LATEST PROJECT

but look out for it in theatres next April! ■  
**Peta Bayley, MSc Cognitive Neuropsychology 2000**

Animation and live action blend seamlessly in *Guardians of the Galaxy* (2014)



“I wanted to learn more about the way our minds work”

## PETA'S KEY DATES

- 1996 BA Anthropology, McGill University
- 1999 MSc Cognitive Neuropsychology with distinction, University of Essex
- 2002 3D Digital Animation (Maya) postgraduate certificate, Seneca College, Toronto
- 2007 Joined the Moving Picture Company (MPC) as an animator
- 2011 Visual Effects Society award nominee: Outstanding Animated Character in a Live Action Feature Motion Picture for Reepicheep in *The Chronicles of Narnia: The Voyage of the Dawn Treader*
- 2012-2013 First maternity leave
- 2016 *The Jungle Book* wins an Oscar for Best Visual Effects and BAFTA for Special Visual Effects
- 2017 ANNIE (International Animated Film Association) award winner: Outstanding Achievement in Character Animation in a Live Action Production – *The Jungle Book*
- 2017-2018 Second maternity leave



Peta at the BAFTAs

# ONES TO WATCH

We talk to wildlife film-maker Sarah Walsh, fashion entrepreneur Aaron Jones and healthcare innovator Chantelle Bell

## SARAH WALSH

Wildlife film-maker

"I was always an outdoorsy kid," Sarah says. "We went to Turkey when I was 13, and my mum and dad just wanted to sit on the beach. I did a course and learnt to scuba dive. There were exams every night, but I just loved the ocean. I never thought I'd work in television."

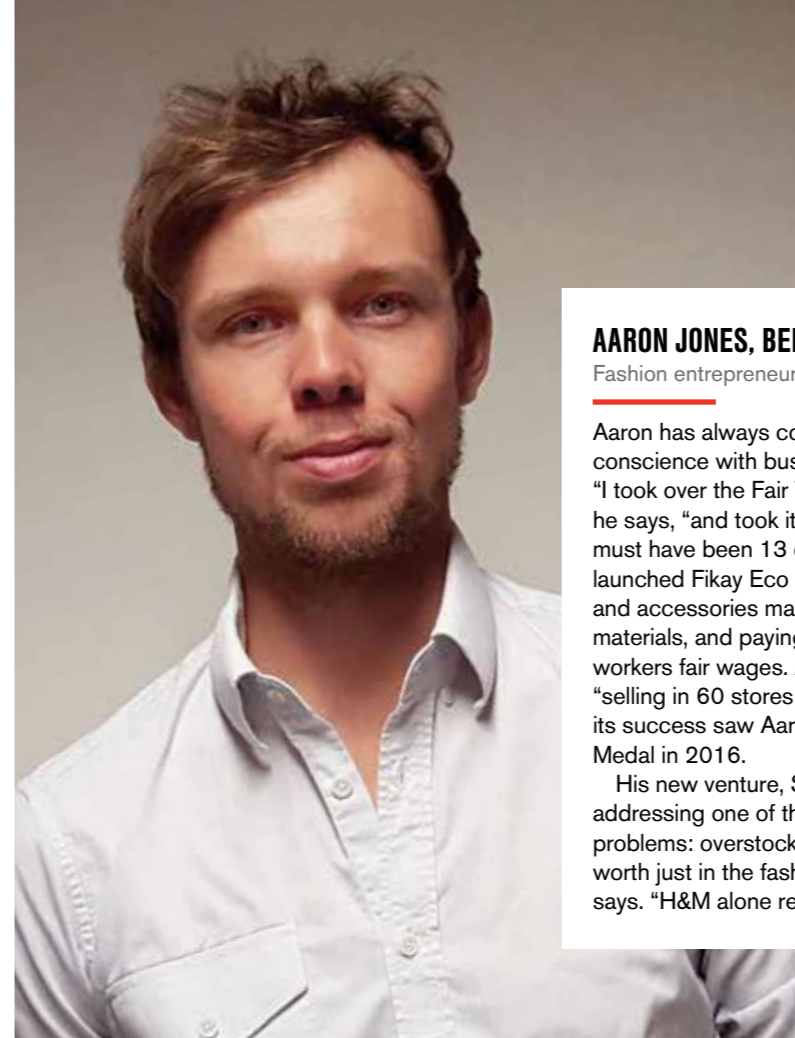
A chance encounter changed things. "I did a Masters in 2011. It was the year *Frozen Planet* had come out, and I started talking on Twitter to one of the scientists who worked on it, and asked him how he got involved. He said I should get in touch with the series producer – and he invited me to the BBC's Natural History Unit in Bristol!"

A contact Sarah made there was working on *Miniature Britain*, "and she invited me to give them some advice. I was

never meant to be on screen." She found herself, though, in front of the camera examining miniature coastal organisms with presenter George McGavin (pictured below).

"I felt very enthused, but getting into TV is 10% intelligence and 90% perseverance." After the PhD, she got work experience at the BBC, "but nothing long term. After 18 months, when I had to decide whether to continue or not, I got two offers at once: a job at the Marine Conservation Society, or four weeks on *Planet Earth II*. I took that and it became nearly a year. I'm now working for Silverback Films, making big, landmark series for the BBC, Netflix and Disney."

**BSc Marine and Freshwater Biology 2009, PhD Marine Biology 2015**



## AARON JONES, BEM

Fashion entrepreneur

Aaron has always combined social conscience with business acumen. "I took over the Fair Trade stand at school," he says, "and took it from loss to profit. I must have been 13 or 14." At Essex, he launched Fikay Eco Fashion, selling bags and accessories made from recycled materials, and paying his Cambodian workers fair wages. At its height, Fikay was "selling in 60 stores in six countries," and its success saw Aaron win a British Empire Medal in 2016.

His new venture, See Fashion, sees him addressing one of the industry's biggest problems: overstock. "There's \$110bn worth just in the fashion industry," Aaron says. "H&M alone reports having \$4.3bn of

overstock. We're addressing it using data and artificial intelligence to help retailers understand and use customer intent in real time. Our personalisation platform allows retailers to deliver targeted messages in milliseconds that speak to a shopper's individual style and mission. The result is a personal shopping experience that increases sales and reduces waste."

They have investment from some big names in fashion, and Aaron has an ethos which any aspiring entrepreneur can benefit from. "The way to build a great team," he says, "is to hire people smarter than you."

**BSc International Enterprise and Business Development 2014, Alumnus of the Year 2018**

## "We both wanted to do something in women's health"

## CHANTELLE BELL

Healthcare innovator

What if you could do a test for cervical cancer in your own home, like a pregnancy test? Screening can prevent around 70% of cervical cancer cases but screening numbers are falling, because smear tests are so uncomfortable. Chantelle founded Syrona Women with her friend Anya Roy to tackle the problem.

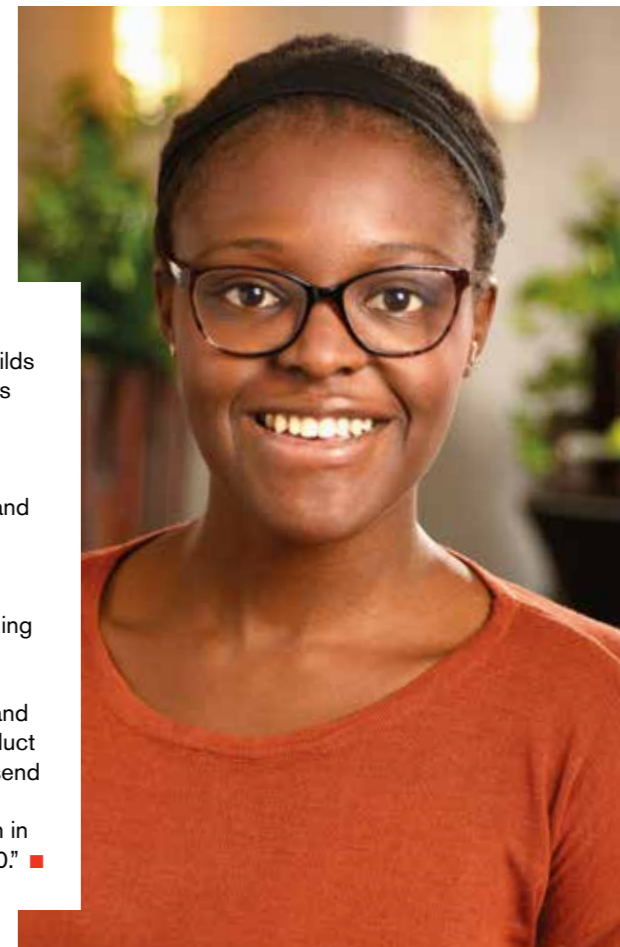
Chantelle was interested in genetics because "I was diagnosed with adolescent idiopathic scoliosis. There's no known cause. It's probably genetic, but it hasn't been identified yet." Anya, who she met at Cambridge, where they both did a Masters, was diagnosed with ovarian cancer in her early 20s, and believes early detection saved her life. Chantelle says, "we wanted to do something together which would have an impact. We discussed ideas, and we both wanted to do something in

women's health."

So, this project is personal, but it builds on Chantelle's strengths. "Being in labs is not for me, but the course at Essex had more theoretical elements, and offered a placement year. I was part of a team that devised a healthcare app and won a competition run by a healthcare provider, so I built on my interest in healthcare innovation."

Syrona will soon launch its next funding round. "It will enable us to complete a prototype. We're dealing with some regulatory challenges at the moment, and we're launching a variation on the product next year where you order online and send it back to us. That will build our brand presence, and we're on track to launch in supermarkets and pharmacies by 2020." ■

**BSc Genetics 2016**





**IT'S GOOD TO SHARE**  
 ...or how the age of the selfie can be anything but selfish

Facebook was not originally created to be a company. It was built to accomplish a social mission – to make the world more open and connected.” Those are Mark Zuckerberg’s own words and while some of us may have our doubts about his motives and the multi-billion dollar corporation they spawned, the social media giants have definitely changed the way we communicate.

Social media allows us to connect with others remotely, faster, and on a greater scale than any traditional media. That’s why we’ve launched our first Facebook page dedicated to fundraising activity, because through @UoEPhilanthropy we can build relationships with vast numbers of people all over the world who we may never actually meet IRL (that’s ‘in real life’, for the uninitiated).

**STRENGTH IN NUMBERS**

Social media won’t replace traditional fundraising methods but it can help reach much bigger audiences – and targets – by asking thousands (or even millions) of individuals to give a very small one-off gift. ‘Going viral’ can achieve dizzying success – remember the Ice Bucket Challenge of 2014?

On a smaller scale – so far – Essex has been using

social media to raise money since 2015 through its Click crowdfunding platform. In three years, Click has enabled 240 students to raise over £308,000. Students like Hazel Jackson, who raised £1,000 to join a five-week volunteering project in Sri Lanka, where she lived with a local family and worked with mental health practitioners. Or Pierre and Enes, who used Click to raise £2,695 for their Seeds for Kids project – a socially responsible business that combats poverty and malnutrition in Tanzania. These projects, made possible by Click, are having real impact.

**EMBRACING CHANGE**

Lynsey Dawson, Head of Philanthropy, says, “This approach works because, at a very basic level, fundraising is social. It’s about telling compelling stories about real people, which encourages individuals to use their own initiatives and networks to benefit others”.

Social media doesn’t just help to bring in large numbers of small donations – it can be an effective way of attracting bigger gifts too. Mathias Talpaert, Construction Director for Bouygues UK, one of the University’s major building contractors, wanted to donate the proceeds of the firm’s Christmas raffle to Essex. Having worked on the new student accommodation buildings, he was keen

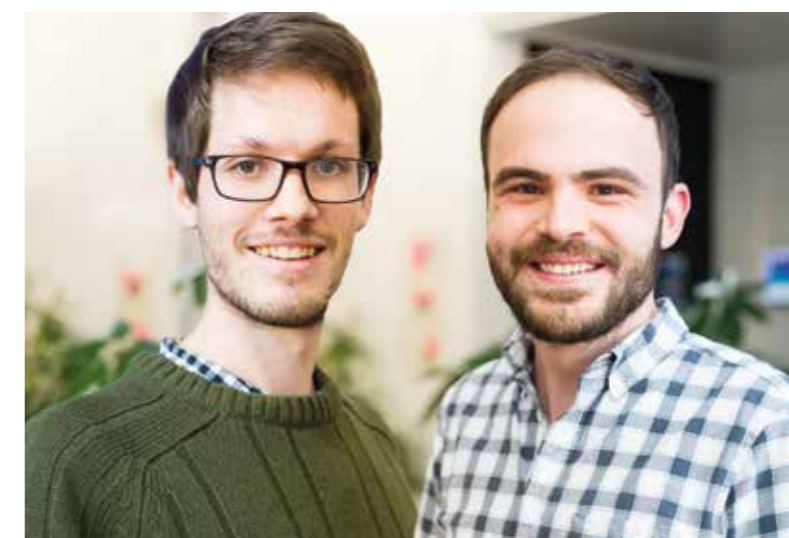
“We’re encouraging individuals to use their network to benefit others”

to make sure the donation supported students directly and he found Click through the University’s social media channels. His firm’s donation of £1,700 was enough to match-fund seven new student projects.

**WHAT NEXT?**

We’re exploring other channels. In 2017 Essex ran the #GiveEssex5 campaign on Facebook and Twitter, encouraging people to give £5 to Essex on a specific day to raise funds to match-fund Click projects. Using the #GiveEssex5 hashtag we encouraged people to share photos of themselves, and the University pledged a further £1 for every ‘selfie’ shared. The campaign raised £1,200 in one day – something that wouldn’t have been possible through our usual fundraising channels.

This won’t be the last step we take to expand social media-driven philanthropy at Essex, although we’ll always do it in an informed and strategic way, rather than using social media for the sake of it. After all, the better we do it, the more money we raise for student projects which will have a tangible benefit for communities – some of which we might never otherwise have reached. We like to think Mark Zuckerberg would approve. ■



Above: Pierre and Enes from the Seeds for Kids project  
 Left: Hazel with her colleagues in Sri Lanka







## FISHING FOR SUPPORT

Essex research has found that angling, falconry and horse riding can help military veterans overcome post-traumatic stress disorder (PTSD). Psychology PhD student Mark Wheeler has taken over 100 veterans (including Ian Haydon, main picture) on two-day fishing trips, encouraging them to open up about their experiences and support each other. "Within a day we can see a difference," he says. "People who haven't been out of their house for years ask when the next trip is, and others come back to act as mentors." His work attracted the largest donation from an individual on our Click fundraising platform with an alumnus giving £1,300 to support the project. Mark is now looking for a site to build a fishing lake and therapy centre.

**Mark Wheeler, studying Psychology PhD**





# Teens on screens

...and what it means – Cara Booker in our Institute for Social and Economic Research looks at young people, social media and mental health

If you were in the UK in March this year, you might remember the Culture Secretary suggesting the government could impose limits on the amount of time children spend on social media. If you're a parent, you might have wondered how that was going to be enforced. If you have heard of Cara Booker's work however, you might have thought it sounded a good idea.

Cara had just published research showing that 10% of 10-year-old girls reported spending one to three hours a day on social media (compared with 7% of boys) – increasing to 43% of girls by the age of 15 (and 31% of boys).

"The rise in time spent on Snapchat, WhatsApp, Instagram and other social media is really quite dramatic," she says. "Teenage girls are by far the highest users of social media, and those who use it for more than an hour a day are at the highest risk of developing wellbeing problems later in their teenage years."

Cara uses data from Understanding Society, which every year surveys people in a sample of about 40,000 households across the UK. Following people over time in this longitudinal study allows her to build up a picture of how we live. This particular paper looked at 10,000 young people from a variety of backgrounds across the UK between 2009 and 2015.

"We asked them to report on how much time they spent on social media on a 'normal school day,'" Cara says, "and we assessed their wellbeing using two measures. Firstly, a combined score of their answers to questions about satisfaction with schoolwork, friends, family, appearance, school, and life as a whole. And secondly, a well-established questionnaire about their social and emotional difficulties."

At 10, girls who interacted on social media for an hour or more on a school day had worse levels of wellbeing compared to girls who spent less time on social media – and were more likely to experience more social and emotional difficulties as they got older.

## DIFFERENT FOR BOYS

As well as gender differences in social media use Cara's research found accompanying differences in wellbeing. "Levels of happiness decreased between the ages of 10 and 15 for both boys and girls," she says, "but the decrease among



Cara's research is making a difference to how we understand social media use

girls was greater than that of boys."

There could be a number of reasons for that. "Girls compare their lives more with their friends and others they follow," Cara says. "Seeing filtered or photoshopped images and mostly positive posts may lead to feelings of inadequacy. Girls also feel more pressure to develop and

maintain a social media presence than boys." That 'presence' needs constant updating and shares or likes from friends. "If their perceived popularity decreases over time," Cara says, "there may also be an increase in social and emotional difficulties."

Boys are also more likely to be gaming online than using social media, and – while it wasn't covered by this research – that could be a factor in boys' falling wellbeing.

## NEXT STEPS

But can, or should, governments do anything? Cara tells us, "the Children's Commissioner for England has suggested social media platforms should do more to check underage use and

prepare children better for life in a digital age. And one thing our study really backs up is the idea that the tech industry look at in-built time limits. Spending time online is an important part of young people's lives and there are many positive factors to social media and the internet. However, it is important that young people are aware of the potential downsides too". ■

**Dr Cara Booker, Institute for Social and Economic Research**

## Percentage of teens who spent 1 to 3 hours a day on social media

	AGED 10		AGED 15
BOYS	7%	»	31%
GIRLS	10%	»	43%

\*Based on a study of 10,000 children between 2009 and 2015

# It's NOT all in the genes

Essex alumna and lecturer Dr Tuesday Watts-Overall talks about her fascinating research on human sexuality

**L**ife, Tuesday tells us, is not always straightforward. "I was going to study medicine. I took the traditional sciences at A-Level and only threw in Psychology as an extra option. I planned to drop it after a year."

Perhaps because she'd grown up in the Caribbean and come to the UK to go to sixth form college and university, she was more open than most to being taken in an unexpected direction. She "fell in love" with her fourth subject and headed to Essex to pursue it further.

Then, not having considered an academic career, her undergraduate project supervisor, Gerulf Rieger, "inspired me to take it further. He encouraged me to do a PhD." Today, Tuesday is a researcher and lecturer at Essex – and works with Gerulf and others looking at twins and sexuality. She probably speaks for many of us when she says, "I never realised identical twins could have different sexual orientations, given that they are basically clones of each other."

## GENDER EXPRESSION

If their genes are the same, she reasoned, but one of them is straight and the other isn't, where did that difference come from, and what can it tell us about human sexuality? They recruited several pairs of twins with 'discordant sexuality', and set to work.

They began by looking at the extent to which each twin conformed to gender norms – people's expectations of masculinity and femininity. "It's a bit problematic to ask people if they were masculine or feminine as a child," Tuesday says, "because their answers will be subjective." Instead, they collected childhood photographs from twins, and asked impartial observers to look for differences



## PHOTO STUDY

In Tuesday's study, observers shown childhood photos of identical twins, including Rosie and Sarah (pictured above, Rosie on the right) noticed differences in their gender conformity from age six onwards. Rosie is gay and Sarah is straight.

between them. "We saw significant differences starting between the ages of six and eight, which is later than what you would typically see in unrelated individuals" she says.

## PHYSICAL RESPONSES

The next step was to examine sexual arousal patterns, which is where, "we look at pupil dilation and genital arousal in response to visual stimuli". The findings were interesting. Tuesday says, "you wouldn't have known from the twins' physiological responses that they had identical genes, because they differed as extremely as unrelated straight and non-straight individuals in their responses. This means that it can't be genes alone that make people's sexuality different."

The answer may be epigenetic – that is, connected to biological mechanisms that switch genes on or off. The answer could also be related to exposure to prenatal hormones. For example, Tuesday says, "Even though they're in utero together, twins can be exposed to different levels of testosterone, which could impact the development of their sexual orientations."

You can measure the level of testosterone you're exposed to in the womb by measuring the length of the index finger in relation to the ring finger. When they did this, though, the results were more complicated. "The

## "You wouldn't have known the twins had identical genes"

results suggested that the non-straight female twins were exposed to more testosterone than their straight co-twins during early development," Tuesday says, "so in females, increased testosterone exposure could play a role in the development of a non-straight sexual orientation. But we didn't find any real difference between the male twins, which suggests that other factors play a role."

## NEXT STEPS

This area of research is still in its infancy. "The truth is we still know very little about where our sexuality comes from," Tuesday says. "Other groups have studied identical twins, but not the way we have. For example, finger length ratio has only been examined in tiny twin samples before. Other groups have studied twins with discordant sexualities, but not looking at arousal the way we have – except one study of one male pair of twins in the 1970s." Tuesday hopes the next step will be "a behavioural genetics study to examine the extent to which sexual orientation is affected by factors unique to each twin."

So, human life is, indeed, not straightforward and nor is sexuality. Which is why Tuesday wants to "generate understanding about what makes us the people we are. Lack of understanding can create hostility and I hope this research might lead to more open-mindedness." ■

**Tuesday Watts-Overall, BSc Psychology 2014 and PhD Psychology 2017**



Tuesday hopes the next step will be "a behavioural genetics study to examine the extent to which sexual orientation is affected by factors unique to each twin."

# All at one table

Taran Baragwanath takes us through the history of LGBT+ life at Essex

**R**aleigh, Flat 4." Taran Baragwanath can pinpoint the exact spot on campus where being gay at Essex really started to change. "This year," he says, "we found this huge archive of all the LGBT societies."

Nestling in the boxes, among manifestoes and posters, banners and meeting minutes, Taran found a press cutting from the Colchester Express in October 1971. Roger Shaw (Literature 1972) had told the paper, "If you are 'Gay', or 'Queer' if you like, you get labelled as a homosexual first and a person second. This is what we want to change."

## RECLAIMING LABELS

Taran, currently Students' Union (SU) Vice President Welfare and Community, wasn't born until 24 years later, but can now look back over almost five decades of queer Essex history to see what's changed. Perhaps one of the most obvious things is the terminology. Roger seems reluctant to use what was then a pejorative term. Taran will cheerfully talk about "my queerness" during the course of our conversation, demonstrating how the community has reclaimed words once used to abuse them.

It's also instructive to perform a little simple arithmetic on those dates. The first incarnation of Essex's LGBT society appeared four years after homosexuality was partially decriminalised in 1967, but that was three years after the University was established. So, for some of our founding students, the self-discovery and freedom traditionally associated with undergraduate life was nothing of the sort. As David Corney-Walker (Chemistry 1967) told *Essex Effect* in 2015: "You just buried it." His friend and contemporary, Peter Avis (Mathematics 1967), told us: "I didn't have my adolescence until I was 26."

By contrast, Julian Smith (Mathematical Computation 1974) vividly remembers his elation, when he got his place at Essex, "on seeing that one of the officially recognised student groups was the Gay Liberation

Society." Things had begun to shift, but there was a long way to go. "We were fighting for a society in which gays and lesbians and other sexual minorities had equal rights," Julian says, "but in those days such a cause seemed impossible to achieve."

What's now the LGBT+ and Friends Society welcomes students of all sexualities and genders, and their allies – and the SU has its first Trans Officer. "We've now got 60+ gender-neutral toilets on the Colchester campus," Taran adds, "up from about three, something we've battled for for years." This widening of the community is not without its complications, though, says the Society's current President, Savanna Rayment: "The concern for some people is, with limited resources, that women's voices get overshadowed or they might have fewer spaces to make way for trans and non-binary spaces. But the way I see it is: we're all at one table. It's not like the chairs get taken away – we just add a table at the end."



Taran and current society president, Savanna Rayment

## CONTINUING DEBATE

That debate may not have been settled, but – despite what you may have read about 'generation snowflake' – it hasn't been silenced for fear of causing offence. "What's fantastic about our generation," SU President Tancrede Chartier says "is that we've opened up discussions we never had in the past. Your rights stop where the rights of another individual start, and while we might disagree about where the line should be, what's important is to have the discussion."

So, student life at Essex is still politically charged, but some of the issues have changed. While the 1960s and 70s saw demonstrations against Vietnam, and the 1980s saw marches against Section 28 (a law preventing local councils from 'promoting' homosexuality), Taran seems unlikely ever to forget the women's march against Trump: "I remember thinking: this is history being made, and afterwards, seeing headlines about how many hundreds of thousands of people had attended. I was part of that." ■

21 OCT 1971  
**Sex club for the students**  
By RAY McSWEENEY  
HOMOSEXUAL students at the University of Essex have formed a society. Its aims are to attract like-minded people and modify general attitudes towards "Queers."  
A branch of the London-based "Gay Liberation Front" has been formed at "Essex" and held its first meeting yesterday (Wednesday).  
Three of the prime movers are students Craig White, Michael Evans and Roger Shaw. They talked exclusively to the "Colchester Express" before the meeting.

Daily Telegraph, London  
25 OCT 1971  
**STUDENTS HOPE SOLDIERS WILL JOIN 'GAY' CLUB**  
Students at Essex University who have formed a club for homosexuals are hoping that soldiers stationed at Colchester will apply to join. The Army has no power to stop them if they wish to do so, a Defence Ministry spokesman said yesterday.  
The Army cannot dictate what a soldier does with his spare time provided that it does not interfere with his military life.  
Members of the armed forces are continually under observation to see if they display any homosexual tendencies. A suspected man is liable to blackmail and to involvement in espionage.

- 3 DEC 1975  
**Gay Week**  
HOMOSEXUALS at Essex University staged a "Gay Week" which ended on Thursday with a performance of Mister X – a witty but controversial play about homosexuals – performed by the Gay Sweatshop Theatre Company.  
The Gay Week was organised by the University's Gay Liberation Society, which runs discotheques and campus radio programmes for homosexuals.  
The Society took part in a Gay Rights march and rally at Trafalgar Square last week.  
Among the events in their Gay Week was a tape/slide programme called "Homosexuals in Society," and a forum to discuss lesbians in the women's movement.



# BLOOD

## – nothing quite like it

Can a team at Essex make blood shortages a thing of the past?

The summer of 2018 was an eventful one for the UK: a heatwave gave the British public an opportunity to discuss the weather even more than usual, and the England football team did better than expected in the World Cup. One event, less publicised but linked to these circumstances, could have been far more significant: in July, the National Health Service sent out mobile blood banks, because the country's stock of blood had fallen worryingly low.

Gayle Franklin, an area manager with NHS Blood and Transplant, told the BBC, "We saw a 20% reduction in donors attending when England were playing," and the heatwave meant some donors were unable to give blood because they were dehydrated. The NHS aims to have six days' worth of O negative in England at any one time, but in July, they had enough for just three days.



Dr Brandon Reeder, School of Biological Sciences

### ADDRESSING THE CHALLENGE

If a research project at Essex succeeds, though, blood shortages could become a thing of the past. Brandon Reeder is leading a team in our School of Biological Sciences to create a safe artificial blood substitute. 85 million units of donated blood are given to people worldwide every year. "It's a major challenge to have enough blood where it's needed and be sure it's safe" Brandon says. "Blood is susceptible to contamination, it has a limited shelf life, and it's not easy getting it to the sites of major emergencies. Factor in that the number of donors is falling, and you can see the urgency of what we're doing."

Any substitute for blood, of course, will need to do the job of moving oxygen around our bodies just as well as the real thing – so the team needs to find something which will stand in for haemoglobin, the protein in red blood cells that

carries the oxygen. The HaemO2 project "aims to create an artificial haemoglobin-based oxygen carrier, or HBOC," Brandon says. "Two billion pounds has been invested worldwide over the last 25 years to find a usable alternative to blood, but attempts to make a safe, effective HBOC have been problematic, because haemoglobin can be toxic outside the protective environment of the red blood cell."

### OVERCOMING OXIDATION

The problem is that haemoglobin is rich in iron, and if it's damaged, the iron oxidises – just as a car rusts, so the blood substitutes which don't work turn brown (or sometimes green) instead of red. "Basically, haemoglobin produces free radicals that can damage the heart and kidneys," Brandon says. "The trick with artificial blood is to modify the molecule to be less toxic, but still carry oxygen. No one has managed this yet."

However, the HaemO2 team has used its skills in synthetic biology to engineer new haemoglobin molecules which are detoxified by the body's own defences – and their product has been granted patents in the US and Australia and, more recently, the EU. They've also started working on 'oxygen therapeutics', which uses a lower dose of their engineered haemoglobin to reach parts of the circulation the larger red cells can't get to, which can help people recover after a trauma or brain injury.

With funding from the Medical Research Council and the Biotechnology and Biological Sciences Research Council, and a spin-off company, Cymblood, the team is also working hard to attract the investment they need to perfect their work and make it available wherever it's needed. "Paramedics could carry it to an accident and start a 'blood' transfusion on the spot," Brandon says. "And, if the 'blood' were free of cells as well, there would be no problems with blood group matching."

So, while Brandon describes blood donation as "one of the more altruistic deeds we humans perform", and his team's work is unlikely ever to replace the need for real blood altogether, it could save countless lives. Watch this space. ■



"It's a major challenge to have enough blood where it's needed"

# ESSEX DIRECTORY

News of students from decades past up to the present day

## 1960/70s

### STUART JONES, FORMER HEAD OF OPERATIONS

Theoretical Physics 1967  
 "I had the opportunity to learn programming at Essex during my theoretical physics studies. I started work in electronic engineering and very soon moved on to computers. I joined Citibank in 1975 and continued working in operations and technology there, retiring in 2015. The importance to me of the Essex education was the ability to learn, to study, to continue learning throughout my career. Graduates of today need to be very flexible, forward-looking and understand where the opportunities lie."

### GRAHAM SEEL, STRATEGIC ADVISOR

Mathematical Economics 1971  
 "Most of my career has been in applying technology to the resolution of important strategic business problems and opportunities. I didn't realise it at the time, but the analysis and critical thinking abilities I developed while at Essex have been absolutely critical to my career success."

## 1980/90s

### PAUL NORTON, MANAGING DIRECTOR

Economics 1987  
 "After my degree, I stayed in Colchester and joined a firm of accountants. I worked in accountancy practice for about 10 years then moved to various Financial Controller and Finance Director roles, mostly in the logistics and transport world. Some 11 years ago I was lucky enough to join Harrods Aviation as FD and then became MD six years ago. We handle private



#### SPOTLIGHT ON

### MARGARET TATTON-BROWN, POTTER

Art History and Theory 1975  
 "Essex was a great place for self-discovery. I started pottery evening classes at Wivenhoe. It was with a manual wheel. It was so incredibly difficult that I was thrilled with the most misshapen of ashtrays. Now I have my own electric wheel and kiln with which I make large plates, bowls and mugs."

and business aircraft at Luton and Stansted airports. I married Vicki Hallas (BA Economics and Government 1987) and we have two daughters."

### BRIAN DOCHERTY, WRITER

Literature - American Poetry 1988  
 "Since leaving Essex I have had a career in literature and creative writing, both as a teacher and a writer. I commissioned and edited academic books on American poetry, crime fiction, and American horror fiction for Macmillan. I have published six books of poetry, most recently *Only in St. Leonards: A Year on the Marina* - a limited edition fundraiser for St. Michael's Hospice, where I had bereavement counselling after my beloved wife Rosemary died unexpectedly in January 2016."

Want to be in the next edition? Email us at [alumni@essex.ac.uk](mailto:alumni@essex.ac.uk) with your story and photos



#### SPOTLIGHT ON

### WILL JACKSON, MANAGING DIRECTOR

Government 1989  
 "I learnt from greats such as Ivor Crewe and Anthony King; and also joined the student radio station, URE. That experience has been invaluable in my radio career, which includes setting up a new station in Chelmsford, working for Ofcom and at the award-winning Prison Radio Association. I'm now MD of the trade body for production companies, AudioUK, and I'm delighted that the Essex student station continues to go from strength to strength!"

### FABIANA FARRO HORN, HEAD OF DOCTORAL STUDIES

International Peacekeeping 1998  
 "I worked for seven years in the Balkan Region for the Organisation for Security and Co-operation in Europe (OSCE) and other NGOs on governance development and refugee issues. I then specialised in EU funded programmes on environmental development and international co-operation. I now work at the University of Brescia. Studying at Essex really did change my life and was hugely influential in my career."

## 2000s

### FAYE ELLIS, TECHNICAL INSTRUCTOR

Computer Studies 2000  
 "I loved my time at Essex even though the course was incredibly difficult - it changed my life in so



#### SPOTLIGHT ON

### JOEL FORBES, ROYAL AIR FORCE LIEUTENANT

International Relations and Politics 2009  
 "On leaving Essex I joined the British Army, attending Sandhurst in 2010. I have since moved to the RAF where I have qualified as a Surveillance Director within the Air Ops Branch, providing Air Defence and Command and Control to the UK and on Ops abroad. My degree gave me a foundation of knowledge that helps and influences my role on a day to day basis."

many ways. Since leaving, I've had an enjoyable and challenging career in IT, mainly working in financial services, but this year I changed my focus slightly and came to work at an IT start-up, A Cloud Guru, teaching cloud technologies online."

### KRISTI KENYON, ASSISTANT PROFESSOR THEORY & PRACTICE

Human Rights 2003  
 "My course at Essex was excellent preparation for my current role as Assistant Professor (Human Rights) at the University of Winnipeg. I recently published my first book (*Resilience and Contagion: Invoking Human Rights in African HIV Advocacy*) and was

one of 15 early career scholars named a CIFAR-Azrieli Global Scholar by the Canadian Institute for Advanced Research in a global competition".

### MARTYN PETERS, DIRECTOR OF INTERNATIONAL RELATIONS

American (US) Studies 2005  
 "Just after graduation I married my wife, Monica, whom I met at Essex, and we had a baby boy last November. We moved to Mexico City in 2006 where I currently work at Northridge School. When I think back to those days at Essex, I would never have pictured the life I have now."

## 2010s

### GEDIMINAS MACKELIS, CHIEF OPERATING OFFICER

Banking and Finance 2012  
 "I have worked in the banking, construction and tourism industries. Recently I have taken on new challenges and became COO for one of the largest cleaning companies in Lithuania, Ainava. In addition to this role, I'm lecturing in Innovative Business Models at Romeris University in Lithuania."

### GREGORY RIZZOLO, SELF EMPLOYED

Psychoanalytic Studies 2018  
 "I gained my PhD from Essex in summer 2018 and found out in June that I was awarded the JAPA Paper Prize for the best paper to appear in 2017 in the *Journal of the American Psychoanalytic Association*."



#### SPOTLIGHT ON

### NIEVES ZUNIGA, RESEARCH AND KNOWLEDGE COORDINATOR

Ideology and Discourse Analysis 2014  
 "My PhD thesis was about the recognition of indigenous peoples in Bolivia, and after completing my studies I continued working in Bolivia as part of the EU funded project ANTICORRP, examining anti-corruption policies. I am currently based in Berlin working for Transparency International."



#### SPOTLIGHT ON

### UGONNAYA IGWILO, SENIOR REGISTRAR

Public Health 2013  
 "At the Lagos University Teaching Hospital I work with a team of public health physicians in a Community Health Clinic that provides preventive/clinical maternal and child health services at a minimal cost to over 10,000 individuals all year round. The unique practical learning experience at Essex tweaked my way of thinking and addressing challenges, and improved my communication skills." ■


# Essex around the world

Just a few of the alumni events we've held in the last year


## A TASTE OF INDIA IN DELHI

 In February 2018, our Vice-Chancellor, Professor Anthony Forster, hosted an alumni networking event in Delhi. The event was part of a visit undertaken by the senior leadership team to build connections and raise the University's profile in India.




 Nearly 60 alumni and guests from different graduation years, backgrounds and professions were brought together at a networking event in Paris in February 2018.




 Nearly 100 alumni, guests, current and prospective students attended our Chancellor's first event in Hong Kong at The China Club.




## MAKING WAVES IN MALAYSIA

 Alumni in Kuala Lumpur were invited to work on their team building skills at a unique event in an escape room in January 2018. We currently have 223 alumni living in Kuala Lumpur, working in a range of sectors including finance, publishing and science.




 Over 100 alumni and guests gathered at the Skyfall Bar in Athens in April 2018. There was time for networking as well as speeches.




 We were delighted to offer alumni the exclusive opportunity to meet our Chancellor, The Rt Hon John Bercow MP, at Speaker's House in London.



 Alumni volunteers hosted the first event for graduates now living in Poland in the summer of 2018.



 November 2017 saw a festive take on a networking session, with graduates attending an unusual gathering in igloos on a car park roof in Stratford!

## DATES FOR YOUR DIARY

From networking and socialising to theatre screenings and panel discussions; join us at one of our upcoming alumni events.



Alumni volunteers and students enjoying our Career Conversations event

### UK EVENTS

Essex in London:

'Crime in urban life'

21 November, British Academy

Essex in London: 'The climate challenge: a very human problem'

20 March, Institute of Physics

Essex in London:

'Wellbeing in the digital age'

Summer 2019

Alumni Sports Weekend

3-5 May, Colchester Campus

### INTERNATIONAL EVENTS

India

January 2019

Asia Graduation

23 February 2019, Beijing

Singapore  
April 2019

Cyprus  
Summer 2019

Hong Kong  
Autumn 2019

### VOLUNTEERING OPPORTUNITIES

France, Cyprus  
November 2018

Hong Kong, Malaysia, Singapore, Brazil, Turkey, France  
Spring 2019

Complete a graduate testimony or write a blog, throughout the year.

### WANT TO HOST YOUR OWN EVENT?

Let us know! Events in other countries can be added throughout the year.

### WANT TO RECEIVE OUR EMAILS ABOUT THE LATEST EVENTS NEAR YOU?

Make sure we have your correct email address and location - update your details now at [alumni.essex.ac.uk](http://alumni.essex.ac.uk) or keep an eye on our events calendar [alumni.events.ac.uk/eventscalendar](http://alumni.events.ac.uk/eventscalendar)

To find out more about all our international activity and how you can get involved contact [alumni@essex.ac.uk](mailto:alumni@essex.ac.uk)

## CAREER TALK

# WORKING AT 200 MILES AN HOUR

Martin Galpin is a software engineer for Red Bull Racing, four-time Formula 1 world championship winners

### SO, TELL US A BIT ABOUT YOUR ROLE AT RED BULL RACING

I work as part of the Analysis & Simulation Group, maintaining the team's competitive advantage in simulation technology. I manage four software engineers and we maintain (among other things) the software for our state-of-the-art driver simulators.

### AND SIMULATORS ARE IMPORTANT?

Yes, the amount of time we get to test the cars out on the track is very limited so an effective simulator programme is vital. During a race weekend, we run the simulator into the night to continue optimising the car. Red Bull also has a history of promoting young drivers into Formula 1 and our simulators are an important tool in preparing and evaluating them.

### TELL US A BIT ABOUT YOUR TIME AT ESSEX

I actually grew up in Wivenhoe so never lived on campus. During my time at Essex, and after graduation, I competed as a racing driver in Formula Ford and other categories. In my final year, I won the UK Formula Vee Championship and was voted Autosport Magazine Club Driver of the Year. I'm still in touch with a handful of close friends from Essex and this summer went to New York to attend the wedding of another alumnus who's made a successful career for himself on Wall Street.

### HOW DID ESSEX HELP YOU GET WHERE YOU ARE TODAY?

The Computer Science course gave me a good foundation for my career academically, and I wouldn't be where



“My aptitude for software engineering made it a natural choice”

I am today without the extra support I received. This included a sports bursary for my driving. Dave Parry, Director of Sport, and everyone in the sports department were really great, and helped me with conditioning and other aspects outside of the car. Being able to continue my racing career during my studies was hugely important.

### WHY A CAREER IN FORMULA 1?

I spent a few years racing after graduation before finally deciding my future was in the engineering side of Formula 1. My studies in Computer Science and my

aptitude for software engineering made it a natural choice. Red Bull is one of the best racing teams in the world, so I'm really in my dream job.

### WHAT ARE THE MAIN HIGHLIGHTS OF YOUR CAREER SO FAR?

Definitely becoming a part of the Red Bull Racing team! But when I worked at Force India F1 I led the development of their race strategy simulation and analysis tools - which I believe have been pivotal in the recent success of the team. I also will never forget my career as a racing driver.

### DO YOU GET TO GO TRACKSIDE?

I have been in the past, but it's a very small team that goes to the races so it all depends on what you're working on. I'm based in the Design Office of Red Bull Racing HQ in Milton Keynes, working alongside all of our engineering groups, including Vehicle Dynamics, Aerodynamics and Mechanical Design. There is a big team behind the scenes supporting the two cars and drivers you see in action on race weekend!

### SO, WHAT'S NEXT?

My foreseeable future is at Red Bull Racing. I want to win a World Championship and I genuinely believe that's possible in the next few years. ■

## MARTIN'S CV

- 2008 BSc Computer Science - University of Essex
- 2008 Racing Driver - UK Formula Vee Championship winner
- 2011 Software Engineer - Sahara Force India Formula One Team
- 2015 Simulation Software Engineer & Team Leader - Red Bull Racing

## GRADUATES IN ASIA! ANOTHER CHANCE TO CELEBRATE YOUR ACHIEVEMENT

For the first time ever, graduates are invited to join us at this exclusive event in Beijing, China. Essex alumni can take part in a formal graduation ceremony hosted by the Vice-Chancellor of the University. Whether you attended your ceremony years ago, or you never made it, you will have another chance to wear the robes and celebrate the completion of your studies in front of friends and family.



### YOU'RE INVITED TO A SPECIAL GRADUATION EVENT

Beijing, China

Saturday 23 February 2019

£40 per graduate, £30 per guest

Find out more and book now  
[alumni.essex.ac.uk/events/asia-graduation-2019](http://alumni.essex.ac.uk/events/asia-graduation-2019)





# YOUR GLOBAL FAMILY

Essex is international and  
Essex is for life. You are  
part of a global family of  
100,000 graduates living in  
over 150 countries

Make sure we have your current  
city and email address to make  
sure you hear about Essex  
events happening near you.

[alumni@essex.ac.uk](mailto:alumni@essex.ac.uk)

[www.alumni.essex.ac.uk](http://www.alumni.essex.ac.uk)