Meet the students shaping the future

Wiki-woke
Dr Jess Wade is on a mission to combat inequality in STEM

And loads more!

MEET THE MOONSHOT MENTOR

Wendy Tan-White, Vice President at X, talks impact, innovation and her time at Imperial
Welcome

We don’t know about you, but it feels like the past year has just flown by!

On page 44. One book that is always checked out first is Rob Fitzpatrick’s The Mom Test, so we spoke to the man himself about the best way to speak to customers on page 28.

Imperial Enterprise Lab

Imperial is home to some of the world’s best researchers. Through working together, thinking creatively and breaking traditional boundaries, our staff and students are at the forefront of innovation.

In order for our scientific breakthroughs to drive societal change, research must move from the lab into real-life situations. Our comprehensive research and enterprise ecosystem facilitates this translation journey and allows ideas to flourish into realities which have the potential to tackle the global challenges of today.

The Imperial Enterprise Lab and the Imperial College Advanced Hackspace are a vital part of this ecosystem. They allow students to learn from their peers and draw upon the knowledge of staff and businesses, to build their skills and develop their confidence to transform their ideas into entrepreneurial activities that can benefit society.

I take huge pride in hearing about the many achievements of our student entrepreneurs and it is exciting to see so many of them taking advantage of these unique opportunities.

Get in touch:

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Talk from the top

Professor Alice Gast,
President of Imperial College London
Great ideas begin with great people: talented individuals steeped in the knowledge of their discipline, confident enough to work on risky, unsolved problems, and able to collaborate with others from different fields.

Imperial has an abundance of such students and offers the freedom to pursue ideas, the mentorship to guide their explorations and the spaces to gather, share ideas and develop them. We are committed to providing the support they need to take their ideas and businesses, to build their skills and develop the confidence to transform their ideas into entrepreneurial activities that can benefit society.

Our awesome community of startups has been hard at work thinking up world-changing ideas, gaining traction and brewing guilt-free beer (seriously! Check it out on page 17) to make this a bummer issue.

We’ve also been busy catching up with Imperial alumnus Wendy Tan-White who told us all about life in Silicon Valley, her new job at X and who she would most like to invite around for dinner (page 12).

Down in the Lab we have been expanding our library with a whole bunch of new books. You can see some of the team’s suggestions on page 34. Getting Wiki-woke with Imperial’s Dr Jess Wade (page 10) and getting top investment tips from GV’s Tom Hulme (page 38).

So get stuck in, share with your classmates, colleagues and anyone else you think could do with a dose of entrepreneurial inspiration. You can find out more about the Enterprise Lab on page 46. We hope to see you soon!

Jennifer Mills,
Editor of D/srupt, Imperial Enterprise Lab

Professor Ian Walmsley FRS,
Provost of Imperial College London
I came to study at Imperial because of the exciting environment for science it offered, and for its location in a world city. I found here a vibrant intellectual community with students from across the globe sharing ideas, collaborating on projects and creating the future. When I returned to the College as Provost, nearly 40 years later, I found the same excitement. That hasn’t changed.

Imperial remains a special place, offering a home that combines opportunities for groundbreaking research, life-changing education and transformative impact. It is this mix that positions Imperial as one of the most innovative universities anywhere.

Entrepreneurship is one important way to help ideas have an impact on society. It is a key part of Imperial’s distinctive approach to applying new knowledge by ensuring our students and academics can develop the skills and access the support they need to take their ideas and applications into the real world. We have the opportunity to make a difference. I look forward to seeing the myriad of creative ways in which Imperial’s entrepreneurs will do so.

Professor Nick Jennings,
Vice Provost (Research and Enterprise), Imperial College London
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Mitt product trials

This year, the Mitt team has been busy getting their product ready for their first pilot. The product testers each received a tailored prosthetic, with adaptations to suit their lifestyle. Check out what Hilary was able to paint with her Mitt arm. Co-Founders Nate Macabuag and Ben Lakey have also been to China, India and Japan talking about the future of prosthetics. Follow their journey on Twitter: @WearMitt

Brightcure wins the White City Innovators’ Programme

WE Innovator Chiara Heide won a £6,000 prize package for Brightcure, a revolutionary light therapy treatment for urinary tract infections. Delivered in partnership with NatWest, the Innovators’ Programme is the Imperial White City Incubator’s flagship pre-accelerator. Read more about the final here: bit.ly/brightcure

Pitch@Palace comes to Imperial

Imperial’s I-Hub at White City hosted the Pitch@Palace Bootcamp. Imperial had five teams at the bootcamp, including Rentuu, Queeries, Matoha Ultrascience, QuickCount, and Jelly Drops, who went on to win the judges’ prize and the public vote at the final! You can find out more about Jelly Drops on page 36.

Cadget in Thailand

It’s been a busy year for Cadget Founder Mint Mahuttanatan. Mint has developed a revolutionary new bioplastic cast that is breathable, comfortable, easily applied by doctors and affordable, and it won WE Innovate 2019. Since taking the WE Innovate trophy, Mint has been in Thailand doing some customer discovery. Find out what she’s been up to in her ‘day in the life’ video at: www.imperialenterpriselab.com/weinnovate
Fancy a cold, refreshing and healthy beverage? Then you’re in luck, as myTEA is Mighty, created by WE Innovate alumnus Tina Chen, is now available on campus. Head to the Plantworks in the Junior Common Room to grab one, and see where else myTEA is Mighty is popping up on their Instagram page: @mytea.mighty

Bumper year for funding

Congratulations to the following teams who had some hugely successful funding rounds this year. Ichthion raised a £1 million seed round, VertoFX raised $2 million, Puraffinity, previously known as Customem, raised $3.55 million and Humanising Autonomy raised a $5.3 million seed round, to name just a few! You can read more about Humanising Autonomy on page 26.

£21m+

Join the conversation

Want to get news, advice or just chat all things startup? Then join the Enterprise Lab Slack and become part of our community: bit.ly/elabslack

Forbes’ top women-led startups disrupting healthtech

Not one, not two, but three Imperial alumni have been included in Forbes’ list of women-led startups disrupting healthtech. Congrats to Aergo Founder Sheana Yu, Immersive Rehab Founder Isabel Van De Keere and Walk with Path Founder Lise Pape! Read the full list here: bit.ly/forbesimperialwomen

Spyras success at Mayor’s Entrepreneur Competition

Huge congratulations to George Winfield for winning the Tech Prize of £20,000 at the Mayor’s Entrepreneur Competition with Spyras, a revolutionary paper used to test a patient’s breath for diagnosis. Imperial had 57 applications to the competition. More than any other university! Follow Spyras on Twitter: @BreatheSpyras
TechKnow

Being a student can be hard work – spending hours upon hours in the lab, library or down here in the Enterprise Lab basement – so we have tried and tested all the latest gadgets to make sure your study and social times are stress free.

Fujifilm Instax SQ6
Everyone needs a break from revision, right? Well, don’t forget London is one of the most photographable places on the planet. So, whether you have a penchant for architecture or nature, or just want to snap fun times with your friends, get outside and capture it in square format polaroid with the SQ6. And with a wide variety of effects and filters, including double exposure, light filters and a selfie mode, you can create Insta-worthy images for the offline world. RRP £99.99

Pen+ Ellipse
This is ideal for those who jot something down or sketch something out and want to see their squiggles magically appear in digital form to then edit, share or save via the app. Even when not using the app, the Pen+ stores your notes and transfers them to digital form the next time the app is opened. For the more creative among us, there is the ability to animate, edit and add audio to drawings, and for the more practical, meetings you write in your diary will automatically save to your online calendar. RRP £179

Lumie Vitamin L
This light is perfect for the 1 in 15 people in the UK who suffer from SAD (seasonal affective disorder), or if you work down here in the Lab! If you need a good dose of Vitamin D through the winter months, then this is the light for you. The Lumie Vitamin L’s slimline design means it will fit right in to any desk space and the adjustable stand allows you to have it in either portrait or landscape mode. Turn the light on every morning for 45 minutes to make sure you feel like you’re walking on sunshine, even when it’s dark, damp and miserable outside. (Thanks London, *eye roll*) RRP £90
Tile Pro
What do you have in your bag right now? A wallet, smartphone, laptop, tablet, keys? That’s a lot of important stuff to be carrying around! Keep track of all your personal items with the leading GPS tracker on the market, the Tile Pro. Simply attach it to your belongings and track via the user-friendly app, available on iOS and Android. Left your stuff nearby? The Tile Pro has a loud ringer so that you can locate it above the noise. Left things further afield? You can rely on the world’s largest lost-and-found community to locate your things for you. RRP £30

Jabra Elite 65t
These wireless headphones are perfect for switching from the commute to the library to the gym. The easy controls, comfortable fit and fantastic sound quality mean you’ll never have to take them off. Ever. The accompanying app has its own music equaliser that you can adjust manually or use one of the pre-sets to make sure you have the best sound quality possible. The HearThrough mode means you’re still aware of your surroundings, so it’s perfect for the commute, or you can block out all background noise when you’re writing that dissertation. The headphones are also Alexa enabled and come in a pocket-sized case that holds two full charges. RRP £149.99

LYS
The LYS Button, developed by Imperial alumnus Christina Petersen, tracks the light you are exposed to throughout the day, giving you insights in a handy app. Use LYS to see exactly how the light in your surroundings is affecting your energy levels and sleep quality, and find out how to make positive changes to your routine. Hit your three daily goals with the help of friendly nudges and an interactive 24-hour map of your sleep and wake cycle. RRP £98

Ultimate Ears MEGABLAST
This portable speaker does what it says on the tin. With its 360-degree immersive sound, people will be joining your party from miles around. The MEGABLAST is drop-proof, water-proof and dust-proof, and has a 16-hour battery life. You can play your favourite tunes hands-free with Amazon Alexa voice control too. So, whether you need to turn up the volume for your event, party or picnic, the MEGABLAST has you covered. RRP £269
The full diagnosis... SOCRATES

By Camille Reltien, Innovation and Entrepreneurship Manager, Imperial Enterprise Lab

SOCocrates is an AI-powered medical education assistant that helps users to develop consultation, diagnostic and clinical reasoning skills outside of the hospital setting. The team won the Digital, Consumer and Fintech track in the Venture Catalyst Challenge 2019. We spent some time with Co-Founder Luke Geoghegan (Bachelor of Medicine, Bachelor of Surgery (MBBS) 2019), who revealed how he combines his medical career with launching a startup, and why entrepreneurship is like modern art.

How do you start your day?
In medical school, no two days are alike, and it’s very difficult to hold down a morning routine. But when I’m in London with a fairly stable clinical workload, I usually wake up at around 6am. I make a habit of making my bed; it keeps me goal orientated and puts me in a productive mindset. I then like to get my morning workout done, which is either a run through the woods or a heavy weights session. I try not to check emails before then; I prefer to look through them over breakfast with a fresh mind. I have a huge appetite and usually have around six eggs, porridge, a protein shake and at least two coffees to set me up for the day. I’ll then either get the train to the hospital or cycle, ready for the morning ward round.

How do you balance your medical and entrepreneurship work?
It’s tricky – clinical work will always take priority, particularly when dealing with patients in a hospital setting. It’s been very challenging, but planning is key. I like to have protected time for clinical work, protected time for studying, protected time for research and then protected time for SOCRATES.

Task prioritisation is also essential; I carry a notebook with me that has separate to-do lists for clinical work, academic duties and SOCRATES tasks, with estimated time commitments. I’m quite old school in that regard. I like to note down all of my to-do lists, if not only for the pleasure of crossing tasks off!

I try to recognise my own limitations and ask if I need help from other team members and my co-founders. Further, I believe support from mentors, both inside and outside of the medical profession, is essential.

What is SOCRATES focusing on at the moment?
Since taking part in the Venture Catalyst Challenge, we’ve expanded our development team, and we’re now focusing on a computer-adapted testing module which enables our medical student users to practise for VIVAs – these are clinical discussions.
A medical career is very linear and progressive with a narrow career path, whereas entrepreneurship is a bit like modern art. It’s just all over the place. You don’t know whether you’re coming or going most days.

I also enjoy reading and try to get through at least one book per fortnight. I generally read outside of medicine and the startup space.

**How do you maintain team cohesion?**
As a team we all have a desire to innovate, push boundaries and build something that will be useful to people. I think it’s a commonly shared goal that keeps us united, particularly when we have disputes. We have ownership of particular workstreams, which has enabled us to remain cohesive and make developments across multiple fronts.

We have formal team meetings to discuss progress on a regular basis and communicate daily on our constituent team WhatsApp groups. So, although we’re separated geographically, the action plans we implement are shared between us. Mutual respect and trust also play a large part in making progress across multiple fronts.

**What’s the hardest part of your entrepreneurial journey?**
Over the last six months I’ve been forced to adapt, evolve and develop skills that I never thought I would need when I initially applied to medical school. I find the highs of entrepreneurship are very high, and the lows, however insignificant they may be on the surface, can be very low, because you’re incredibly invested in an idea with a distinct lack of certainty along the way.

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Of course, there are always the clichéd difficulties, like lack of sleep, strained personal relationships, and a reliance on coffee (even more so than usual). But I think if I was to pinpoint one, it’s that kind of ‘Jekyll and Hyde’ between medicine and entrepreneurship that’s the most difficult.

**What’s the best part?**
I have major imposter syndrome, because I still don’t really feel like an entrepreneur. I feel like it’s just me and a group of mates building an app that we find cool and exciting. Over the past six months my comfort zone has been completely obliterated.

That said, building SOCRATES doesn’t really feel like work, and it isn’t that drudgery or resentment that’s commonly associated with the term ‘work’. I believe that this is because I’m surrounded by my fantastic team, and we are all trying to improve the standard of medical education and, in turn, we will hopefully save lives. Within the entrepreneurial community, I’m always meeting brilliant people who are all trying to change the world and tackling problems that I never even knew existed. That passion and drive is another great part of entrepreneurship.

**Do you consider yourself a doctorpreneur?**
Yes, definitely. To excel in any field, you need to align your different goals, ideas and ambitions. I think that there are many opportunities to do that within the NHS now. There’s the NHS Clinical Entrepreneurship Programme, which actively encourages entrepreneurial activities while you’re working or at medical school. There’s also plenty of opportunity to engage in research and academia throughout your medical career. I was recently appointed as an academic foundation doctor, which essentially means I have protected time to pursue other research-associated activities. Conducting medical education trials in SOCRATES is something that I definitely would use that time for.

I think there’s been recognition from the NHS that incentivising entrepreneurialism from within is essential to meet the demands of a growing population and a resource-constrained healthcare service. For the foreseeable future, I would love to classify myself as a doctorpreneur.
It’s no secret there’s an uphill battle when it comes to gender equality in STEM. At every level there’s a lack of women. From education (only 9 per cent of computing students at GCSE are girls) to employment (women make up less than a quarter of the STEM workforce), the research, innovation and thinking shaping our future is driven by men.

One woman has taken it upon herself to try to change this. Dr Jess Wade, Research Associate in the Department of Physics at Imperial, has made it her mission to use the forgotten women in STEM of the past, to inspire and engage those in the present.

During the day, Jess’s time is consumed by her research in physics. Chiral organic light emitting diodes to be exact. But Jess isn’t just passionate about the future of materials. Her side project, for which she has received numerous accolades, including an Imperial College President’s award for Excellence in Societal Engagement and a British Empire Medal in the 2019 Birthday Honours for services to gender diversity in science, takes place outside the lab.

Jess was inspired to take action after reading Angela Saini’s book, Inferior. “This phenomenal book looks at the stereotypes that have historically been used to exclude women from society. It breaks down all of the science that’s been used to try and hold women back, and then looks at how dodgy that bias is. “The biological differences between men and women are absolutely minute and nowhere near enough to explain the underrepresentation of women in science. Angela’s book was a powerful explanation of that, and it resonated with me because she approached it like a science experiment.”

Since reading Inferior, Jess has carried copies of the book everywhere she goes, handing them out to women across the world. One of these women was Alice White, Wikimedian in Residence at the Wellcome Library, who taught Jess about the inequality on Wikipedia.

Since the website was founded in 2001, Wikipedia has become the fifth most visited website, with 18 billion monthly page views, 5.8 million articles and 35 million users. Wikipedia’s selling point is that the information is crowdsourced. Anyone can add, edit and amend articles, democratising access to information. The problem? Jess explains: “The majority of the content on Wikipedia is created and
written by men in North America – that has a real impact on the range of topics covered on the site.

“Alise taught me about this massive bias. Not just in terms of the gender of biographies, but also in terms of content about places like Africa, or particular times in history, and I thought ‘well, this is it. Wikipedia gives us an opportunity to rewrite history, and make sure people who have contributed to our understanding of the world aren’t overlooked’. I like a challenge, so I set myself a goal of doing one a day. I did that at the beginning of 2018, and I’ve been editing every single day ever since.”

Since the beginning of 2018, Jess has added over 650 forgotten women to Wikipedia. “I just thought, well, I can’t write a textbook about women scientists and engineers – no-one would read it, but I can actually edit Wikipedia and make sure that the people who have done all this great science that people are reading about get the recognition that they deserve.”

When asked who the most underrated woman from history is, Jess does not hesitate: “One woman I added the other day, who is pretty amazing, is June Lindsay. She was a crystallographer in the 1940s in Cambridge. She studied chemistry but couldn’t formally graduate because women weren’t allowed to at that time. Then World War II started and Lindsay had to go and teach in schools, because women weren’t allowed to be in the lab during the war, they had to go and do ‘practical things’. Then, because she was so brilliant, she came back to Cambridge to do her PhD, which was super rare. She didn’t even have a degree!

“June did all the crystallography that identified two of the components of DNA and also made models that predicted the hydrogen bonds that hadn’t really been considered before. Her work was then used by Crick and Watson – all of her models and preliminary drawings – in the papers that they published on the discovery of DNA – but, like so many historical woman scientists, her name was left off. She then went to work with Dorothy Hodgkin at Oxford on finding the crystal structure of vitamin B12, which was another massive breakthrough in science at the time, before leaving the field entirely. She’d had enough of the frustrations of being left out of things as a woman academic and moved to Canada. She’s just turned 97.

“Lindsay’s story was relatively unknown until recently, when a Canadian professor was at a birthday party for his mum’s friend and June Lindsay was there. Eventually it got covered in Canadian media, I saw a link to it and then I made the Wikipedia page.”

Gladys West is another woman whose profile Jess has significantly raised. West was “an African-American mathematician born in 1930s Virginia. She did the early maths and computing for GPS technology and worked for the US government – she’s phenomenal because she hasn’t stopped and, approaching the age of 90, she has just completed her PhD.

“When I made the Wikipedia page, there was a little bit of information about her, but since then it has grown thanks to the contribution of other editors all over the world. She has been nominated twice for the BBC’s ‘100 Women’ and she’s also been inducted into the Air Force Space and Missile Pioneers Hall of Fame, which is so cool.”

The phenomenal work Jess has done in raising the profiles of past and present women in STEM also aids her other mission: to improve the opportunities for underrepresented groups in STEM for the future.

Jess explains that equality in STEM is not only important because women are equally able, but because the people working in these disciplines are creating the future, and we should all have a say in what that looks like. “I think it’s widely known that STEM is not as diverse as it could be, in terms of both gender diversity as well as the inclusion of different ethnicities or people from different socioeconomic backgrounds,” she says. “The research that we do is for the benefit of the whole of society, but the people who are doing that research aren’t representative of that.

“I think we need to let people know that they’d be welcome, and that they would be able to contribute a huge amount to creating the systems of the future. I think we need girls there, we need people of colour there and we really need people from different economic backgrounds.”

The disparity in STEM has been a sore subject for government and corporations for years, and despite national campaigns, breaking stereotypes, and the introduction of an International Day of Women and Girls in Science, the gap has failed to reduce by a significant amount. Jess believes the problem lies in the lack of girls choosing STEM-based subjects at GCSE level: “The best time to get excited about scientific careers is when they’re 12 or 13 because, actually, if you don’t choose things like triple science, it’s really hard to then choose science-focused A-levels. It is also important to acknowledge that the stereotypes that mean girls don’t choose physics also mean that boys often don’t choose subjects like the arts and modern languages. Limiting children’s aspirations because of societal stereotypes is a total waste of talent.”

Jess was lucky enough to know the path she wanted to take from a young age. With both parents working as medical doctors (a psychiatrist and a neurologist), Jess was exposed to science growing up. “There are so many great applications of physics in neurology. I think I heard about them all the time, all of the fantastic brain scans, the data processing, then just the development over the course of my childhood was just so inspiring.”

Her love of physics continued to be encouraged in school by “a really, really great physics teacher who had a PhD in physics – which is very rare for a high school teacher.” Jess explains that part of the problem is that many girls don’t have this exposure to STEM subjects. “What I think’s really important is that it can’t just be a one-time intervention – a one-off visit from a scientist at lunchtime or single visit to a science museum. Either scientists have to be there to support school students at regular intervals throughout their school life, or we need to invest time in working with teachers and parents, helping young people to make choices to keep their scientific options open.”

Wikipedia gives us an opportunity to rewrite history, and make sure people who have contributed to our understanding of the world aren’t overlooked.

Follow Jess on Twitter: @jesswade
Wendy Tan-White: From South Ken to Silicon Valley
Everyone knows Google. But not so many people have heard of X, Alphabet’s moonshot factory that brings together the best entrepreneurs and innovators to create groundbreaking technologies and impact the lives of billions. So when X was looking to hire a new senior leader, they chose Imperial alumna Wendy Tan-White MBE.

X thinks big. Very big. Google Founders Larry Page and Sergey Brin have always believed in investing some of the company’s resources in hard, long-term problems. In 2010, they formalised this commitment with the creation of a new division formed to work on ‘moonshots’ and the resulting projects have been nothing short of astonishing – from paving the way in self-driving cars, to giant balloons delivering internet access to remote areas, and even smart contact lenses aimed at making healthcare proactive rather than reactive. With this level of vision and ambition, the position of Vice President at the moonshot factory was going to be a tough one to fill. Wendy was the ideal candidate for the job, with a BEng from Imperial in Computer Science (1992), her entrepreneurial background working on the EU’s first online bank, Egg, and having started her own company, the first software-as-a-service website-building tool, Moonfruit. The success of these companies led Wendy to become a General Partner at both Entrepreneur First, a world-leading accelerator and talent investor, and growth capital fund BGF.

Have you always been entrepreneurial?
I’ve always valued technology and innovation because both my parents were in tech. My dad studied as an electrical engineer and computer scientist and my mum was a midwife who then went back to university to do maths and computing. They retired as a CTO and big data expert respectively.

What did you want to be when you were growing up?
I’ve always loved space; I was a big sci-fi fan. I love writers like Iain Banks and Neal Stephenson who wrote *Snow Crash*. I suppose I’ve always been very future-looking. The thing about sci-fi is sometimes it runs a hundred years ahead, sometimes it’s five thousand years ahead and that timeframe of thinking makes you feel everything is possible.

I got the entrepreneur bug in 1997 before the dot-com boom in 1999. I’d worked in my first early startup, Egg, and I realised that you could take new technology and use it to enable change for millions with the internet.

What was the best thing about being an Imperial student?
Being in London for the first time was exciting. London is a unique confluence of tech, media, food, art and fashion. It’s a melting pot of hybrid creativity. I was also very lucky because when I started at Imperial, there was no such thing as the world wide web. In fact, Tim Berners-Lee had only just come up with the HTTP protocol, but I already had access to what was early internet from my room in Falmouth & Keogh halls of residence. I had an old, dumb terminal connected to the local WAN in Imperial that was linked up to what was then JANET and the precursor to the internet. I was already playing adventure games with people around the world in those days. That was in 1990! I was fortunate to be studying computer science in that era, especially being taught by professors like Susan Eisenbach, Jeff Kramer and Jeff Magee.

I didn’t quite understand until later just how unique that experience was. I think that’s the thing about being a student: you don’t always see that you’re in a time of fundamental change.
What does being an Imperial alumnus mean to you?

It’s difficult not to be increasingly proud of being an Imperial alumnus. Watching Imperial’s impact on the world stage, not only because of the research and innovation breakthroughs, but also the expansion of its alumni network and its impact, the expansion of campus and facilities and also its relationship with policy and government.

I give back to the Imperial community as much as I can. I sit on the board of the Department of Computing and support new research professors like Daniel Rueckert and Will Knottenbelt looking at biomedical imaging with machine learning and quantitative analysis and crypto. I also work closely with Professor Maja Pantić who supports X’s Women in AI programme. I sit on the board for the Dyson School of Design Engineering and have been impressed with the entrepreneurial talent Professor Peter Childs has supported. It’s a privilege to support Alice Gast, David Gann and John Anderson in their endeavours.

If you could say one thing to current Imperial students...

It would be: we know that technology is changing the world faster than it’s ever done before so they should be thinking about the impact that’s going to have. It’s one of the things we care a lot about at X too – the implications as well as the applications of technology. We’re trying to positively impact billions of people. Imperial students have an opportunity to do this too and create their own moonshots.

What exactly is a moonshot?

At X, we define a moonshot as starting with a large problem that, if solved, would improve the lives of millions or billions of people. Second, we propose a radical solution that could lead to a 10x improvement on the way things are today. And third, we’re looking to have a positive global impact so we’re looking to create breakthroughs that can be distributed globally too.

What is your role at X?

My formal title is Vice President. I joined to add a perspective outside of The Valley to the next evolution of X. As I’ve settled into the role, the teams are describing me as ‘Moonshot Coach’ or ‘Mentor’. The aim is to support and partner with Astro Teller, Captain of Moonshots and CEO of X. As his title suggests, X is a very different place. We want to encourage imagination and creativity and so, starting at the top, this sends a cultural signal that we’re a unique organisation and we want people here to feel they too can be unique.

X was looking for somebody that had experience ranging from engineering and computer science to entrepreneurship and investment. It also helped that I have experience mentoring teams, as I’m now mentoring a range of robotics and food-focused projects at X. These projects are some of our more mature projects, which means that they’re iterating on their technology prototypes and are exploring how they can apply these technologies to broader ecosystems to help solve real problems. For example, how might we use new technologies to produce food more sustainably and with a more positive environmental impact? These kinds of systemic questions play to my experience.

Our methodology is very much about experimentation. Technologists especially can get fixated on having to reach milestones. At X, we still have milestones but they’re less important than the hypotheses we’re trying to test. We’re focused on learning, so hitting the milestone is less important than thinking about what we’ve learned and where we’ll go from there. This attitude means we’re always in a growth mindset.

What was your reaction when you got the job?

The thing that really confirmed my excitement about the role was when X invited my whole family over to the moonshot factory in California from London. I have a 14 year old and an 11 year old, and my husband is a general partner at Entrepreneur First, so a move to California was going to be a big shift for our family. When we all went into the moonshot factory and they saw the Loon balloons and the drones and the creative space, they were just as excited as me, so I knew then it was the right move and we celebrated together.
Wendy Tan-White: From South Ken to Silicon Valley

What do you enjoy most about the role?
Six months in, it is genuinely my dream role, and it comes down to the mission. X is about solving really hard problems and having a really positive impact on the world. I joined because I want to solve huge problems and I believe that X is doing that, while at the same time creating sustainable, valuable businesses.

Over the years I’ve done a lot of work in government – I’m still on the Alan Turing Board and the Digital Economy Council for the UK – and I’ve always been interested in how tech can really enable citizens. X is similarly mission based and focused on its impact on humanity. I think that’s pretty unique in business.

How would you describe Silicon Valley?
1. Optimism.
2. Depth of expertise. In the UK I’m the first internet generation, so I do a lot of mentoring and investing. In Silicon Valley, as well as people like Astro, I’m mentored by a guy called Ed Catmull, who’s the former President of Pixar. There’s a depth of expertise and experience that makes me feel younger and gives me an opportunity to continue to learn and grow.
3. The weather. And that’s not flippant. I think when you wake up every morning and the sun is shining, and then it’s cool in the evening, it gives you a different outlook on life. Everybody goes hiking rather than going for coffee so it’s just a very different experience. The coastline is amazing too. I’ve always found the sea very grounding, so to be able to get to the sea really fast too is incredible.
4. The depth and breadth of talent. There are so many people that come from all around the world so the talent and the drive are incredibly high.

Tell us about the first company you founded?
The first one I founded from scratch was Moonfruit. We had the vision of letting people who couldn’t code build and publish online and it was very visual. I had two co-founders. One, in fact, Eirik Pettersen, was a really good friend of mine at Imperial. We always said that when we graduated we would end up doing something together, and then around 1999 when the dot-com boom was coming, I was like: “Eirik, I’ve got this idea, come out and be my CTO, come and do this”. He’d actually just taken some very lucrative job in the bank, building software, and he said to me: “Look, if you can get the funding, I’ll do it, I’ll jump”, and that’s what happened. And my husband was my other co-founder, but I married him three years later.

What would your advice be for anyone starting a business with a friend or partner?
I think you have to really try to understand the strengths and weaknesses between you and be clear on how complementary they are. Here’s the thing to remember, especially with people you know very well: when things are good, your differences can be really complementary but when you’re under pressure, those things can polarise you. The other piece of advice I have is to get a really good coach, somebody that can reflect back to you what’s going on. Everybody has a blind spot, so even the best, best, best, most experienced entrepreneurs and CEOs in the world often have a trusted mentor or coach to help. This is what I’m trying to do in my role here at X, working with the leads of the projects, reflecting back, asking questions and checking what they are trying to test.

What’s the best bit of advice that you’ve ever been given and who was it from?
Norm Meyrowitz, the President of Macromedia Ventures in The Valley, once said to me: “Don’t mess around with the puck in front of the goal”. This hockey analogy has stood me in good stead because decisions are some of the hardest bits about leadership. If you’re lucky, it’s 70/30 knowing what you should do, but most of the time, it’s 52/48 and you’ve got to make a decision and live with it… so I like the sentiment of not messing around. Just make that decision and move on.

What’s the best bit of advice for a new startup?
Test and validate your ideas as fast as possible. Everybody thinks they’ve come up with a great idea, but you really need to go out and look at the impact and see if some of the assumptions you’re making are true – otherwise you could end up going down a rabbit hole for a long time. The other important thing is to build a team around you that can really execute. You can’t do it all by yourself and one of the things about leading and building a business and team is you’ve got to be able to persuade other people to come join you and fill in the gaps with skills you don’t have yourself.

What do you look for when investing?
The people who always stand out are ones with talent, ability and charisma – people who have great ideas and are ambitious enough to make them actually possible. I also love hybrid thinkers. People who can take an idea from one area and apply it to another. People who can do lateral thinking and shift their perspectives, which is something we’re always looking for at the moonshot factory too.

Where is your favourite place in the world?
Oh, I love St Ives in Cornwall. My husband’s family is from there and I love the breathtaking coastline and all the art. There was a massive art movement there in the 1950s, people like Barbara Hepworth and Patrick Heron. There’s also a guy called Bernard Leach, and Shoji Hamada who came over from Japan, and they’ve created incredible hybrid ceramics. I love art and design. I actually went to Central Saint Martins to do a design MA after I went to Imperial. I need to go and get a good knowledge of design and sea at the same time. It feeds my soul in a different way to Silicon Valley.

If you could have dinner with one person, from history or the present day, who would it be?
Interestingly, this has nothing to do with tech. I love the writer and actress Phoebe Waller-Bridge. She wrote Fleabag and Killing Eve and I love the way she is so honest about herself and about humanity. I love the way she accesses the foibles that we all deal with in such a funny and breathtakingly acute way.

I think it’s amazing. When it comes to women having impact on the world, she’s got a really fresh, interesting voice.

It’s genuinely my dream role. X is about solving really hard problems and having a really positive impact on the world.
How to... Innovate in global healthcare

To innovate is to create something new, either entirely from scratch or by giving a new purpose to something that already exists.

In the world of healthcare, anything new – whether that’s a tool, concept or method – must be able to be implemented in a real-life setting. That means it needs to come with the right price tag, be tailored and acceptable to users, and fit in with care cultures.

Innovations are typically considered as new technologies. But in healthcare, innovations don’t only concern new devices or treatments; they also occur at the care pathway and systems level. Transformative innovation can be successful in bringing about deep system-level change. Both are equally important.

And for global health, shiny new tools aren’t always best – frugal innovations have proven their worth in many instances, such as a low-cost drill designed for DIY being successfully repurposed for orthopaedic surgery. This has benefitted healthcare in both the developed and developing world, and highlights how innovations are rarely born from nothing.

But in order for an idea to be successful, there are four critical elements that must be considered:

1. Is your proposal better than what is currently in existence?
2. Is there already a viable product or service that could solve a particular issue, but it isn’t being used in the right manner?
3. Can your idea be produced at a lower cost to similar products on the market?
4. Or is it something that could serve a wider population than current interventions?

If your idea is ticking these boxes, then the next stage is to formally appraise it by extensively reviewing relevant academic, policy and business literature. This will give a critical view of the current market, and the potential of your innovation within it.

Next, it is time to ask the experts. You should expose your idea to thought leaders from a wide variety of relevant settings, who will be able to provide invaluable insight and unbiased critique. They will advise whether there is a business model to develop your idea further, and of its feasibility and viability in the real world. Be ready to answer difficult questions – these will tease out whether your innovation truly has legs or will fall at the first hurdle.

You don’t need to win over everybody you speak with, but if you emerge through this stage with confidence and support for your idea, then it is time to seek funding. There is a vast array of possible sources, from seed funds to charities and philanthropists. You may even wish to begin your own venture as a startup. But crucially, you should seek partnerships in the areas that you wish to disseminate your innovation. Local partners can offer invaluable support in implementation, which is often not possible remotely, and can also provide access to local people and resources, saving time and money.

Finally, you must learn to let go. Innovation in global health takes time and effort, requiring both technical and business-savvy minds, alongside a firm grasp of the clinical need and political landscape. It is rare for one person to meet all of these criteria, while having the time and energy to go entirely solo. You need to galvanise others and build a team of experts and trust them to deliver. Together, you can shake more hands, travel further, network wider and transform faster.

If you would like to put these principles into practice, the IGHI runs an annual competition that invites all UK university students at any level to bring us their innovative ideas that could transform global health, with a prize of £10,000 for the winners to bring their concept to life.

Be sure to keep an eye out for announcements: www.imperial.ac.uk/global-health-innovation/opportunities/student-challenges-competition
Did you know that buying just one bottle of imported beer from your corner shop has a carbon footprint of up to 900g? That knot you’re feeling in your stomach is called ‘beer guilt’. Introducing COBrew, the startup producing beer that not only tastes great but is also good for the planet. Yep, you heard us right! COBrew has made it their mission to ensure no-one ever has to feel beer guilt again.*

Luciana Miu, COBrew Co-Founder (PhD Chemical Engineering 2020), explains that the idea for COBrew was sparked by a few members of the team wanting to change the brewing industry. “Most of us enjoy a nice pint, but few of us stop to think about all the environmental implications of that full glass or bottle in our hand. Two years ago, several of the team had a bit of a revelation about the lack of concerted action to reduce brewing emissions and, what’s more, the lack of public awareness and engagement with the issue. “We met as part of the Grantham Institute’s ‘Challenge Team’ project, in which PhD students on the Science and Solutions for a Changing Planet Doctoral Training Partnership (SSCP DTP) work on climate or environmental outreach projects. We had the opportunity to turn our interest in making carbon-neutral beer into a year-long project, and it was so successful that we just decided to keep going!”

Today, brewing industry emissions amount to 1.5 per cent of the UK’s national carbon emissions, but COBrew has worked out a way to eliminate their carbon footprint altogether: “We’re taking a life-cycle approach to our supply chain and production emissions and getting creative with how we reduce or eliminate them altogether. We use low-energy recipes, source our ingredients locally, transport everything by bike or electric vehicle, brew using renewable energy and package our product in reused bottles.”

Here at the Enterprise Lab, we love a cold beer after a long week of supporting startups, (drinking responsibly, of course), and if it’s also saving the planet, then we’re definitely on board! So, this year we’ve teamed up with COBrew to bring you our brand-new ELab beer – drum roll please: Carbon NeutrALE! Ta dah!

*In terms of your carbon footprint, not your drunken antics. You are still fully responsible for those.

Head to the next Pitch ‘n’ Mix event to get your hands on one and find out more about COBrew’s beer-illiance at: www.imperialenterpriselab.com/cobrew
With the rise of social media, influencer marketing has received a new lease of life. People now have a range of platforms on which they can engage with an audience of potentially millions. But is this a new form of marketing? And is it here to stay?

Meet the Fanbytes team

Sharing the likes: Influencer marketing
T
o find out more, D/srupt talked to
Imperial alumnus Ambrose Cooke
(MEng Mechanical Engineering
2016), Co-Founder and COO of
Shoreditch-based influencer
marketing company Fanbytes, and
Dr Omar Merlo, Director of the
MSc Strategic Marketing programme at Imperial
College Business School.
Influencer marketing involves developing
relationships with key individuals whose
endorsement will increase awareness of a product
or brand. Ambrose founded Fanbytes, which ‘helps brands win the hearts of millennials on
social media’ in 2014 and graduated from Imperial
in 2016 with a Masters in Mechanical Engineering.

Honesty is the best policy for brands –
not only from an ethical viewpoint but also
from a financial one.

The company has grown rapidly and worked
with brands such as Universal, Apple Music,
McDonalds and Deliveroo.
“At first we didn’t even realise we were doing
influencer marketing,” he says. “Influencers have always been around but previously they were
based on TV and basically being used as voices
by brands. Now they are much more in control,
with their own TV channel where they can post
whenever they want.”
Dr Merlo specialises in customer management
and believes the power of influencer marketing
lies in its ability to make its message relevant to a
targeted audience on channels that have millions
of potential fans and followers.
“Historically, with advertising there has been a
trade-off between ‘reach’ and ‘richness’,” he says,
“but with influencer marketing, there’s no longer
a compromise between the number of people you
can reach and the quality of the message you can
send. You can have a highly customised, focused
message and you can send it on a large scale and
relatively cheaply through social media, so it’s no
wonder it’s become so attractive”.
The number of social media channels on
which influencers operate has been increasing.
Initially, Fanbytes focused on YouTube, asking
influencers to take their fans to experiences such
as ‘Go Ape’. Now their social media repertoire
includes Snapchat, Instagram and, most recently,
TikTok, with the latter having particular success in
promoting music and musicians.

“With TikTok the music is actually part of what
the influencer is doing,” says Ambrose. “It doesn’t
interrupt or intrude and influencers can refer to it
seamlessly so it feels like a continuation of their
story. Generally, I think the tool is so powerful
because the influencers speak to you as a friend
and it doesn’t interrupt your experience. It’s woven
within a story so it feels more authentic.”

Inspired by The Social Network, Ambrose wanted
to run his own business from an early age. He
attended the Imperial Venture Catalyst Challenge
(VCC) final while still at Imperial and turned down
several internships to focus on his business plans.
In his fourth year, he asked his supervisor if he
could write his dissertation on ‘Measuring Social
Influence using Machine Learning’. This remains
the basis for the company’s analytics.

How Fanbytes selects its influencers is
a rigorous process, as is their method of
matchmaking influencers with brands. They
use surface metrics and data, such as follower
numbers and reach, but they also conduct more
in-depth analysis of influencer performance in
terms of cost-effectiveness, viewer engagement
and sentiment value. “We’re quite intensive on
making sure that all influencers are vetted and
categorised in the right way,” he says.

Which brings us neatly onto the subject of
ethical questions around influencer marketing
and recent controversies surrounding events
like Fyre Festival and BBC’s exposure of digital
gifts on TikTok. Working with an audience that is
young and potentially impressionable, Ambrose is
aware of the need to ensure influencer marketing
is used carefully. Like many, he believes the key
is maintaining transparency on the promotional
nature of posts, but he also thinks we should
warrant followers with a level of awareness. “Fans
aren’t silly,” he comments. “They know when it’s a
promotional post and as long as the influencer is
trustworthy among their fans, then it’s all good.”
Dr Merlo is a keen advocate of transparency
across the board and according to his research,
honesty is the best policy for brands – not only
from an ethical viewpoint but also from a financial
one. “The companies that perform better are
those that share the good and the bad,” he says.
“We find that those who actively communicate
good reviews alongside positive ones benefit
the most in terms of customer trust but also
willingness to pay a premium.”
Looking to the future, Dr Merlo feels the
upward trend in influencer marketing will continue
but it won’t completely replace traditional
marketing. “I think a lot of questions will still be
asked about measuring impact and the return
on investment,” he says, “which will lead to more
attention on regulation and ethics.”
Ambrose also believes that the popularity of
influencer marketing will continue and evolve into
different forms, both in terms of the technology
and the influencers. “I think there will
be greater use of augmented and
virtual reality,” he says. He also
suggests there will be more micro-
influencers – those with specialist
niches who have fewer followers.
Although it is difficult to predict
how influencer marketing will evolve,
it is clear that this is
here to stay.

How to promote through influencer marketing

1. Find the influencers you like and go
ahead and contact them – micro-
influencers may be more approachable.
2. Ask the influencers to promote
something and see how they engage
with your target audience.
3. Think hard about matchmaking: how well influencers fit with your
brand is more important than the
content they produce.
4. If influencer marketing is working,
then consider scaling-up with platforms
like Fanbytes or talent agencies.
5. Persevere and don’t be put off if you
feel you don’t have any experience
in this area.

Influencers in the news

In 2017, Billy McFarland and Ja Rule
promoted a fraudulent music festival – Fyre
Festival – through a number of celebrity
influencers on Instagram. McFarland went
to jail for fraud and the festival has been the
subject of two documentaries.

In September 2018, the Advertising Standards
Authority (ASA) and Committee of Advertising
Practice (CAP) published guidelines for social
influencers: “An influencer’s guide to making
clear that ads are ads”.

A BBC investigation in July 2019 showed
that young fans on TikTok are spending large
amounts of money on digital gifts for celebrity
influencers in exchange for selfie requests or
time chatting to them online.

Fanbytes Founders Timothy Armoreo,
Mitchell Fasanya and Ambrose Cooke
VUI Diagnostics

Winner of both the judging panel and audience prizes at this year’s Venture Catalyst Challenge, VUI Diagnostics is developing a technology to provide simple, affordable and accurate retinal imaging to help address avoidable blindness around the world.

The problem and solution
One billion people around the world suffer from blindness that could be avoided, and early diagnosis could have prevented vision loss for 80 per cent of these people. Over the past ten years, this inability to recognise eye disease early on has cost the global economy £4.8 trillion. Imaging the retina can diagnose over 50 diseases, including glaucoma and diabetes. However, retinal screening is often neglected because current tools are complex, slow and inaccurate.

At VUI, we want to help doctors detect retinal diseases earlier so we can make the majority of avoidable blindness a thing of the past. VUI Diagnostics offers a novel plug-and-play device that aims to provide simple, affordable and accurate retinal imaging.

As medical students, we observe clinical practice every day and gain unique insights into its brilliance and its foibles. When working in primary care, we noticed that current imaging devices were being under-used.

From interviews with GPs and expert eye doctors, we discovered they were reluctant to use existing screening tools due to concerns that errors could harm patients’ eyesight or, conversely, trigger unnecessary referrals. The existence of these potential errors was confirmed through discussions with patients, some of whom had experienced delayed referrals due to incorrect diagnoses that compromised their eye health.

In summary, there is pressing need for a device that offers simple, affordable and accurate retinal imaging – the three key tenets of VUI.

The team
As fellow medical students at Imperial, we have known each other since we started medical school. In addition to our common passion for medicine, we share an enthusiasm for technology and we both have an entrepreneurial spirit. We are also people who strive to find viable solutions to problems we encounter in clinical practice. In the development of VUI, our combined expertise in software and biomedical engineering provided the perfect blend to create a solution for this global problem.

Thanks to the Imperial College Advanced Hackspace (ICAH) and Imperial Enterprise Lab, we now have a minimum viable product (MVP) and will soon be commencing clinical validation studies at London’s Royal Free Hospital and the Western Eye Hospital. In these we will be stress-testing our device and obtaining qualitative and quantitative data on safety, performance and efficacy. This wealth of data will contribute to our application for CE certification and future US Food and Drug Administration (FDA) approval.

Alongside this, we will be developing a blueprint for our manufacturing processes, expanding our intellectual property protection globally and attempting to penetrate our beachhead market of London primary care practices through their respective clinical commissioning groups. We also intend to develop international partnerships with healthcare providers and charities in Asia and Africa, where we believe our product can make a valuable social impact.

Our advisers
We have three fantastic advisers with expertise in clinical medicine, medical devices, NHS procurement and manufacturing processes. Our manufacturing and commercialisation adviser, David Griffiths, was recommended to us through ICAH and also from a fellow Imperial startup, Mitt Wearables. When we met David, it was clear that we needed to incorporate his insight and experience.

We knew our clinical advisers, Ms Rahila Zakir and Mr Riaz Asaria, through our studies. When we showed them our prototype, they were very keen to get involved, and it was very reassuring to see such a positive reaction from such experienced clinicians.

Enterprise Lab and ICAH support
The Imperial College Advanced Hackspace has been absolutely central to converting the VUI concept into a functional prototype. Through the ICAH Project Boost Grant, we received our first funding for consumables. Aided by their state-of-the-art facilities, including advanced 3D-printing machines, we could rapidly iterate our device until we found a working solution. ICAH is just a fantastic resource where you can develop your invention and take those first entrepreneurial steps.

The Enterprise Lab and its ever-helpful team has been pivotal in kickstarting our company and shaping our plans for the future. The Experts-in-Residence programme has given us great support in business planning, legal and IP advice. Looking to the future, we plan to further consolidate our learning through the Imperial Venture Mentoring Service (IVMS).

One of the most memorable and valuable events for VUI this year has undoubtedly been the Venture Catalyst Challenge. The process and masterclasses encouraged us to pin down our value proposition and hone our pitching skills. We obtained feedback from potential customers and patients and it provided us with a crucial launchpad from which to secure multiple partnerships with major hospitals and international eye charities.

The prize for the VCC Audience Award was spending a day with venture builders Blenheim Chalcot. This provided a day of priceless insights and tailored advice to help us establish firm foundations as an early-stage startup. We now know the key steps needed to formulate an investor-focused pitch and we have received critical feedback on our business plan and brand design. Overall, both experiences were truly unique. From a financial perspective, the prize money has already funded our UK patent application and will be injected into our clinical trials to get our product ready for market.

Our advice to aspiring entrepreneurial students
Persevere and be adaptable. And above all, make the most of Imperial’s vibrant and connected community to develop your ideas.
Venture Catalyst Challenge provided us with a crucial launchpad from which to secure multiple partnerships with major hospitals and international eye charities.

Creators of VUI Diagnostics
Simon Rabinowicz and Uddhav Vaghela
Imagine having a physical illness. You wouldn’t for a moment hesitate in seeking help and treatment — mental health is no different.

Dr Anita Hall, Senior Teaching Fellow in the Faculty of Natural Sciences, is an Imperial Mental Health First Aider (MHFA) and she is on a mission to make people monitor and care for their mental health the same way they look after their physical health. Anita wants to bust the stigma surrounding discussion of mental ill health. Here are Anita’s top tips for looking after your mental wellbeing, based on her MHFA England training and the hundreds of conversations she’s had with Imperial students over the years, including startup founders.

“You may already be convinced of the importance of mental health awareness or you may need some persuasion that it’s worth paying attention to. Recent reports about the mental health of entrepreneurs may encourage you to read on; for example, one study found a high level of ill health among entrepreneurs, caused by stress, anxiety and depression. There are aspects of the entrepreneurial life that may pose risks to our mental health and it is worth a little of your time and energy to plan how you are going to minimise these risks.

“Mental health is defined by the World Health Organisation as ‘a state of wellbeing in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community’. If you have an existing mental health condition, there’s nothing to be ashamed of and you should seek all the help and support you can to help you live well with it. Imagine having a physical illness. You wouldn’t for a moment hesitate in seeking help and treatment — mental health is no different. Many entrepreneurs are living full lives with a mental illness because they have good help and support. Whether you do or don’t have an existing condition, regularly think about how you are feeling. If you or those around you notice a change in your feelings and/or behaviours, talk it through with someone — a friend, a family member, a therapist or a doctor. You are a very important asset to your business, so you need to take care of yourself and seek help and support when you need it. Taking care of your physical health will also support your mental health, so force yourself to leave the lab or office and make an effort to sleep, eat and exercise well.

Demanding careers
“There will be challenges throughout your working life that will sometimes cause you stress; while you are calm, plan things that you can and will do to healthily manage this stress. Avoid falling into the trap of unhealthy behaviours,
such as working 24/7 without taking time out to recharge, putting too much pressure on yourself or drinking, especially if there is a culture of this around you.

“You are a driven person with high standards, which is wonderful, but sometimes these personality traits may tip into unhealthy perfectionism, meaning you are placing unhelpful harsh demands on yourself and/or your colleagues and this can cause distress. I’d recommend reading about unhealthy perfectionism to see if it is something you recognise in yourself. If you do, you could benefit from thinking about how you can avoid constantly criticising yourself or the work of others. Some have found cognitive behavioural therapy techniques useful in doing this. Remember to celebrate your strengths and achievements, and those of your colleagues. If people are constantly criticised and never made aware of their self-worth and successes, this can lead to demotivation, unhelpful procrastination and depression.

Uncertainty
“There is uncertainty in the world of startups, especially in a changing economic climate – acknowledge this uncertainty and the anxiety that it can induce. Read up on some healthy strategies to reduce anxiety. Think about what aspects of your work you can and can’t control and minimise how much attention and worry you give the latter. Be honest with yourself and talk about your concerns with someone.

“Ensure that there is more to your life than your work and maintain social contact with people who make you feel content. Give some time to activities that give you pleasure so that you are not working 24/7. If work is all you have in your life, you are very vulnerable if it falters and you are at risk of burnout before you can achieve what you want to in your entrepreneurial life. Remember entrepreneurship is a marathon, not a sprint. You need to keep yourself fit and healthy for the long haul. Think about how you use your precious time; realise and demonstrate that you can say ‘no’ sometimes – people will often respect you for doing so.

How to cope with ‘failure’
“There may well be ‘failures’ along the way in your career; plan how you will deal with how these make you feel and how to best learn from them. Read about how other entrepreneurs you admire have gained so much from their own ‘failures’.

“You will often be focused on the future and the next steps in your work – make sure that you take time to enjoy what’s good in your life now. Some people find meditation and mindfulness practice useful in helping them do this. Take a little time out of the busyness to think about your values and what a successful life means to you, and ensure that you also include space for this in your days.

“We are all encouraged to be innovative and excellent in our research and educational activities. You and your colleagues can help us to be innovative in the world of work too by role-modelling good mental health awareness and self-care.”

Check out these great places to go for support and information:

Looking for something more student specific? Head to Student Minds where you can get support or volunteer to help others:
www.studentminds.org.uk

Mental health charity Mind has loads of great information, advice and signposting on its website:
www.mind.org.uk

Check out Imperial’s Student Support Zone to find out more about the advice and support available during your studies here.
www.imperial.ac.uk/student-support-zone

Talkspace has a great list of podcasts on mental health:
www.talkspace.com/blog/2018-mental-health-podcasts-subscribe-to/

The Samaritans are always there to talk to about anything, without judgement:
www.samaritans.org

If you run a business and want to make sure your employees are supported, Sanctus can help:
sanctus.io
If you've made it down to the Enterprise Lab you may have seen our ‘Great minds don’t think alike’ illustration on the wall, on our mugs and you can even grab it for yourself in laptop sticker form! Here are all the great minds we chose to include and a glimpse into the reasons why.

1. Dame Jocelyn Bell Burnell
   Astrophysicist from Northern Ireland who, as a postgraduate student, co-discovered the first radio pulsars in 1967. The discovery was recognised by the award of the 1974 Nobel Prize in Physics, but Bell Burnell was not one of the recipients. Bell Burnell's achievements were finally recognised in 2018 when she was awarded the Special Breakthrough Prize in Fundamental Physics, winning $3 million which she donated to help students underrepresented in physics.

2. Sir Alexander Fleming
   Scottish biologist, physician, microbiologist and pharmacologist best known for his discovery of the world’s first antibiotic substance, Penicillin G. The discovery at Imperial’s St Mary campus, which famously happened by accident, has gone on to save the lives of over 200 million people worldwide. Fleming was knighted and shared the Nobel Prize in Physiology or Medicine.

3. Ada Lovelace
   Regarded as the first to recognise the full potential of a ‘computing machine’ and one of the first computer programmers.

4. Rosalind Franklin
   British chemist and x-ray crystallographer whose x-ray diffraction studies provided crucial clues to the structure of DNA and quantitatively confirmed the Watson-Crick DNA model.

5. Muhammad Yunus
   Bangladeshi social entrepreneur, banker, economist and civil society leader who was awarded the Nobel Peace Prize for founding the Grameen Bank and pioneering the concepts of microcredit and microfinance. These loans are given to entrepreneurs too poor to qualify for traditional bank loans.

6. Dame Stephanie ‘Steve’ Shirley
   British information technology pioneer, businesswoman and philanthropist. Shirley founded, with a capital of £6, the software company Freelance Programmers in order to create job opportunities for women with dependents, and predominantly employed women. She also adopted the name ‘Steve’ to help her in the male-dominated business world. Her team’s projects included programming Concorde's black box flight recorder.

7. Florence Nightingale
   English social reformer and statistician, and the founder of modern nursing. Nightingale came to prominence while serving as a manager and trainer of nurses during the Crimean War. Nightingale reduced the death rate of soldiers by increasing cleanliness and ventilation.

8. Sir James Dyson
   British inventor, industrial design engineer and Founder and Chief Executive of Dyson Ltd. Dyson is best known as the inventor of the Dual Cyclone bagless vacuum cleaner, which works on the principle of cyclonic separation. Dyson is also the benefactor of Imperial’s Dyson School of Design Engineering and Dyson Robotics Lab.

9. Stephen Hawking CBE
   World-renowned British theoretical physicist, known for his contributions to the fields of cosmology, general relativity and quantum gravity, especially in the context of black holes. Hawking’s book, A Brief History of Time, which made theoretical science accessible to the general public, appeared on the Sunday Times bestseller list for a record-breaking 237 weeks.
10. Marie Curie
Polish physicist and chemist who conducted pioneering research on radioactivity. She was the first woman to win a Nobel Prize, the first person and only woman to win twice, and the only person to win a Nobel Prize in two different sciences.

11. Rosa Parks
American activist in the civil rights movement best known for her pivotal role in the Montgomery bus boycott. The United States Congress has called her “the first lady of civil rights” and “the mother of the freedom movement”.

12. Amelia Earhart
American aviation pioneer and the first female aviator to fly solo across the Atlantic Ocean, for which she received the United States Distinguished Flying Cross. Earhart was instrumental in the formation of the Ninety-Nines, an organisation for female pilots.

13. Alan Turing OBE
British scientist and a pioneer in computer science. During World War II, he developed a machine that helped break the German Enigma code. He also laid the groundwork for modern computing and theorised about artificial intelligence.

14. Barack Obama
The first African-American elected President of the United States. His achievements in office have made him one of the most transformative presidents of the past hundred years. Obama won the Nobel Peace Prize in 2009 for his efforts to strengthen international diplomacy and cooperation between peoples.

15. Mohandas Karamchand Gandhi
Popularly known as Mahatma ("Great Soul"), Gandhi was an Indian political leader who led his country to independence from the British Empire. Mahatma Gandhi is most famous for his successful application of non-violent methods, like civil disobedience, and has been a source of inspiration for many world leaders.

16. Malala Yousafzai
Pakistani activist for female education and the youngest Nobel Prize laureate. She is known for human rights advocacy, especially the education of women and children in her native Swat Valley in Khyber Pakhtunkhwa, northwest Pakistan, where the local Taliban had at times banned girls from attending school.

17. Mae Jemison
American engineer, physician and NASA astronaut. She became the first black woman to travel in space when she served aboard the Space Shuttle Endeavour. When Jemison resigned from NASA, she founded a company researching the application of technology to daily life.

18. Wendy Tan-White MBE
Imperial alumnus, British entrepreneur, technology investor and Vice President at X, Alphabet’s moonshot factory. Tan-White is the former Co-Founder and CEO of the Moonfruit DIY website builder and a former general partner at Entrepreneur First. Named one of the 50 Most Inspiring Women in European Tech in 2017, Women in IT Awards Business Role Model of the Year 2017 and Entrepreneur of the Year in 2011, she is an advocate for women entering the technology and investment sector. Read more about her story on page 12.

19. Steve Jobs
American business magnate and investor. Jobs is widely recognised as a pioneer of the microcomputer revolution of the 1970s and 1980s, along with Apple Co-Founder Steve Wozniak.
Maya Pindeus CEO  
(Innovation Design Engineering 2017)

Raunaq Bose CTO  
(Innovation Design Engineering 2017)

Leslie Nooteboom CPO  
(Innovation Design Engineering 2017)
#InventedAtImperial

**Humanising Autonomy**

Humanising Autonomy is building human-centred tools that define how autonomous systems interact with people through better understanding of human behaviour. Their pedestrian intent prediction platform makes autonomous vehicles safer and more efficient in urban environments.

**The problem and solution**
Autonomous systems are unable to understand the complexities of human behaviour, which creates one of the primary obstacles in the development of automated vehicles in cities. Current solutions don’t consider the full range of human behaviour at street level. This lack of perceptive abilities and understanding makes vehicles unsafe around people, and slows down the technology’s adoption rate and efficiency in navigating urban environments.

Humanising Autonomy has built a human intent prediction application that is able to recognise and predict human behaviour from visual camera footage. Its main application is in automated vehicles, as it allows the vehicle to make better decisions in terms of vehicle path planning and pedestrian interactions to improve the safety, societal acceptance and deployment of Level 2+ Advanced Driver Assistance Systems and Fully Autonomous Vehicles.

**The team**
The three founders met during the Innovation Design Engineering Programme at Imperial and the Royal College of Art. Our first concept originated in a group project that we were part of, during the final year of the Innovation Design Engineering course. During this project we developed an interface named Blink that allowed for two-way communication between pedestrians and autonomous vehicles.

**Enterprise Lab support**
We joined the Venture Catalyst Challenge in 2017 with an idea, a prototype we developed during our final year and the drive to turn this into a business. The VCC helped us take the first steps through business coaching and investor introductions, and was a great platform from which to develop our business proposition. After learning how the industry responded to that initial idea, we decided to develop a new product, which is the current platform, and registered formally as a company.

The Imperial Venture Mentoring Service helped us connect with great advisers. We now have advisers based in London and the US who have supported us during our journey from Imperial students to entrepreneurs.

The team is currently scaling quickly – we have now grown to over 15 people and have validated and tested our product. We have started collaborations with mobility partners, such as Daimler Mercedes Benz and Airbus, and our real-time behaviour prediction platform is being deployed with both human-driven and automated vehicles, making it compatible with the various sensor and processing requirements.

**Funding**
Humanising Autonomy just raised a funding round of more than $5 million. This allows us to double the team and expand the technology globally. We are already active in the US, Germany, the UK and Japan and are now looking to expand partnerships for integration of our product. Even more future opportunities lay in tackling other industries such as infrastructure and manufacturing.

**Our advice to aspiring entrepreneurial students**
Be persistent, and don’t be afraid to share your idea with a lot of different people!

Website: humanisingautonomy.com
LinkedIn: /humanising-autonomy
Twitter: @HumanisingAuto
Parental guidance: Customer discovery

If you’re looking to get honest feedback on your ideas, then *The Mom Test* is a highly recommended read. One of the most popular books in the Enterprise Lab library, it’s a handbook on how to talk to customers and learn if your business is a good idea.

Your mum (or dad, gran or best friend, for that matter) might be the last person you want to think about when imagining the potential customers for your venture. However, likening your clients to your nearest and dearest is exactly what *The Mom Test* recommends to understand what people really think about your business.

Written by serial technology entrepreneur Rob Fitzpatrick, the book shines a light into the yawning gap between what customers say and what they actually mean. Put simply, the book suggests that, like your mom (Rob is American), customers are inherently programmed to give a positive response when asked about your ideas. As such, you should never ask anyone directly what they think about your venture.

Rob wrote the book after one of his businesses failed to get on its feet, despite the fact he had raised funding and found some early customers. The company was working on social advertising before Facebook and Twitter adopted the concept. “I would talk to customers and I would have these interviews,” Rob says. “And then a month later I realised that what I thought I had learned wasn’t true. When you ask people what they think of your product, you are always going to get compliments, and that’s not real data. They will lie to you. You need to ask them in the right way and you need to be very careful with these biases.”

*The Mom Test* suggests a more customer-centred approach to interviews, which Rob believes can remove those automatic biases. “No-one can tell you if your business is a good idea,” he says. “Your job as an entrepreneur is to learn about your customers’ lives, frustrations and problems and then come up with the solution. Stop talking about your idea and start talking about their lives.”

A programmer by background, Rob is the first to admit he found it difficult to take on a customer-facing role. Having read several books about sales interviews, he came to the conclusion that the authors were people who were naturally talented in this area and who couldn’t empathise with

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Want to kick start your customer discovery? Check out the Pioneer Fund! The Pioneer Fund provides small grants to any student who wants to explore and test an innovative new idea with a commercial or social impact dimension. Find out more: [www.imperialenterpriselab.com/pioneerfund](http://www.imperialenterpriselab.com/pioneerfund)

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When you ask people what they think of your product, you are always going to get compliments, and that’s not real data. They will lie to you.

*Or ‘Mum’, depending on your side of the pond.*
the non-salesperson. “I was an introverted technical founder,” he says. “And I felt what was missing was a very practical book on how to talk to customers.”

In keeping with the ethos of his book, he asked around to see if other people identified this as a problem in their lives. He mom-tested The Mom Test and it turned out to be something that people needed and that he could sell.

According to The Mom Test, it’s not just the interview questions that need to change. The context of your interviews should be casual and you should start with the friendliest customers. For Rob, it’s about trying to set a scene so you can snap out of pitch mode and get some real data. “We so badly want to convince customers that our idea is a big deal because we think it is,” he says. “But it’s so important to recognise when people don’t care.”

In terms of sourcing potential customers, Rob recommends that, for new technology, it’s best to identify the people that do care, who are the ‘earliest adopters’ or ‘early evangelists’.

Having tried at several businesses himself and not always succeeded, Rob is very down-to-earth about the experience of being an entrepreneur. He recommends that you get your idea into the user’s hands as quickly as possible and, in his own words, that you consider ‘screwing up’ as being an intrinsic part of starting a business. “Make your early attempts in a place where you feel safe,” he says. “Forgive your mistakes and soon you’ll find you’re getting better. You’re not just going to read a book and be a master.”

However, despite suggesting founders take a ‘suck-it-and-see’ approach to starting a business, he recommends a more reflective approach to choosing a business model. “Try to match it to your personality and goals,” he says. “With my first company, I just thought I wanted to build a big billion-dollar business but it turns out what I actually want to do is work on fun, interesting products with a small team and have a good quality of life. I just didn’t know it or think about it at the time.”

Considering Rob was due to embark on a boat trip from France to Spain just after Disrupt interviewed him, it seems he’s doing a pretty good job.

The man behind The Mom Test

Rob Fitzpatrick is an author and technology entrepreneur originally from the US and now living in Barcelona. He studied computational media and video games at Georgia Institute of Technology and, prior to writing The Mom Test, he ran several technology startups for about ten years in London and the US. The Mom Test was published in 2014 and is now a standard textbook in a number of institutions, including Harvard, Massachusetts Institute of Technology (MIT), Imperial College London and University College London (UCL).

As well as innovating and writing, Rob runs workshops based on the ethos of The Mom Test. He also has a small sailing boat that, in his own words, he “putters about in.”

Top tips on talking to customers:

1. Stop talking about your idea and start talking about your customers’ lives.
2. If your customer doesn’t care about your data, just walk away. You have your data and the data is... they don’t care.
3. Learn some coding to really understand technology businesses.
4. Make your early attempts in a place where you feel safe.
5. Find a way to record your interviews because if it’s in your head, your memory evokes another set of biases.
6. Look at your list of potential people you could talk to and don’t start with the most competent, start with the friendliest.
Renovating home ownership

Fintech, insurtech, edtech, medtech – the list of technology prefixes goes on, but they all have something in common and that’s a raft of startups within each sector pushing furiously to make a spectacular and meaningful impact. One more to add to the list is proptech (property technology); there is perhaps no other sector so notoriously inefficient and hamstrung by old processes or ingrained ways of thinking.

By Byron McCaughey, Co-Founder of TRACK and guest lecturer on Innovation and Entrepreneurship, Imperial College Business School

Co-Founders of TRACK Byron McCaughey and Henry Oakes
It’s a massive sector, worth billions in the UK alone, across areas like real estate agencies, mortgages, conveyancing and renovations, not to mention it being the biggest outgoing we all have on a monthly basis. Combine inherent inefficiencies with a big market and you undoubtedly get a wave of hungry founders pushing for change (and even hungrier VC’s ploughing money into the space to the tune of $6.4 billion in funding since 2012).

When it comes to the inefficiencies of how real estate is traded, used and operated, there is no shortage of examples – from the antiquated process of renting a flat to the opaque construction industry, through to the way property is registered (side note: the Swedish equivalent of the UK Land Registry is piloting the first blockchain record of property transactions – pretty cool!).

The focus of this piece is home ownership, addressed through the lens of three startups (including my own) and the problems each solves. We all recently graduated from an accelerator programme run by PiLabs (Property Innovation Labs), Europe’s largest property tech-focused VC.

First up, affordability: a problem the millennial generation knows all too well.

Imperial College Business School Professor, David Miles, an ex-Bank of England guru, revealed analysis in 2017 showing that extraordinary house price inflation over the past 30 years was likely to continue for the next 50 years. A few statistics highlighting affordability in the capital.

20% home ownership rate for 25–34 year olds in London.

15x average house price to income ratio.

£115k average deposit for first-time buyers.

76% the proportion of first-time buyers getting help from family or the government.

Fairly grim reading if you are on the quest to own your home. However, don’t despair, the following three startups tackle the problem head-on.

Group Ladder – a multi-borrower mortgage designed for three or more people

www.groupladder.com

In other words, you can team up with your mates and/or family, pool your resources and, therefore, boost your buying power.

The unique selling proposition (USP) is that their credit engine allows lending against three+ incomes, which traditional high street banks do not allow.

Renter Buyer – a mortgage alternative

www.renterbuyer.co.uk

Simply put, they offer you the opportunity to own your home without a mortgage and, therefore, without requiring the hefty deposit or credit history which, when combined, create the biggest barrier to home ownership.

The solution is a rent-to-buy gradual home ownership plan where the would-be buyer pays two per cent up-front and then a proportion of their monthly payment goes towards buying equity in the home. They offer a three-year plan allowing customers to build up their deposit and credit score, and then to leave the programme by getting a traditional mortgage.

Solutions provided by the likes of Group Ladder and Renter Buyer – along with government initiatives like Help to Buy – are useful because they help ease affordability issues and get people on the ladder. However, they increase complexity. Money, home, multiple people – friction, both functional and emotional.

To compound this, the process of managing your home finances simply does not meet the experience delivered in other areas, such as banking (Monzo), credit scores (ClearScore) and saving (Moneybox). We now demand simple, connected and beautiful personal finance experiences. That’s where my company comes in, which I founded with fellow full-time Imperial MBA graduate, Henry Oakes (2017).

TRACK – the home for home-owners

www.wearetrack.com

We are the first multi-person money manager designed for home-owners. Our technology gathers all the most important information, from AI-powered valuations to automated expenses and contributions tracking. We then present it beautifully, giving couples, siblings and friends one place to view, manage and transact all their home finances.

Imperial is hailed for its exploration in technology and innovation, so I really encourage you to dive into the real estate sector and put your own generational lenses on it. What would you like to be fixed? While I certainly hope startups like Group Ladder, Renter Buyer or TRACK benefit you in the future, I implore you to go one further, get out there and DIY.

Housing affordability is a problem the millennial generation knows all too well.
#InventedAtImperial

BIO-F Solutions

Marine Valton
Founder
(PhD Life Sciences 2020)

Dr Patrik R Jones
Biotech Translation
(Group Leader, Faculty of Natural Sciences)

Dr Giorgio Perin
Tech Development
(Research Associate, Faculty of Natural Sciences)

Laura de Arroyo Garcia
IP & Marketing
(PhD Life Sciences 2019)

Dr Emanga Alobwede
Product Development
(Research Assistant, Faculty of Natural Sciences)

Viktoria Nikonova
Business Development
(Cranfield University)

Franklin Keck
Research Assistant
(MRes Synthetic Biology 2019)

Members of the BIO-F Solutions team Dr Emanga Alobwede, Dr Giorgio Perin and Marine Valton
BIO-F Solutions aims to transform the way our food is produced by developing eco-friendly fertilisers based on natural microorganisms. A finalist in WE Innovate 2019, BIO-F is now looking to scale-up production and build a pilot plant.

The problem and solution
With increasing concern around the environmental impact of chemicals, there is a growing demand for more eco-friendly fertilisers. However, growers currently face both financial and practical challenges in sourcing organic fertilisers that are both cost-effective and reliable.

Our company, BIO-F Solutions, aims to fill this gap in the market. We are developing eco-friendly and slow-release fertilisers that are based on natural microorganisms and algae. We harness the power of these microorganisms to naturally produce high-quality nutrients for agriculture.

The products are more efficient than traditional fertilisers as they increase soil productivity while requiring less work from the farmers to apply them. They are also more sustainable than current practices as they reduce fertiliser run-off into the environment, as well as subsequent harmful impacts, such as eutrophication of waters.

The team
BIO-F was founded in 2018 by a group of researchers developing organic fertilisers at Imperial. Most of us work in the same research group in the Faculty of Natural Sciences, led by Dr Patrik Jones, and we are at various stages of our academic careers. Our business development expert, Viktoria Nikonova, graduated with a Business Management and Entrepreneurship Master’s from Cranfield School of Management in 2018 and was brought into the team due to her vast expertise in business development and planning.

Having developed the concept, we are now scaling-up production for both in-house and off-farm trials, and are currently looking for funding to build a pilot plant and initiate field trials in partnership with collaborating farmers.

Our advisers and mentors
We are lucky to receive advice and input from several experts from the worlds of business, sustainability and agriculture. As part of the Imperial Venture Mentoring Service, we benefit from the advice of Dr Paul Atherton, a successful serial technology entrepreneur who focuses on startup companies from UK universities, and Dr Ian Edmondson, who is highly experienced in growing businesses.

Also advising us is Janet Murray. She has vast business expertise for early entrepreneurs and is a well-recognised mentor for green and sustainability startup programmes. We met Janet through the Enterprise Lab coaching and she later mentored us as part of the Greenhouse Pre-Incubator programme run by the European Institute of Innovation and Technology (EIT) Climate Knowledge and Innovation Community (KIC), where she became a close follower of our progress.

Alongside this, we also have Peter Bevan, Agronomist for the organic food retailer Abel & Cole. Peter has a deep understanding of soil conditions and sustainable practices in the UK as well as a wealth of insider knowledge into the dynamics of the agri sector.

WE Innovate
When we joined Phase One of the WE Innovate programme, BIO-F was at a stage where we truly needed guidance. The programme allowed us to strengthen our business development skills so we could translate our technology and get our product ready for the field. We greatly benefitted from the training the programme provided in anthropological market research so we could unleash the true value of our research. As part of WE Innovate, we were also surrounded by a community of inspiring and supportive women who wanted to champion female entrepreneurship and leadership, and this was a fantastic environment in which to work.

In Phase Two of the WE Innovate programme, we attended training sessions on pitching and an investor breakfast that helped us develop our public speaking and networking skills. We were delighted to make it through to the finals of the programme. It was a very valuable experience, giving us the opportunity to present to a panel of experienced judges and an audience of 200 people. Being part of the programme also helped us secure additional funds for our startup and these have been key to further developing our technology and gaining wider exposure both off and on campus.

Enterprise Lab support
Support from the Enterprise Lab has been central to BIO-F’s development and the team has catered to our evolving needs from first engagement right through to where we are now. It is thanks to Enterprise Lab events that we realised the extent of support available for Imperial students interested in pursuing an entrepreneurial path.

As the company grows, we need different types and levels of support, and the Enterprise Lab offers us opportunities to meet with relevant and insightful experts in one-to-one sessions via the Experts-in-Residence programme. We’ve been helped in a range of areas, such as negotiation, team building, intellectual property, business development and marketing, and now, thanks to the IVMS, highly experienced mentors are advising us.

In a nutshell, the support available at the Enterprise Lab has been key to setting up BIO-F and to its subsequent success.

Successes so far
There have been a number of moments in our development where we have had reason to celebrate. Securing funds to hire Emanga, a full-time researcher, to further develop our proof-of-concept was a major victory. Our success in several startup competitions and programmes has helped massively in raising BIO-F’s exposure and has also given us huge amounts of support, particularly the Global Food Venture Programme and Entrepreneurship Prize from EIT Food, as well as the WE Innovate programme. The interest shown in our company from major global fertiliser companies has been a real boost to our self-confidence, demonstrating that we have a viable product.

Our advice to aspiring entrepreneurial students
• Just get started and don’t be afraid of failure! It’s all a learning process.
• Get away from the lab or your computer as soon as possible. Speak to experts, potential customers and stakeholders, as their feedback is invaluable in developing your product.
• Apply for all opportunities as long as they are relevant. Grow your network and experience, and understanding of the sector.

Website: www.biofsolutions.com
Twitter: @biofsolutions

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• Apply for all opportunities as long as they are relevant. Grow your network and experience, and understanding of the sector.
HOW TO...

Print prototypes for product development
3D printing has revolutionised the prototyping and development of physical products. With limited experience, you can rapidly create models or even small-scale production-runs of products with a very quick turnaround from design to realisation.

For the development of new products or the improvement of an existing design, prototyping by 3D printing is an ideal technology. Custom enclosures or cases for products, bespoke prototype medical devices or even entire functional assemblies can be rapidly produced and assessed, for example.

While the cost of purchasing and operating 3D printers may be prohibitive, a number of makerspaces or hackspaces host the technologies for you to use. Imperial operates its very own hackspace. The Imperial College Advanced Hackspace (ICAH), located at White City, has a suite of more than 20 3D printers and its very own hackspace. The ICAH offers all members resources and introductory courses covering all aspects of product prototyping by 3D printing, including design using Computer Aided Design (CAD) software, preparation of models for 3D printing, and setup and use of 3D printers.

A basic understanding of the possibilities of 3D printing can be gained by navigating the designs made freely available on 3D file sharing sites such as Thingiverse.com, Youmagine.com and more. Downloading existing 3D-printable files from these sites is an ideal starting point. Some designs may be shared with liberal open source licences, allowing them to be freely used. If you do intend to use an existing design, ensure you check whether you need the designer’s permission to use them commercially, and consider whether you can contribute any less-sensitive parts of your own design back to the online community, perhaps with a ‘non-commercial’ licence if you plan to exploit it yourself.

Find out more: www.imperialhackspace.com

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**Step 1: Design**

While existing 3D models may form the basis of a product, it will become crucial to develop novel designs, especially when intellectual property is a concern. Operation of CAD software is essential for this. We recommend Autodesk’s Fusion 360 (the licence terms are generous, with free licences not only for students but also startup businesses); there is a relatively shallow learning curve, but the software is incredibly powerful once learned. There are also extensive online tutorials on the Autodesk YouTube channel with many step-through guides.

It is advisable to start with relatively simple designs to become familiar with the workflow, but these will quickly progress with experience. Designs do not have to be perfect – it can be more important to rapidly iterate designs to determine important features and unforeseen problems early in the process. Once a design is ready, it can be exported as a 3D-printable file. The basic, universal format of 3D-printing is an .STL file.

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**Step 2: Print**

The 3D printers at ICAH are essential for the next part of the design process. Each 3D printer has its own version of a ‘slicer’— software that takes a 3D model and slices it into a stack of 2D layers. This is fundamental to the operation of 3D printers – the 2D layers form the instructions for the printer to make the object. An understanding of how to operate the slicer software is important – the ICAH community offers support and introductory classes for successful print setup.

There are a number of 3D printing technologies available at ICAH – the majority of the printers utilise plastics but there are also specialist printers with the capability to produce highly detailed parts, including with biocompatible resins and carbon-fibre reinforced composites. As multiple iterations of any design will be required, it is logical to use cheap materials for initial designs. Plastics are ideal for the earlier stages of prototyping. When a part needs to fit existing items, such as a circuit board or bike frame, it is very likely the first iteration of the design will not be perfect.

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**Step 3: Evaluate, iterate and collaborate**

Once a design is established, more specialised materials can be considered for increased detail, beneficial material properties or increased strength. Alternatively, designs can be outsourced for low-volume manufacturing runs with quality control. Outsourcing specialist 3D printing (for example, metal printing) to online bureau 3D print services is also a possibility for more advanced projects, but an understanding of the technologies is, once again, essential for success.

As many would testify, examples of proposed designs and products bear significantly more weight when presented as physical objects as opposed to renderings or CAD designs. Producing professional-grade physical products in high detail and full colour to investors, board members or the public is essential.
Motivated by his grandma’s experience of dehydration, Lewis Hornby decided to find a solution for this problem, common among people with dementia, and created Jelly Drops.
The problem and solution

About a year ago, my grandma was unexpectedly rushed to hospital and diagnosed as severely dehydrated. Thankfully, after 24 hours on IV fluids, she was back to her normal self, but for the 50 million people in the world with dementia, this situation is common and many aren’t as lucky as my grandma. Dehydration is one of the leading causes of death for people with dementia.

In Jelly Drops we have created hydrating treats that enable people with dementia to hydrate more often and independently. Many people with dementia are not aware that they are dehydrated as they do not equate drinking with relieving thirst. For people with dementia, the symptoms of dehydration are often mistakenly attributed to their underlying condition, meaning it can easily go unnoticed until it becomes life-threatening.

Eating is easier than drinking for many people with dementia. Nevertheless, it’s still difficult to encourage them to take food or drink. One way to overcome this is to offer them a treat in the form of a sweet, which they instantly recognise, link to reward and understand how to consume.

Jelly Drops are over 90 per cent water, with added ingredients to optimise hydration. In addition to reducing care requirements and illnesses, Jelly Drops enhance the social interactions between staff and residents. The drops transform what could otherwise be a frustrating and upsetting task into an encounter that is enjoyable. These moments can make a real difference to a resident’s overall wellbeing.

When we first offered Jelly Drops to my grandma Pat, she ate seven Jelly Drops in ten minutes – the equivalent of a cup full of water! This would usually take hours and require much more assistance.

The team

My grandmother’s experience motivated me to find a way to help people with dementia remain hydrated and I decided to work on this idea while studying on the Innovation Design Engineering Double Master’s, run by Imperial College London and the Royal College of Art.

I met Claudia and Nick through my course and we have all been working to help reduce dehydration in dementia patients. More recently, Eunice joined the team – a graduate chemist from Imperial – and she will be helping with the final stages of product development, as well as scaling-up production.

We have trialled Jelly Drops at a number of different care homes and received really encouraging results. We are aiming to launch later this year and planning to raise investment so we can scale-up production.

Support from the Enterprise Lab

In 2018, we took part in the Venture Catalyst Enterprise Lab, a programme run by Imperial that helps student entrepreneurs to develop their ideas and secure funding. We have received really encouraging results. We are aiming to launch later this year and planning to raise investment so we can scale-up production.

The magazine for student innovators & entrepreneurs D/srupt

Challenge, which provided an incredible kickstart to our entrepreneurial journey through its programme of masterclasses, coaching and expert advice. Since then, we have met a fantastic group of advisers through the Imperial Venture Mentoring Service who have been very valuable in helping us build the company and develop the product.

Successes and setbacks

One of the most exciting points in our development has been partnering with the Alzheimer’s Society, the UK’s leading dementia support and research charity, and we were the first company to be accepted onto their new accelerator programme.

We’ve also been lucky enough to win a number of other awards including both the People’s Choice Award and Audience Vote at this year’s Pitch@Palace.

Other highlights include reaching over 100 million views online and learning that our waiting list exceeded 30,000 people, indicating there is a real demand for our product.

We haven’t experienced any major setbacks yet and we always try to frame the mishaps that have occurred as learning opportunities. Hopefully we’ll be able to continue doing this!

Our advice to aspiring entrepreneurial students

Find great co-founders as soon as possible who believe in the idea and are driven to make it happen. The team behind your product is so important.
Entrepreneurship is understanding which questions you need to solve and prioritising the order in which you solve them.
Since spinning out of Google ten years ago, GV, formerly known as Google Ventures, has backed founders who transform existing industries and even create completely new ones.

With over 300 active portfolio companies, $4.5 billion under management, and over 100 mergers and acquisitions, it’s safe to say that GV’s investors know their stuff. Heading up GV’s European arm is General Partner Tom Hulme, serial entrepreneur, TEDTalker, design guru and investor extraordinary.

Recognised as a Young Global Leader by the World Economic Forum, featured in Wired UK’s Top 100 Digital Power Brokers, and included in the Evening Standard’s list of London’s 1,000 Most Influential People, Tom is not short of accolades recognising his achievements. But heading into the world of investment, design or entrepreneurship into the world of investment, Tom didn’t give her much of the interest and forge what would turn out to be a superlative career path. “I went and worked in Africa for a year as a teacher in a secondary school, which helped strengthen my skills, but I didn’t have an explicit plan for the next 20 years. However, I’ve always tried to do interesting stuff. I’ve rarely been the smartest person, but I’ve been willing to work as hard as anyone else.”

Tom’s career has been built on his interest in creating, his curiosity about the new and a drive for impact. “From a young age I wanted to build stuff and create experiences, create products and create services that other people benefit from. Probably the first instance was putting my poor sister at the end of our drive and having her sell apples, which I felt bad about afterwards because I didn’t give her much of the proceeds!”

Tom’s life experiences helped strengthen his interests and forge what would turn out to be a hugely successful career path. “I went and worked in Africa for a year as a teacher in a secondary school, which reminded me that I wanted to do stuff that was going to be impactful. Then I ran a nightclub once a week while I was at university. Together, this stuff made me realise that I would be my own boss and have a positive impact, and that, for me, is entrepreneurship.”

From this point, Tom had success after success with the companies he joined. At just 22, while still studying physics, Tom worked in the parts department of a car manufacturer, Marcos: “While there, I designed a software programme that enabled the management of the parts. After finishing university, I went back to run the factory and ended up Managing Director and making it profitable by moving it from road cars into race cars.”

Tom’s passion for design engineering, and undeniable skill for business, led him to embark on an MBA at Harvard while also teaching himself digital design in his spare time. After graduating, Tom was appointed Design Director at IDEO, a global design consultancy committed to creating positive impact. At IDEO, Tom saw an opportunity to use more people to solve even bigger design challenges: “The question I asked was, why don’t we use more people to involve everyone in every design and find a process whereby anyone could contribute? So, I asked IDEO, ‘are we able to open up the design process to everyone for social good?’ which is what we did. We created OpenIDEO.

“For me, entrepreneurship is understanding which questions you need to solve and prioritising the order in which you solve them. I wasn’t sure if it was going to work, so initially I created a Facebook page to see whether we had the convening power to get people to participate, because that was my greatest fear.”

Tom founded OpenIDEO in 2010, a platform that allows a global community of users to tackle global challenges. The platform now has over 150,000 users from more than 170 countries. “Some of the most rewarding things are not the ideas and the impact, they’re the small anecdotes from people who have got into the design industry because of the muscles they built on the platform. To see people from across the globe collaborating to solve a problem is pretty extraordinary. And, for the first time, it’s not people in the west designing for people in Sub-Saharan Africa, it’s everyone designing for everyone.”

**Tom’s top reads:**

**Phil Knight**’s **Shoe Dog**, the Nike founding story, which is the exact opposite. It’s a reminder that if you’re determined and you have integrity, then you can get through almost anything.

**Bad Blood**, by John Carreyrou, a cautionary tale of when it goes wrong.

**Daniel Kahneman**’s **Thinking, Fast and Slow**, the best book on behavioural economics.

**The Innovator’s Solution** by Clay Christensen gives us a wonderful list of ways that startups’ incumbents are vulnerable, not because they’re stupid but because they’re actually rational and still make bad decisions.

**And a bit of science fiction, The Three-Body Problem** by an awesome Chinese writer, Cixin Liu.
Tom’s skills in design engineering earned him a TED speaker’s slot. Titled ‘What can we learn from shortcuts?’ Tom’s talk looked at the intersection of design and user experience, where people have developed their own desire paths out of necessity. “It’s really just an exercise in humility, realising that the people that we create products and services for probably don’t use them in exactly the way we imagined and, actually, I find that exciting.” The video has been viewed more than 1.5 million times to date, but Tom has never watched it: “I hate seeing myself. I hate hearing my own voice – I definitely don’t want to watch myself on video!”

Now General Partner at GV, Tom is responsible for investing millions in up-and-coming ventures, including Uber, Slack and Secret Escapes, among many others. “I love it. It’s an incredible platform to meet smart and interesting people. My day job is trying to find entrepreneurs who will create businesses of the future by serving customer needs in innovative new ways.” GV is industry agnostic, which allows Tom and the GV team to invest in a wide variety of companies spanning everything from consumer and healthcare to fintech and cyber security. “I’m proud of the investments we’ve made. Sometimes it’s supporting incredibly high-functioning teams; sometimes it’s more about the impact it will have to human health.”

GV invests in these companies through the varied expertise of the team as well as capital. Tom explains: “We have experts who spend time with teams and help them to not make the mistakes we’ve seen a bunch of times before.”

When deciding who to invest in, both in his role at GV and as an angel investor, Tom says he’s deeply suspicious when he meets an entrepreneur who has a 50-page business plan: “It’s usually a bad use of their time. They’d be better off going out into the world and testing their hypothesis. The answer is usually outside the building and perfection can be the enemy of progress. You can spend too much time trying to get something perfect when actually if you err towards openness, taking it out into the world and getting feedback, you’ll learn much faster and much more efficiently.”

The quality of the pitches Tom sees nowadays is incredibly high, so to determine the good investment opportunities form the bad, Tom looks for a few key differentiators: “What’s the problem being solved? It’s very rare that there’s a completely new market; that it’s completely novel. Is this team uniquely placed to solve this problem? What is it about this team that has an unfair advantage? Does it matter? And, to some extent, can we add value or help them on that journey? It’s absolutely essential that we believe we can make that difference. The best pitches have some kind of customer or market validation.”

My day job is trying to find entrepreneurs who will create businesses of the future.

1. Be very clear about how much you need to raise in order to get to the next proof point or value inflection point.

2. Practise on investors that are lower priority because pitching takes practice. You wouldn’t want your first pitch to be the most important.

3. Understand what questions you’re answering and, in cases where you’ve not already answered them, explain why.

4. Be pragmatic. Don’t be overly focused on valuation. People overstate the importance of a high valuation and probably understated the importance of everything else, and so view the whole package from the investor.

5. Have a clearly defined list of investors and understand why you’re approaching them. Do due diligence on the investor in the same way the investor does due diligence on you. It blows my mind that a founder wouldn’t call up the CEOs of the companies that I’ve invested in before to ask what it’s like to work with me but that happens unbelievably infrequently.
Entrepreneurs account: Dolapo Sanusi-Ola

The global fintech industry is big, $32.6 billion big to be exact, but that doesn’t mean the industry has matured just yet.

Entrepreneur’s account:

Dolapo Sanusi-Ola

Opportunities for entrepreneurial Imperial graduates abound, especially in Latin America and Africa. Enter Dolapo Sanusi-Ola, Global MBA graduate, Venture Catalyst Challenge (VCC) 2018 semi-finalist and founder of Nestbank – a Nigerian fintech startup that is looking to scale, and fast!

Dolapo (MBA 2018) started Nestbank while working full-time at the Scotiabank, completing her Global MBA at Imperial, attaining her FCMA accreditation and also being a mother of three. While Dolapo had many excuses to delay launching Nestbank, she knew that she had the skills, expertise and experience to transform access to finance for Nigerian micro, small and medium enterprises (MSMEs) in the here and now. “My fintech journey started with a desire to bridge the gaps of financial inclusion in Nigeria. This was something born out of my work with NGOs in Nigeria, mentoring youths and women in small businesses. One of the biggest issues was their access to credit but a deeper problem was the issue of financial literacy.” Dolapo’s solution was to create Nestbank, a new kind of customer-first banking experience which operates alongside a complementary organisation, Financial Savvy Academy, aimed at educating customers in effectively managing their finances. But building a business in Africa can be complex, due to the crossover between target markets, consumer behaviour and educational, financial and technological disparity. Dolapo explains: “Everything in Africa can be a source of disruption and, because of that regulation, and policies always playing catch-up, this makes it hard for businesses to scale faster. However, Africa is a place where a lot of opportunities exist. My advice is to focus on the possibilities and your vision for starting the business, and let that be your motivation instead of allowing the many problems to overwhelm you. Tackle each problem as it comes, daily. The book Eat That Frog by Brian Tracy really helped me to deal with issues one at a time.”

Prior to starting her fintech ventures and her MBA, Dolapo built up her expertise via 15 years of finance-related roles across six industries, working for leading organisations such as Unicredit, Scotiabank and the Bank of Ireland. Dolapo decided to study the Global MBA programme because it offered a top-quality academic experience, the ability to work on many projects in parallel and amazing classmates. “Imperial and the people I met in my cohort have helped make my journey a lot more colourful. I have been able to meet people who have helped me to raise funds and make the connections I need to get things done.”

Imperial and the people I met in my cohort have helped make my journey a lot more colourful.

Find out more about the Global MBA at bit.ly/icglobalmba
Data science: More than a breath of fresh air

By Professor Kieran Arasaratnam, Professor-in-Practice and Co-Director of the Gandhi Centre for Inclusive Innovation at Imperial College Business School

There is a reason London is called ‘the Big Smoke’. Elderly Londoners will remember the ‘pea-soupers’ of the mid-20th century – thick layers of dirty fog that would occasionally engulf the city. London was very much the Beijing of its day. Much has improved since those days but the city still has problems.

A round 2 million Londoners – including 400,000 children – still live with illegal levels of air pollution. Under the law, hourly measurements of toxic nitrogen dioxide must not exceed 200 micrograms per cubic metre more than 18 times in a whole year. In London, toxic air has exceeded legal limits every year since 2010, killing an estimated 9,400 people on an annual basis.

The pollution is so bad that the Mayor of London, Sadiq Khan, has called it a “public health emergency”. To counter the problem, the mayor has brought cleaner buses to routes through blackspots and introduced charges to deter dirty vehicles. This has helped bring pollution levels down, but it is no easy fix.

Improving air quality requires a deeper understanding of vehicle emissions. Today’s air quality metrics, used by Transport for London and the Greater London Authority, are not real-time. Without granular data on traffic, the city’s air pollution may be underestimated.

To tackle this problem, one group of data scientists is using the pre-existing network of traffic cameras around London to classify transport and estimate vehicle count and velocity, moment to moment. This gives us a better picture of air pollution in the capital, which can be used to optimise traffic and alleviate emissions.

This is one of the many projects being developed at the Gandhi Centre for Inclusive Innovation, at the Imperial College Business School, as part of the 12-week Data Science for Social Good (DSSG) Fellowship. The full-time summer fellowship is the result of collaboration with the University of Chicago.

The programme brings together several disciplines in which Imperial College London excels: financial innovation, information technology, artificial intelligence and social impact. By bringing together the greatest minds – comprising undergraduates and recent graduates – from all over the world to work on machine learning, big data and data science projects, the fellowship is producing data scientists with the skill set needed to solve real-world problems.

The right kind of solution

The goal of the fellowship is threefold: to train aspiring data scientists who want to tackle social challenges, to encourage governments and non-profits to better use data to make better decisions, and to create a community of people and organisations that can work together to make a positive impact.

As the title suggests, social good is at the heart of this work. The fellowship is about developing technology that doesn’t just provide commercial benefit but has massive implications for society and the environment. Our focus is to use ethical data science to extract actionable insight from big data that generates meaningful and positive outcomes.

Advances in fields such as artificial intelligence and machine learning have the potential to transform society, but systemic imbalances still exist and must be addressed. The United Nations Sustainable Development Goals are a big part of this. That is why it is important that DSSG projects are developed within a fair and ethical framework, rooted in

Tip of the iceberg

The work being done with the City of London to tackle air pollution really is just the tip of the iceberg. It is one of five projects selected from over 50 submissions working with global governments and NGOs. Other projects taking place under the auspices of DSSG are:

1. The use of data science to expand a pre-emptive scheme to identify high-frequency 911 callers, improve healthcare and free up emergency services in the City of Memphis.

2. A partnership with a Uganda-based not-for-profit group that offers legal aid to people with no access to lawyers, using questionnaire data to increase the capacity and efficiency.

3. Improving heart health diagnoses from echocardiogram images using machine learning, in collaboration with the cardiology AI team at the University of Salamanca Hospital.

4. Enabling data-driven recommendations for the Institute of Employment and Vocational Training in Portugal to connect job seekers with more relevant and effective jobs and interventions.

In London, toxic air has exceeded legal limits every year since 2010, killing an estimated 9,400 people on an annual basis.
How to change the world

Is there something you want to change? Is there a vision you want to share and see implemented in the world around you?

More than ever, one can feel that events are bigger than yourself, so much so that the influence of one person can have zero impact on the world’s problem — this could not be further from the truth. Can one person change the world? The answer is an emphatic yes, but if you want to see a change in the world, the first big change comes with you.

1. Think big
World-changing ideas don’t come from small ambitions. Start big and then think of ways to implement your idea. There will also be external factors trying to scale down your vision — don’t do it yourself. A lot of this is about confidence and self-belief. Keep pushing your vision as far as you can take it to make it a reality.

2. Take action
Ideas are great but they also require action. Think about the steps you can take to implement change: What are your limitations? How can you eliminate those limitations or work around them to execute your plan? Ideas are great on paper but they mustn’t stay there!

3. Start small
Rome wasn’t built in a day, so they say, and you won’t change the world in one grand gesture. Real, lasting, positive change comes from a long series of small, determined actions. Think about what you need to do and the steps required to do it. Change is a marathon and persistence is the key.

4. Connect
One person can change the world but it doesn’t mean they must do it alone. To be the change you want to see in the world, you must be the trigger; the lynchpin. Find like-minded people and enlist help. Truly world-changing impact comes from the power of many. Every great person in history had their allies; make sure you know who yours are.

human rights and the rule of law, in a way that respects the liberty, equality, dignity and privacy of all.

Furthermore, we must be confident that the systems we develop alleviate and not exacerbate the circumstances of those we wish to help. For data to have a significant social impact, our technology needs to be universally accessible so it can transcend cultural and linguistic boundaries.

Building a community
“Data is transforming the way business and society works,” explains Professor Francisco Veloso, Dean of Imperial College Business School. “It is enabling a lot of very different, interesting things: new business models and new approaches.”

Professor Veloso explains that the aim of the fellowship is to create a community of data scientists who have been exposed to the real social benefits of data science by working on related projects. He adds: “They are going to be agents of change in the organisations they are going to be part of, and they are going to be influencers so that this can be much more present in everyday life in business and society.”

Indeed, the engine that really powers the innovation machine at the DSSG Fellowship is the people and talent. The fellowship has attracted some of the best minds to the business school. This year, the DSSG has enlisted 20 fellows from over 12 countries — chosen from 1,000 applicants through 200 interviews — working across various disciplines within the data science space.

The human element is important. With DSSG, true world-changing progress does not come from innovation alone but through innovation with a conscience. To do this we need the right people — people who can not only solve problems with data but also seed a new generation of socially aware scientists. These data scientists will be trained with ethical principles in mind, and for that, there is no better place than Imperial.

By leveraging technology to have a greater social impact, the work of the DSSG Fellowship programme will unleash the potential of the information so that we are not just improving the lives of a few. The successful collaboration of various stakeholders is essential to applying data science for social good and creating a deep understanding of the problem domain.

The fellowship cannot do its work in isolation. Instead, we must think of ways to achieve continuity and sustainability. This can be done by creating a system that provides a feedback loop on external factors, that incorporates domain knowledge for experts in the government and NGO sector, and can help set expectations. Through this collaboration between academia, innovation, business, philanthropy and policy, we hope to build technology that brings hope, so that everyone — not just the people of London — can breathe easier when looking to the future.

Find out more about the Data Science for Social Good Fellowship at: www.imperial.ac.uk/business-school/research/gandhi-centre/about-gandhi-centre/data-science-for-social-good-dssg/
Enterprise Lab essentials

“When in doubt, go to the library”, wrote J.K. Rowling, which is great advice if you’re studying at Hogwarts. But if she was writing it for us muggles, rather than the wizarding world, it would probably have said: “When in doubt, go to the library, download a podcast or watch that great documentary on Netflix.”

Here are the inspirational essentials recommended by the Enterprise Lab team:

**BEN**
Alchemy: The Surprising Power of Ideas That Don’t Make Sense
A highly readable and brilliant introduction to the power of psycho-logical thinking by chief contrarian and Vice Chairman of Ogilvy UK, Rory Sutherland. I recommend you also check out some of his TED Talks!

**CAMILLE**
Love the Problem, blog.leanstack.com
Written by the author of Running Lean, Ash Maurya, this blog has loads of great articles on the Lean Canvas and general entrepreneurship tips based on Maurya’s experiences building businesses.

**LIZ**
Sifted newsletter
This Financial Times-backed newsletter is a great way of keeping up-to-date with the latest European tech news and opportunities.

**VICTORIA**
Masters of Scale
Great for those looking to build a massively scalable business, this podcast brings together entrepreneurs and innovators from around the world to talk about their journeys. It’s hosted by Reid Hoffman, Co-Founder of LinkedIn and investor at Greylock.

**HERNANI**
Knowledge is Beautiful
We all know that data is important, but making it look good can be really hard. This book by David McCandless demonstrates how data can be turned into beautiful, impactful infographics. Great inspiration for your pitch deck!

**HEENA**
Factfulness: Ten Reasons We’re Wrong About the World – and Why Things Are Better Than You Think
If you’re worried about the political climate, global warming and wealth inequality, then this is the book for you. Written by Swedish statistician Hans Rosling with his son Ola Rosling and daughter-in-law Anna Rosling Rönnlund, this book explains that humans often have a pessimistic view of the world, which is unjustified, as the world is actually getting better… so that’s good news!

**EUAN**
Bad Blood: Secrets and Lies in a Silicon Valley Startup
If you haven’t heard about Elizabeth Holmes and Theranos, then you need to read this book. It follows the rise of the company to a valuation of over £9 billion, and its huge fall from grace as it was uncovered that the ‘revolutionary’ blood-testing technology had never existed. A great example of the power of storytelling – just make sure you have the tech to back it up!

**OLIVIA**
Femstreet newsletter
Collating the latest exciting news, tips and networking opportunities for women in tech, entrepreneurship and venture capital. Fantastic roundup and my new go-to for finding events!

**FERDINAND**
Talking to Humans
Looking to find out more about your customers? Then you should definitely check out Talking to Humans by Frank Rimalovski and Giff Constable. With this and Rob Fitzpatrick’s The Mom Test (see page 28), you’ll have your customer development covered.

**JEN**
TED Talks Daily podcast
Get your daily dose of inspirational talks on topics ranging from tech to business and politics to society. Lasting just 15 minutes, these are easy to squeeze into your day, and if a particular talk really takes your fancy, you can listen to the long-form interview.

You can borrow these and many more from our Enterprise Lab Library. Just head down to the Lab and check out our bookshelf.
## The Enterprise Lab in numbers (2018–19)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students engaged with the Enterprise Lab</td>
<td>1,974</td>
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<tr>
<td>Experts-in-Residence recruited</td>
<td>21</td>
</tr>
<tr>
<td>Total prize money awarded by the Enterprise Lab</td>
<td>£114,500</td>
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<tr>
<td>Mentors on the Imperial Venture Mentoring Service</td>
<td>56</td>
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<tr>
<td>Women founders supported through WE Innovate</td>
<td>65</td>
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<tr>
<td>Hot drinks produced by the Lab coffee machine</td>
<td>4,618</td>
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<tr>
<td>Student startups incorporated</td>
<td>51</td>
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<tr>
<td>Slices of pizza consumed</td>
<td>3,200</td>
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<tr>
<td>New board games in the Lab</td>
<td>16</td>
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<tr>
<td>Individual startups incorporated</td>
<td>230+</td>
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<tr>
<td>Individuals applied to the Venture Catalyst Challenge</td>
<td>800+</td>
</tr>
<tr>
<td>Funding raised by Imperial student and graduate startups</td>
<td>£21m+</td>
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</tbody>
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How we can help you on your journey

Now that you’ve read about some of the amazing stuff our students get up to, the people that inspire our work and have picked up a few tips from the ‘How to’s’ it’s time to embark on your own entrepreneurial journey.

Whether you want to launch the next Google, build the next Tesla, tackle a pressing social or environmental challenge, or simply meet new people and develop the skills you need to make your idea happen, we’re here to help.

From How To Talks to co-working space, competitions and mentoring we offer all the support you need, free of charge and open to all.

Find out about all the events, competitions and support on offer at: www.imperialenterpriselab.com

I want to find out more about entrepreneurship, meet interesting people and learn new skills.
I want to find out more about entrepreneurship, meet interesting people and learn new skills.

I've got an idea and I want to test it.

I want to enter my idea into an entrepreneurship competition and win a prize.

I've got an idea and I want to test it.

I want to raise funding and launch a new venture.
Coming up this year

Learn new skills and join our community of student innovators and entrepreneurs

**OCTOBER**
- 2 / Pitch ‘n’ Mix
- 11-12 / Launch Weekend
- 16 / WE Innovate: Walking tour
- 22 / Innovation Pitch
- 23 / WE Innovate: Founders fireside chat
- 24 / How to...be creative
- 30 / WE Innovate: Building a powerful presence

**NOVEMBER**
- 6 / WE Innovate: Future forecast
- 7 / How to...talk to humans
- 7 / Pitch ‘n’ Mix
- 13 / WE Innovate: Ideation
- 14 / How to...build and design a product
- 21 / How to...innovate in healthcare
- 27 / WE Innovate: Leadership talk

**DECEMBER**
- 1 / WE Innovate application deadline
- 5 / Pitch ‘n’ Mix
- 10 / Innovation Pitch

**JANUARY**
- 14 / Innovation Pitch
- 16 / Pitch ‘n’ Mix
- 19 / Venture Catalyst Challenge application deadline
- 30 / How to...use design thinking

**FEBRUARY**
- 6 / How to...be entrepreneurial
- 6 / Pitch ‘n’ Mix
- 13 / How to...fail
- 20 / How to...negotiate

**MARCH**
- 5 / Pitch ‘n’ Mix
- 11 / London Venture Crawl
- 16-20 / Enterprise Week
- 19 / Venture Catalyst Challenge Final

**APRIL**
- 2 / Pitch ‘n’ Mix
- 28 / Innovation Pitch
- 30 / How to...communicate an idea

**MAY**
- 7 / How to...inspire others
- 7 / Pitch ‘n’ Mix
- 14 / How to...look after yourself
- 21 / How to...innovate

Register for any of the above events at: www.imperialenterpriselab.com

All of the above activities will support your progress towards the Imperial Award