



Felix

The Student Newspaper of Imperial College London

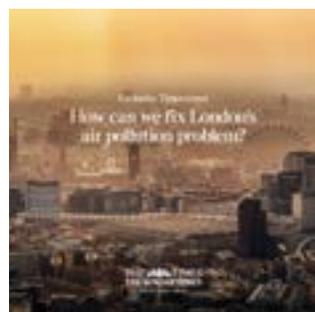
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Dr. Imogen Gingell, who was profiled by College, during LGBT history month waves the trans pride flag outside the Faculty Building // Joe O'Connell-Danes

Imperial community pens open letter calling for confirmed support for the trans community

86 students and members of staff have signed the letter as Vice Provost (Education), Professor Simone Buitendijk's controversial Twitter activity surfaces

NEWS

Andy Djaba
Editor-in-Chief

Members of the Imperial community have come together to write a letter calling for

Imperial College's Senior Management to confirm its full support of the transgender community and condemn transphobia. This comes after it came to light that Imperial's Vice Provost (Education), Professor Simone Buitendijk, had been engaging with material on Twitter which many considered transphobic.

The staff and student body collaborated to write this letter, which is addressed to Professor Buitendijk and currently has 86 signatories.

3rd year Undergraduate Physics student, Josef Willsher, who took the lead in writing the letter, bringing this situation to attention and engaging the staff and student body, first

discovered the offending tweets on 11th April. He told *Felix*: "The first thing that happened was I came across this account, @Transgendertrend, which is a particularly nasty account, which spreads lots of hurtful and misleading information about trans people; including calling trans women 'men' and stuff like that." After

then going through some of Professor Buitendijk's likes and follows, Josef noticed a worrying trend of online engagement and brought it to the attention of people in the Physics LGBT Representation Network - an "allies" network set up last year to better represent LGBT students in Physics.

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The season from hell



Andy Djaba – Felix Editor

As I watched Liverpool put four goals past Barcelona at Anfield and Lucas Moura grab a last gasp hat-trick goal to send Liverpool and Spurs, respectively, through to this year's Champions League final, I couldn't help but wonder... what I could possibly have done to deserve this. I thought it was bad enough that I've been forced to become an undercover Manchester City fan over the last few weeks of the title run-in just because I can't live in a world in which Liverpool win the league. The most painful part about this season from hell - the worst season I've ever had to endure in living memory - is that my team is absolutely not involved. We've been reduced to mere spectators. Matters of Europe and the top four are really none of my concern. I might as well be a West Ham supporter, there's nothing to play for. These are tough times to be a United fan.

I might resume my football boycott. The NBA playoffs are looking particularly exciting. I've always heard good things about cricket. Apparently golf is really hotting up these days, what's Tiger up to? Anyway, on to more serious matters. This week's lead story is a very interesting one, regarding a member of the Senior Management at College and her concerning Twitter

activity surrounding the transgender community. Although I appreciate College's response and the matter seems to have been resolved amicably, I can't help but be left slightly frustrated. I understand that College must tow the political line at all times, but there are times when I wish they would take a firmer stance on matters as pressing as these. A more complete condemnation of transphobia

would only serve to ensure that members of the transgender community feel better supported by Imperial. This logic can be extended to any marginalised community at Imperial, which finds hateful rhetoric justified under the guise of "free speech" and "defending debate". My problem with this is that it gives both sides of the discussion equal weighting, despite the fact that both sides aren't equally affected by the discussion at hand. Having said this, I would also say that progress has been made and this is a source of encouragement for all concerned.

This week's Section of the Week, goes to the Arts section! Congratulations! Fantastic work once again; I feel a celebratory Arts social is in order...



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Imperial's magazine, formerly known as **PHOENIX,**

returns...with a twist!

If you are interested in Grime & Black British music, we want to hear from you!

What does Grime mean to you?

If you're interested, please email Felix@imperial.ac.uk



NEWS

news.felix@imperial.ac.uk

Mental Health Awareness Week

NEWS

Becky Neil
Deputy President (Welfare)

Mental Health Awareness Week is coming next week from 13th - 19th May and the official theme from the Mental Health Foundation is Body Image. Body image is an insecurity that can affect all of us at any age and can really impact how we feel about ourselves. Feeling uncomfortable with your body can affect how you eat, exercise and sleep, which will impact your daily life and ability to study and research.

However, these are not just feelings you may have about your body.

You may experience similar insecurities about studying, socialising and just living. You may feel that you don't belong at Imperial, others are more intelligent than you, others are better at research than you, people don't understand you and that you are alone. All these feelings are valid but there is support out there to help you.

The Advice Centre can offer independent, confidential and non-judgemental advice about academic and non-academic issues. This may include mitigating circumstances, academic appeals and also wellbeing advice. With exams and hand-ins coming up, it's important to think about whether you need to submit mitigating circumstances. If you feel something has affected your performance, get

in touch with the Advice Centre (advice@imperial.ac.uk) and they'll be able to explain and guide you through the process. They are also offering wellbeing advice so if you just want someone to talk to, you can always make an appointment. The team will be out and about round campus, so drop by one of their stalls to see them or follow their social media campaign.

Other sources of support that may be useful include: Disabilities Advisory Service, who can give advice about concentration, studying and revising; Chaplaincy, who offer a quiet space for meditation, mindfulness or religious practices; Ethos offers sports facilities and classes and the Student Hub can help if you're concerned about accommodation or

finances.

The Counselling and Mental Health Advice Service can run sessions on personal issues for you to talk through and support you if you are experiencing mental health difficulties. Alternatively, you can reach out to a GP at Imperial College Health Centre if you are experiencing difficulties.

Your department is a great source of support especially for information about exams, course content and research support. You can reach out to your personal tutor, course leader, senior tutor or supervisor as they can speak with you or signpost you to a service or someone you can speak to. Speak to your peers as well, they may have some tips, may be feeling the same, or you may be able to work together and take



"The Advice Centre can offer independent, confidential and non-judgemental advice" // Imperial College Union

breaks together.

The Graduate School is running loads of events during the week so head along and get involved in their activities. You can find all their activities here: <https://www.imperial.ac.uk/study/pg/graduate-school/events/mental-health-awareness-week/>

Everyone has mental health and your mental wellbeing can fluctuate. Having good mental wellbeing can give you greater self-confidence, healthier behaviours and an improved quality of life. During this busy period try to notice your mental wellbeing and see

when it is slipping so you can take action. Some things you may want to be aware of are sleep, eating, exercising, your environment, the people around you and doing something you enjoy. It's important to find a balance with everything you are doing but that balance will look different for everyone. You can't compare what you are doing with others as everyone does it their own way. Finally, it's okay to ask for help, whether that's speaking to a friend, someone at the university or the Union or searching online. Asking for help is a sign of strength and you should use it.



THE TIMES
THE SUNDAY TIMES
Know your times

How can we fix London's air pollution problem?

Join us for a free and exclusive event, explaining how we use in-depth data to create engaging, interactive news experiences for our readers.

Featuring:

Sam Joiner
Interactive news editor, The Times

Dr Audrey de Nazelle
Environmental scientist at Imperial College London

Ryan Watts
Interactive journalist, The Times

Sir Alexander Fleming Building G16,
Imperial College Road, South Kensington
Monday, May 20, 2019
5-7pm

To register visit imperialcollegeunion.org/whats-on

NEWS

(cont.)

Following this, Josef engaged academics and staff in the Physics LGBT Representation Network and, with the support of academics, staff and other co-signatories, started writing the letter addressing their collective concerns to Professor Buitendijk.

“There's a pattern of lots of accounts, lots of likes, lots of engagement with things that we consider transphobic”

Professor Buitendijk has since apologised, deleted the offending tweets and unfollowed the accounts in question.

The issue was particularly sensitive because many of the posts with which Professor Buitendijk had engaged were TERF-related. TERF, or Trans Exclusionary Radical Feminist, is a category of feminism which “seeks to exclude trans women”. Josef explained to *Felix*: “Lots of trans women we've spoken to about this are very aware of how damaging that sort of rhetoric can be. It's a really harmful debate to be having and unfortunately it's dominated the public discussion about trans rights in the UK.”

In addition to the Physics LGBT Representation Network, many of the letter's co-signatories are from Imperial 600, the Col-

lege's LGBTQ+ network for staff and postgraduate students, IQ, Imperial's LGBTQ+ society, as well as Imperial's political societies, including Labour Society and Left Forum.

Early drafts of the letter were leaked to College Management and an initial meeting was held on 16th April between Professor Buitendijk, Professor Stephen Curry [Imperial's Vice Provost (Equality, Diversity and Inclusion)] and those who had expressed concern. This meeting has been described by some as “very political”. Although debate on campus is to be supported, Josef shared, “we were trying to explain to them how LGBT people and trans people are very sensitive to this cry for both sides because both sides means supporting and also condemning your actual identity”. There has since been another meeting, held on 29th April, and both College and those concerned have agreed a suitable resolution to the issue.

“Professor Buitendijk has since apologised, deleted the offending tweets and unfollowed the accounts in question”

Felix approached Professor Buitendijk for a response to staff and students' calls for her to distance herself from the offending tweets and re-confirm her commit-



Simone Buitendijk @SEBuitendijk · 4 Oct 2018

Good piece on gender self identification and women's rights. Important for all of us in a leadership position who want to be inclusive and mindful of everybody's (no pun intended) happiness and mental health. but are unsure as to how to go about that.



Trans rights have gone wrong | The Spectator

Your 13-year-old daughter tells a teacher that's she's uncomfortable with her body. She prefers trousers to skirts, football to ballet. She says she thinks...

spectator.co.uk



One of the offending tweets in question // Twitter: @SEBuitendijk

ment to inclusivity and diversity, to which she replied: “Yes, I want to do that. The last thing I want is to cause anxiety or harm. That is, of course, absolutely not my intention. I've apologised about any potential or real harm and anxiety that I've caused and I really understand now, much better than before, the dangers of having these kind of very complicated exchanges of opinions of Twitter. I've totally taken a step back from all of that and we're hoping that we can continue the conversation and work with Imperial 600 to make sure that we do right. I'm hoping that we can use this as a good way of moving forward. I'm hoping we can do something together so

we're not seen as being at odds with each other.”

The staff and students' letter to Professor Buitendijk and the College's statement in response can both be seen overleaf.

“I've apologised about any potential or real harm and anxiety that I've caused”

Josef ended the discussion with *Felix* by noting: “Simone represents

College Management and College Management has an obligation to protect trans people and has an obligation to support them. Using her public

“Simone represents College Management and College Management has an obligation to protect trans people”

Twitter account to engage with tweets and to share articles... we really didn't think it's the place to do that. A respectful debate, if you want to have that, means something else.”

Dear Prof. Buitendijk,

We represent members of the student and staff body at Imperial and we are concerned about your engagement with transphobic material and social media accounts. Specifically, we are writing to you about your previous following of Transgender Trend (@Transgendertrd) and others on Twitter and your engagement with some tweets which claim that provision of life-saving support and healthcare for trans children and teenagers is tantamount to abuse. Over the last month we have been communicating with you about our concerns, and are reassured that you have heard them and that the College is taking them seriously.

For trans students and staff within the Imperial College community these issues are important to address with immense care, as it impacts their ability to be open at work without fear of harassment, bullying, and harm.

In recognition of these challenges, the College Policy is significantly in support of trans individuals and makes the pledge “The College believes that, as a leading institution, it will benefit from employing trans people at all levels of responsibility, thus providing role models for staff and students who identify as trans.” Furthermore, the policy continues to state that there is a “Public Sector Equality Duty” which “gives public bodies legal responsibilities to take proactive measures to address equality.” As a senior figure within the college, it is likely that members of the college will look up to you and see you as a role model, and therefore to be in line with this policy it is important that you aim to act as an ally for the trans community.

We urge you to recognise that many members of the Imperial College community have deeply personal experiences with their gender. For many students, university presents the first opportunity for them to be themselves. The 2016 APS Climate in Physics Report addressed the impact on trans researchers and found “30% of trans individuals [...] characterized the overall climate of their department or division as *uncomfortable or very uncomfortable*.” and for trans individuals 60% had observed and 50% had experienced exclusionary behaviour. We must work to create an inclusive community for all our members, understanding the difficulties they face.

We understand you have unfollowed these accounts and appreciate the words of support you have expressed in meetings. We urge you and the college to publicly respond to the large number of students who have expressed concern over this issue and commit to further supporting the trans community at Imperial College.

We object to groups like Transgender Trend because their conception of equality excludes the most marginalised. We hope that as a member of the College community you can continue to work with members of the LGBTQ+ community and their allies within college to support trans-inclusive feminism.

Yours,
Josef Willsher

STATEMENT IN RESPONSE TO LETTER

Prof Simone Buitendijk and Prof Stephen Curry have confirmed their full support for trans students and staff and their commitment to working together and maintaining an open dialogue on these issues. This follows productive discussions between Prof Buitendijk, Prof Curry and representatives of the student and staff LGBTQ+ community. The meeting came after concerns were raised by students and staff about some social media accounts that Prof Buitendijk was following and some engagement with these accounts.

Professor Buitendijk said: “Although I support the freedom of academics to follow and engage in debate in all areas, including on social media, on this occasion I now realise that social media is not the correct forum for such sensitive debates. I have elected to stop all engagement with these accounts and apologise for hurt or anxiety caused to members of our community. I fully support all trans staff and students and I hope that the open and honest discussion we have had can lead to improved collaboration to ensure a sense of safety and belonging for all trans students at Imperial.”

Professor Curry, Assistant Provost (Equality, Diversity & Inclusion), said: “I am determined to help create a diverse and inclusive environment at Imperial where all staff and students feel free to be themselves and all members of our community are free to express their views. We must uphold both the individual rights of all our members of our community and also the importance of universities remaining places of open and respectful debate. I was pleased that members of the LGBTQ+ community felt able to raise their concerns; the ensuing discussion was very constructive and provided a valuable reminder of the need to be mindful of the power dynamics in any form of public discourse.”

Imperial College London is committed to equality and diversity, including the active support and inclusion of trans people in our community. We are pleased that a significant body of students has expressed support for the trans community in response to this issue.

NEWS

news.felix@imperial.ac.uk

Everything you need to know about The Great Exhibition Road Festival 2019

NEWS

Andy Djaba
Deputy Editor

Felix sat down with Head of Public Engagement, Vicky Brightman, to get the scoop on The Great Exhibition Road Festival 2019

This year, staff and students at Imperial College will see big changes to the annual Imperial Festival. With the 200-year anniversary of the births of Queen Victoria and Prince Albert fast approaching, this year the festival will be a collaborative effort for the first time. 19 other cultural institutions in the area, all of which are members of the Exhibition Road Cultural Group, have come together with Imperial to bring The Great Exhibition Road Festival 2019.

"We're very lucky on this campus to have such a unique position where there's the world's leading museums on the road", said Vicky Brightman, speaking to *Felix*. In her position as Head of Public Engagement, Vicky looks after the festival and is particularly concerned with areas around how Imperial can engage the wider society with its research and also how Imperial can enable its staff and students to do more and better public engagement. Explaining the idea behind the festival, Vicky said, "let's have a think about how we can work collaboratively to raise the profile of the area to lots of new audiences because it is a really special area - the home of arts and sciences in the UK really, especially London."

The festival, which is planned for 28th - 30th June and will see vehicular access to Exhibition Road blocked due to it being closed off, is partly inspired by The Great Exhibition of 1851. Prince Albert championed

this and wanted to have an exhibition to show the world how advanced we were. Six million people, an astonishing number at the time, visited this first exhibition and the profits are still administered by The Royal Commission for the Great Exhibition of 1851, one of the partners for this year's festival. "200 years on, we thought it was a great opportunity to celebrate that vision Albert had", Vicky added. That vision being, if we were to fuse the arts and sciences and collaborated, everything would be a lot better and richer for it. At a time when people were still thinking that there was a rift between arts and science, Prince Albert was quite the visionary and his desire to see the profits of the exhibition used to fund this area ('Albertopolis') is why many of the partnered institutions are here today. Vicky told *Felix*: "What was really important to everybody was showing what the richness of collaboration can bring".

The festival is also about attracting new au-

THE GREAT 2019 EXHIBITION ROAD FESTIVAL

19 other cultural institutions in the area have come together with Imperial to bring The Great Exhibition Road Festival 2019 // Imperial College London

diences. Imperial, along with many of the partnered museums, is aware that sometimes it is "preaching to the converted" - i.e. people that already love science or the arts. Vicky addressed this, saying: "We want to keep those people coming because they might study and work in the area as well and that's really important but, actually, there's loads of local communities that don't see this as the place for them. One of the other main aims of the festival was to work a bit harder on community engagement. We're particularly trying to engage people in North Kensington." As a result, there are five or six community engagement projects taking place before the festival that will have an output at the festival which can be celebrated much more widely.

As well as working hard on community engagement, all the partners are really excited about engaging each other's audiences. Commenting on this, Vicky added: "The people who come to our Imperial Festival aren't the same as those that go

to the V&A [Victoria & Albert Museum]. We want to engage a really wide variety of people with our research and involve them in it so working in partnership gives us access to lots more people that perhaps wouldn't come to the Imperial Festival and we'd never reach".

Of course, the logistics of collaborating with 19 cultural partners imposes some constraints on flexibility and has resulted in a date change to Imperial Festival, which typically takes place in April/ May, as reported in last week's issue of *Felix*. Vicky revealed: "Finding a date that everybody would be happy with was a very challenging aspect. The date certainly wasn't perfect for us." With that being said, College has done a commendable job at ensuring the number of students affected is quite low. In response to students that are concerned or confused about the changes, particularly those that have to move out of student halls early, compared to previous years, Vicky said: "I'd ask them to look at the

FAQs as a first point-of-call. All the Hall wardens have been informed and they know what to do if somebody comes to them so tell someone, whether it's your lecturer or a Hall warden. The Student Hub and various Campus Services teams have been amazing. Our students are so important for the festival."

The importance of the student body to the smooth running of the festival can't be stressed enough, with at least 200 staff and student volunteers each year. There are 140 research teams taking part in the festival, therefore postgraduate students are especially crucial. "Those research teams are always a mixture of staff and student; they deliver so much of the content."

Vicky noted: "There aren't many opportunities where everybody comes together and feels like they're all part of the same institution and the same team". However, this close collaboration between staff and students at the festival engenders a sense of community seldom offered at Imperial.



Nicky Bradley performing at the Imperial Festival // Imperial College London

SCIENCE

science.felix@imperial.ac.uk

Air pollution in London: where are we now?

SCIENCE

Juan Ignacio Rubio

Politics Editor

It is not an exaggeration to say that pollution is one of London's biggest challenges for the foreseeable future. While it is true that the situation is not as concerning as 70 years ago, when the pea soup-like Great Smog killed 4000 people in less than a week, the current pollution cloud that floats over the capital is still a major health hazard for all Londoners, especially the youngest and oldest citizens. In anticipation of the 20th May speaking event on the matter, organised by the Times and Imperial College London, I will present to the *Felix* readers an objective account of the present state of the problem.

When the media talks about air pollution, a majority of us imagine a bleak landscape of black fumes coming from a multitude of factories. Indeed, pollution is caused by the emission of toxic substances resulting from human activity. But what are those substances exactly, and why are they harmful for us and the environment?

The causes of the problem

The three big bad boys most responsible for the current sad state of the air quality in our city are nitrogen dioxide (NO₂), sulphur dioxide (SO₂) and carbon monoxide (CO). NO₂ comes from the combination of the nitric oxide (NO) emitted by heating and engines in vehicles with the oxygen present in the air; SO₂ is a by-product of the combustion of coal, oil and gas, which contain small amounts of sulphur, and CO is the main product of said combustion when it is done under conditions where the concentration of oxygen is low. The health effects resulting from prolonged exposition to them include higher chances of developing chronic respiratory diseases, several types of cancer and overall reduced life expectancy. It is estimated that 4000 Londoners had to be hospitalised due to the ill effects of pollution on their health between the years 2014 and 2016, a quarter of them being children under the age of 14. 600,000 Londoners suffer from asthma, a condition that is worsened by high levels of air pollution.

In 2016, the annual mean levels of NO₂ concentrations in 59 of 97 air monitoring sites in London were over the UK legal limit, with Brixton Road, Oxford Street

and Strand recording the highest amounts. In 2013, it was estimated that vehicle engines were responsible for half of all emissions of NO₂ into London, much more than aviation and industry, which accounted for 7% each. Thus, it is imperative to tackle the problem of vehicle emissions in order to solve this public health crisis. This is the point where we meet a term that has become quite familiar in the last month: ULEZ.

The measures taken to tackle it

While several initiatives have been implemented for the last couple of decades by both the Mayor and the London boroughs in the hopes of improving the air quality of the city (e.g. promotion of the bike as a mean of transportation, Congestion Charge for vehicles in Central London between 7am and 6pm on weekdays), the recently implemented Ultra Low Emission Zone (ULEZ) is by far the most ambitious policy adopted by the local administration to date. Currently covering the West End, Bankside, the City and parts of the East End, the ULEZ will be extended to the North and South Circular Roads in 2023, thus including more than 3.8 million people under its reach.

The scheme is very similar to the Central London Congestion Charge started in 2003, but it now operates 24 hours a day, seven days a week. Drivers of polluting vehicles (i.e. those that do not comply with the European emission standards in their respective categories) need to pay £12.50 per day for driving within the zone, or £100 if they are driving heavier vehicles like lorries or coaches. The



If you want to learn more about the problem, attend the seminar hosted at Imperial in SAF G16 at 5pm on 20th May // *The Times*

Central London Congestion Charge of £11.50 is applied on top of that. While it may sound harsh, and indeed there has been some protesting over the matter, 70% of Londoners approve the current measures, and a similar amount would like further restrictions.

A glimpse of hope

It is extremely early to evaluate the effect that the ULEZ has had on the overall pollution levels of London, but there is encouraging research that shows the less extensive regulations implemented since 2010 have been somewhat successful in improving the quality of air. Total NO₂ emissions have fallen by 9% since 2013 and no breaches of the annual pollution levels allowed by European directives have occurred in 2019 so far.

If you want to learn more about the problem,

attend the seminar hosted at Imperial on 20th May, where you will be able to ask questions to some of the biggest experts in the area.

Forget Brexit: What is being ignored?

At the next event, *The Times* will launch a competition to give one Imperial student the chance to write for *Red Box*, *The Times'* award-winning political newsletter, once a month for a three month period. The winner will also meet Matt Chorley, the editor of *Red Box*, to find out what it's like working in Westminster.

Full details of how to enter will be announced May 20th but, if you're interested, start thinking about what are the issues which are important to you that are being overlooked while politicians are distracted by Brexit? What is the one law you would pass if you were prime minister for the day? What is happening in health, education, housing, employment, welfare, the environment, transport, the arts, sport and family life? And what will be the long-term impact on Britain if the problems are not tackled soon?



Pollution is one of London's biggest challenges // *Guardian*

Avengers: Endgame

An imperfect, yet wholly satisfying, conclusion to 11 years of films.

FILM

AVENGERS: ENDGAME



Dir: Anthony Russo, Joe Russo. **Script:** Christopher Markus, Stephen McFeely. **Starring:** Robert Downey Jr., Chris Evans. *181 minutes*

Aidan Chan

Film Editor

Once again directed by Joe & Anthony Russo, starring Robert Downey Jr., Chris Evans, Chris Hemsworth, Mark Ruffalo, Scarlett Johansson and Jeremy Renner as the original Avengers, Paul Rudd as Ant-Man and Josh Brolin as Thanos, mega-blockbuster *Avengers: Endgame* is the direct sequel of *Avengers: Infinity War*. Besides having to wrap up a story as monumental and gargantuan in the Marvel Cinematic Universe (MCU) as *Infinity War*, *Endgame* has a second and much more serious burden – to wrap up the stories of many characters that have graced the screen throughout the decade.

The story picks up where *Infinity War* left it, i.e. after Thanos successfully removed half of all life in the universe. The original six Avengers were left intact and, in *Endgame*, they must find a way to fix everything, whatever it takes. The previous MCU entries have always felt slightly inconsequential, because we can always expect an Avenger or two to pop up again in a future instalment. However, *Endgame*, for the first time in the history of the

MCU, has to convey a sense of finality. It has to provide a conclusion to the sprawling storylines and characters the MCU introduced, especially for the first batch of Avengers, who we have grown to love and cherish; and I find *Endgame*'s conclusion very satisfying and well executed, with multiple character arcs tying up organically and elegantly.

“Endgame, for the first time in the history of the MCU, has to convey a sense of finality”

This is not to say that the film is perfect. Without mentioning any specifics, *Endgame* can be very easily dissected into three acts – a sombre and slower first act where the effect of Thanos' massacre is explored, a relatively upbeat and comical second act, and an indescribably epic third act.

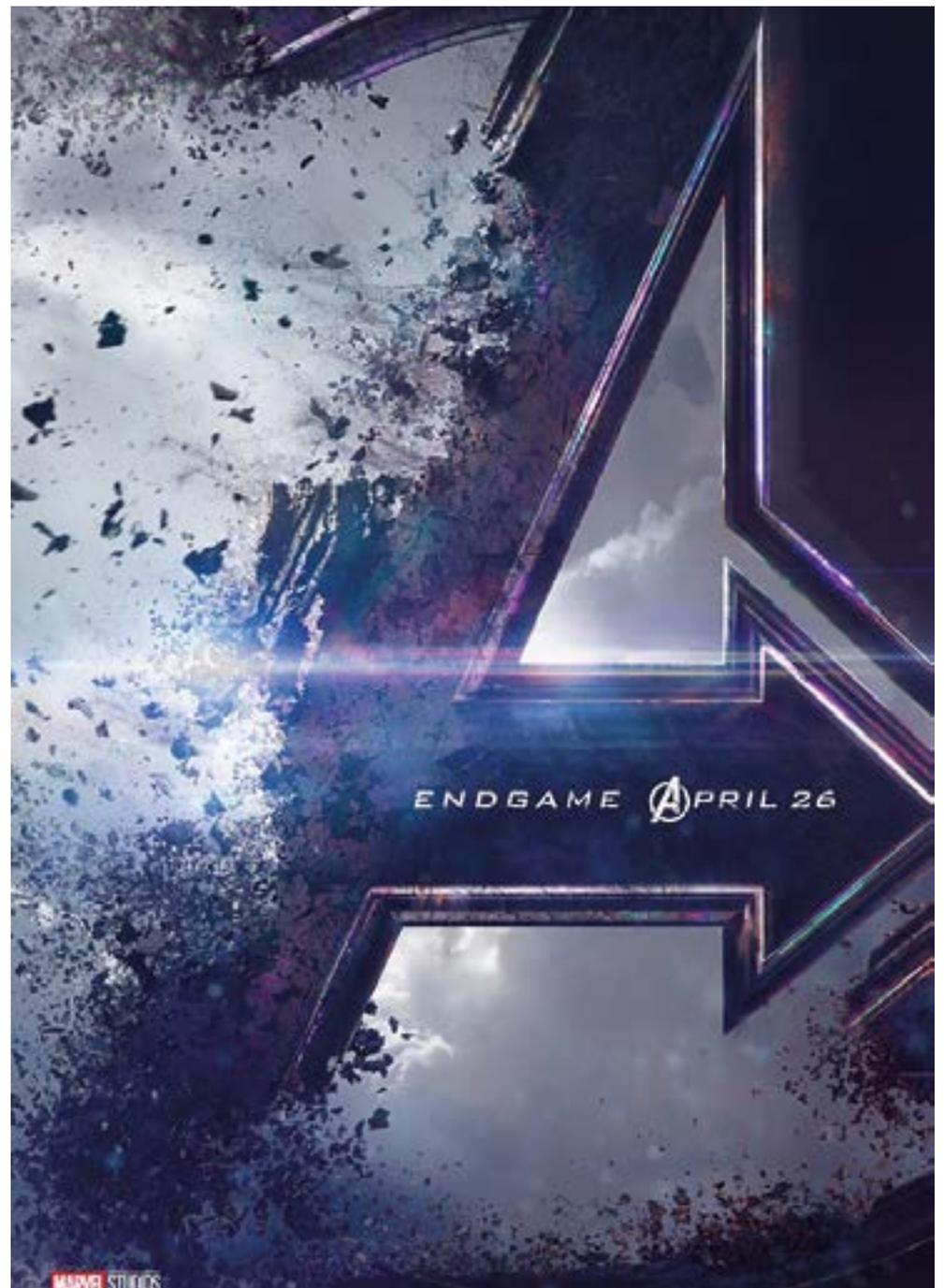
The first act presents the most human side of our heroes, and felt more like an episode of *The Leftovers* than a superhero blockbuster. The second act has a much faster pace, but is also slightly disappointing (a lot of people are not going to share my view). It is very enjoyable, and often hilarious, yet it runs a bit too long and relies a bit too heavily on fan service. I have nothing against fan service, *Endgame* is very

apparently a film made by fans for fans. However, the entirety of the second act feels too much like a piece of fan-fiction. It is definitely fun to watch, but it is executed rather too carelessly.

The last act, however, made all the wait worth it, and dwarfs all the shortcomings of the film. Hours after finishing *Endgame*, there are still no words that can adequately encapsulate the shock and beauty of the third act. It completely demolishes and obliterates the meaning of “awesome”. It was beyond anyone's expectation. No one asked for it, yet the Russo Brothers delivered nonetheless. Word of advice: go and watch *Endgame* on the biggest screen you can find (if you haven't already), it will be worth it.

“After finishing Endgame, there are still no words that can adequately encapsulate the shock and beauty”

The performances are stellar across the entire cast, from the irreverent but hilarious portrayal of Thor by Chris Hemsworth, to Jeremy Renner's Ronin hellbent on rediscovering his purpose in a post-Snap world. Josh Brolin's Thanos is slightly more unhinged, and even more dangerous this time around. However,



“Word of advice: go and watch *Endgame* on the biggest screen you can find” // Flickr

the absolute standouts must be Chris Evans as Steve Rogers, and Robert Downey Jr. as Tony Stark. After reprising their roles nearly ten times each, these two actors effortlessly and confidently carry the film with wit, strength and heart. *Infinity War* might be better paced and structured than its sequel, but *Endgame* finds our heroes at their most human and most vulnerable, and proves to

be the most emotionally powerful MCU film to date.

Despite infrequent flaws, *Avengers: Endgame* is a thrilling, epic and very emotional conclusion to an 11-year journey, and a bountiful reward for fans who have stayed with these characters every step of the way. With the latest entry, the MCU shall stand in history as one of the most ambitious and successful cinematic

experiments ever conducted. The many passionate people that spent countless hours crafting this film must be recognised with gratitude and respect for providing us a truly once-in-a-lifetime cinematic experience.

ARTS

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More than Human? Stephanie Dinkins

AI: More than Human sees collaboration between cutting edge researchers at DeepMind (MIT) and a wide range of artists including Stephanie Dinkins.

ARTS

Where? Barbican Centre

When? 16th May – 29th

August

How Much? £11

Rahul Mehta

Arts Writer

Stephanie Dinkins' eureka moment came as she stood face-to-face with BINA48, a black female robot residing in a first-floor office in Vermont. The opportunity was thanks to the work of the Terasem Foundation, a group dedicated to testing the limits of uploading a mind into a computer. Faced with "the only black female robot on the planet", Dinkins felt that her cyber companion's answers to questions about race and gender seemed incongruent with the experience of a black woman in 21st century America.

Technology, often host to futuristic fantasy, also reminds us of very present concerns. For Dinkins, there is a tangible fear that "AI and technology will start homogenising us

... boiling us down to the mean". How can we create sentient entities meant to operate in cosmopolitan communities when the creators are far from cosmopolitan? Is the answer for AI entities to only be encoded by people from their 'community'? According to Dinkins, "programmers require lots and lots of information and interviews and contact, to appreciate some of the nuances of a culture". Thus, the path forward lies not in the subjective experience of whoever writes the code, but education and exposure to different communities. "We're not just providing facades," Dinkins is eager to emphasise.

With in this drive to understand others in order to create a synthetic identity comes "ideas of empathy, compassion, ethical stances towards each other", says Dinkins.

Perhaps, one is allowed to hope, planning for the future can help to heal the enduring ignorance and misunderstandings of the present.

Based on her experience and art engaging with authenticity and agency, and with the generous

funding of Pioneer Works Tech Lab and others, Dinkins has created Not The Only One, or N'TOO. The project is a multigenerational memoir of three generations of women in her family (spanning almost a century), as told by a custom deep-learning AI. The AI has been fed numerous interviews with these women and continues to gather new knowledge from interactions with the public. The idea of learning through exposure to the real world is reminiscent of Microsoft's AI chatter bot, Tay, which enjoyed a life-span of 16 hours during which it evolved from a naïve online sentience into, as Dinkins puts it, a "crazy, vile, racist, homophobic, xenophobic thing". A bitter reminder that online discourse is perhaps not the best way to raise a new-born AI. When I raise this fear with Dinkins, she concedes that she provides only a foundation upon which the AI builds its own sentience. However, to follow her family traditions, N'TOO is designed not to 'hear' crude or vulgar terms. In doing so, she treads a fine line between 'organic' growth of the AI and cultural limits.

The tradition of oral history is deeply rooted in older cultures. The griot, found in present-day West African tribes, is a historian, story-teller and vocal artist. As Francis Bebey, Cameroonian writer, wrote in African Music: A People's Art, the griot is "a living archive of the people's traditions", one who receives news and information from the community. Though

Dinkins is reluctant to lay claim to the griot heritage and title, she recognises a curious similarity between her family's oral tradition and N'TOO's essence: "things are verbal ... they're somewhat encoded." While griots are bound by mortal limitations and lifespans, N'TOO may become what Dinkins dubs "almost the active griot with a digital memory". However, the similarities end there. The human griot offers broad sweeping lessons in human nature, while the interpersonal conversations recorded by N'TOO

"Technology, often host to futuristic fantasy, also reminds us of very present concerns."

"holds some of the things we tend to forget, the particularities."

Dinkins' work extends beyond her most recent project. She has founded Project AI Khwarizmi, a community-based project in Brooklyn that brings coding and data to communities of colour. As we rapidly immerse society in technology, Dinkins reminds us that "our lives are being bounced off algorithms all the time". From social media feeds to criminal justice, we are unknowingly controlled by digital mechanisms. But what happens when "this system is based on



Not the Only One (2019) Stephanie Dinkins // Courtesy of the artist

old data"? For Dinkins, the movement to "have more people of colour in the top ranks helping to write the code, write the algorithms, and control some of the ways they're being used or sold to other systems" brings both social and economic benefits. If you educate communities about algorithms using non-biased data, you get what Dinkins heralds as "better outcomes". For instance, a ProPublica report into machine bias revealed how algorithms based on zipcodes charged Asian-Americans more, on average, for online SAT tutoring. However, this extends beyond "small social justice ...

"Dinkins reminds us that 'our lives are being bounced off algorithms all the time.'"

it's about the way we decide to live as humans", Dinkins notes.

Are we ready for AI? Dinkins is reluctant to

predict when technology will reach the feared singularity, when it eventually surpasses human intelligence. She defers to the judgement of greater minds: "we have 25-50 years to get this right". Such a deadline is fast approaching, and raises vital questions: "how do we prepare ourselves, and how do we prepare it?" A technology that is made by all, for all.

As the interview draws to a close, I ask her for her advice for anyone looking to be involved in programming, whether as an artist (like her) or as a programmer. She counsels young people to "remember to bring your whole self", a holistic approach involving both skill-set and identity. Deploring adherence to the status quo as "complacent", she recommends "remaining flexible, mentally and in the modalities you use."

We stand on an existential precipice. Climate change catastrophe looms heavy on the horizon. Should we survive, N'TOO stands as a salient reminder that our histories, as well as our futures, deserve protection in the digital Eden that follows.



Not the Only One (2019) // Courtesy of the artist

ARTS

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Stanley Kubrick: The Exhibition

Delve into the brilliant mind of one of the world's most revolutionary filmmakers.

ARTS



Where? Design Museum
When? Until 15th Sept
How Much? £10.75

Claire Chan
Arts Editor

What an opening. As the dramatic music of *Also Sprach Zarathustra* thunders in the background, the psychedelic hexagonal carpet from *The Shining* rolls underfoot. We enter a bright corridor of screens, Stanley Kubrick's most iconic scenes flashing by as we get closer and closer to the main screen itself. It's a homage to the beautifully symmetrical one-point perspective used in his cinematic shots, but also gives the strong sense of being, quite literally, sucked into Kubrick's world of film-making. A fitting start to this new exhibition marking the 20th anniversary of the filmmaker's death. Prepare to be wholly immersed in what went on in that brilliant mind - the mind that gave us some of the most unforgettable, genre-defining films of our time.

A single wood-panelled room awaits us. Loosely organised, it's a bit like a cabinet of curiosities with Kubrick paraphernalia everywhere. The director's chair sits proudly in a corner; one of his many Academy Awards is displayed nearby, alongside Sasco cards annotated by Kubrick himself and a letter from Audrey Hepburn. Original screen-

plays and scripts are exhibited in the centre of the room, each rumped with use and scribbled over with handwritten notes in Kubrick's own hand. It's exciting to see his marks all over the source material: some dialogue lines resolutely crossed out, others underlined and emphasised with an exclamation mark or two, and little storyboard sketches in the blank spaces.

Original costume and set design sketches litter the walls, alongside scouting photographs taken in search of the ideal shooting locations. It's like a behind-the-scenes tour of the director's mind. It's easy to see his famed perfectionism, attention to detail and the sheer amount of preparation that went into each of his films. For *Napoleon*, a film on the French general Kubrick planned but never completed, rows of historical books on Napoleon which fill a shelf on one side of the room - and that was just the pre-reading.

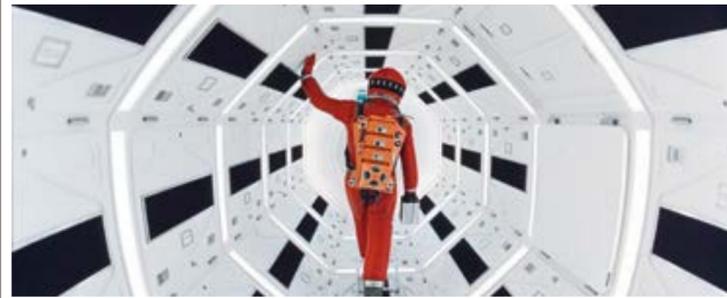
Kubrick was well-

"Eccentric, influential... ground-breaking"

known for pushing the technical and artistic limits of filmmaking, and no exhibition on him would be complete without the seminal inventions that broke new ground in his films. Among the things not to be missed are the Zeiss high-speed lenses made originally for NASA space photography and adapted

by Kubrick to shoot low-light candlelit scenes in his period drama *Barry Lyndon*. And, of course, the famous centrifuge set used to model the spaceship *Discovery* in *2001: A Space Odyssey*; taking 6 months and £580,000 to build, it enabled the creation of the futuristically continuous space-ship interior, one living space merging seamlessly with the next in a gigantic treadmill. Never one to be satisfied with current technology, Kubrick was always looking to use new techniques and new technology to achieve the effects he wanted. Also on display is the novel slit-scan photography used by Doug Trumbull to achieve the psychedelic light effects of the final 'Star Gate' sequence, representing a journey through space and time. While something we might take for granted now with the advent of CGI, this mind-bending light show was made entirely without computer effects and offered audiences something that had never been seen before in film.

The second, meatier part of the exhibition goes into the making of each of his films in glorious detail. The most famous scenes from each film are projected on large screens for viewers to get a taste of the finished product. Each section is rich with production photographs, original storyboard sketches and concept art, with iconic set pieces and costumes from each film on full display. There are some real gems here. Among these are Private Joker's helmet from *Full Metal Jacket*, the slogan "Born To Kill" scrawled across it right next to a



Step inside to discover a world of pure imagination // Design Museum

peace sign pin; the photoshoot of 14-year-old Sue Lyon, star of *Lolita*, staring provocatively over her heart-shaped sunglasses; Sir Kenneth Adam's concept sketches for the War Room in *Dr Strangelove*, described by Spielberg as the 'finest set ever designed'. Important work from other contributors to Kubrick's films is well-acknowledged, from the graphic design of Saul Bass or Philip Castle to Milena Canonero's beautiful costumes designed for *Barry Lyndon*.

The curators have also gone to the trouble to showcase both the things that might have influenced Kubrick and also the impact his films had on society. Don McCullin's haunting photographs of the Vietnam War are prominently displayed in the section devoted to *Full Metal Jacket*, a film about the brutal impact of the Vietnam War on both soldiers and civilians. Meanwhile, a series of irate letters from the public capture the controversy stirred up by the violence of *A Clockwork Orange* and the sexualisation of a teenage girl described in *Lolita*. There are also fascinating tidbits about the creative process behind each film. For *Eyes Wide Open*, Kubrick

had to shoot a story based in NYC on the streets of London - his meticulous insistence on authenticity led him to have his assistant painstakingly photograph the whole of Commercial Street, one photo at a time, on a 12-foot ladder.

The exhibition ends, fittingly, with his most famous and technically challenging work, *2001: A Space Odyssey*. It was the genre-defining film that would shape the way we thought about futurism and science fiction forever. Capturing the sense of space exploration and futurism of the time, Kubrick's *2001: A Space Odyssey* was a realistic view of a plausible future, predicting iPads and current worries about sentient artificial intelligence. Kubrick and his team imagined this possible future in stunning detail, ranging from technical consultations with IBM for the design of intelligent computer HAL-9000, right down to the furniture, watches, clothing and even cutlery used in his vision of 2001. On display here, though not included in the film, is even an intriguing range of 'futuristic makeup products' envisioned by cosmetics giant Coty for use by the ladies of 2001.

It was characteristic of Kubrick, perhaps, to craft whole new worlds for each of his films, although only part of them would ever be seen by audiences. While this made him set punishingly high standards for his staff and chosen actors - there's a bit in the exhibition about how he made Tom Cruise walk through a door 90 times for *Eyes Wide Shut* - it also gave him the 'magic' he looked for in front of his camera, and which filtered down to us as audiences. There certainly is something magical about watching a Kubrick film. Whether horror, science fiction, war film or even historical drama, he elevated every genre he ever turned his hand to, without losing his distinctive style.

The thing about magic is that it can't be explained. But the Design Museum's breathtaking retrospective gives a glimpse of what went on inside the head of this eccentric, influential and groundbreaking director. An exhibition that will satisfy even the most hardcore Kubrick fan, and leave you with a strange desire to watch all his films in one sitting.

ARTS

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Twelfth Night

Shakespeare time travels to the roaring 20s for this unique twist on a classic comedy.

ARTS



Where? The Rose Playhouse
When? 23 April - 5 May
How Much? From £15

Shivani Gangadia
Arts Writer

Theatre company OVO whisks us through this outrageously funny play in just over 90 minutes, complete with a live jazz band and pop tunes by the likes of Rihanna, Radiohead, Britney Spears, and more. It might have seemed a little fast for Shakespeare, but I personally loved the pace, and they kept a lot of the original text with adjustments only made to fit the length. The songs created great breaks in the action, and whilst this may not have been the right play for diehard fans of the Bard, it was perfect for anyone who wants to ease themselves into Shakespeare, or doesn't usually enjoy it so much.

Set on a cruise liner in the 20s, the stage design was simple yet fabulous. The small upper section of the Rose Playhouse was used for the entire play,

with the audience seated amongst all the action. It aptly mimicked the deck of the *SS Illyria*, so I applaud Simon Nicholas for an incredibly clever use of the space. The jazz band performed in amongst us, sometimes at the back and sometimes in the middle on the stage, making the feel like a really immersive experience.

I have never seen such an imaginative interpretation of a play, and I never would have guessed it would work. The cast were excellent, many of them also playing instruments. Feste, played by Hannah Francis-Baker definitely stood out to me, aside from acting and playing the trumpet, her stage presence and liveliness whilst singing (probably the best voice out of the cast) really pushed the show forward. Viola, played by Lucy Crick, was also wonderful in her role, though I must admit I was less taken with her singing; perhaps it was because her voice wasn't as suited to the style of music. The rest of the cast were also hilarious, in particular Sir Andrew, played by James Douglas. Faith Turner as a female version of Malvolio, here

dubbed Malvolia, was also a stand out performance as the snooty, disapproving right-hand woman to Olivia. She ends the play singing a beautiful song, giving the ending a bit of a sad, unexpected twist which I'd never seen before.

One of my only qualms would be that some songs didn't fit with the storyline. Whilst it was lovely to hear fun jazz renditions of catchy songs that we all knew the words to, from classics like Creep by Radiohead, to chart hits from Jason Derulo, a few of them just didn't feel like they made sense in the context of the play. On the other hand, presumably not everyone was paying as much unrequired attention to the lyrics as I was, but rather just enjoying the live music!

This is definitely the play to see if you're looking for a very inventive and original version of a classic play, be that because you want to get into Shakespeare but don't know where to start, or you just enjoy quirky small productions by groups of talented underrated people.



An imaginative spin on a Shakespearean Classic // Lou Morris Photography

The Picture of Dorian Gray

A decent, if somewhat humdrum production of Wilde's novel.

ARTS



Where? Richmond Theatre
When? 22nd - 27th April
Touring until 18th May

Claire Chan
Arts Editor

The *Picture of Dorian Gray* is one of Oscar Wilde's best-known works, and certainly the most controversial. Published in 1890, it immediately attracted criticism for the hedonism and immorality promulgated in its pages, with Wilde accused of 'offending public morals'.

The story is of Dorian Gray, a beautiful young man who, influenced by the rich and sybaritic Lord Henry, comes to the pursuit of pleasure as the only important thing in life. Rashly, he wishes that a painting of him at the peak of his youth would age, with he himself staying unchanged forever. His wish is fulfilled; despite his spiral into corruption, he remains young and beautiful, the portrait alone becoming the window onto his wicked soul.

Tilted Wig Productions' new adaptation, directed by Séan Aydon, makes a brave stab at capturing the complexity of Dorian Gray for the stage. While certainly a solid production, Aydon's direction comes across as a bit too one-dimensional, missing out on the emotional subtleties and inner turmoil of Wilde's original Dorian.

Perhaps this is also in part due to Gavin Fowler's portrayal. Fowler never really seems to comfortably inhabit the character of Dorian. Excessively full

of naivete in the beginning, he does a complete 360 into some sort of machisimo-fuelled sexual predator without so much as an interval between. With 'good Dorian' and 'evil Dorian' played rather like caricatures, there's little explanation for why the 'unspoiled young man' suddenly turns into a cold-hearted, degenerate cad at what seems to be

"visually pleasing"

the drop of a hat.

Jonathan Wrather, on the other hand, makes for an excellent Lord Henry Wotton. Powerful and razor-sharp, he radiates the aura of one who is used to having his every desire fulfilled and with no compunctions about crushing others in the process. The seductive power of Wrather's Lord Henry would corrupt anyone. It makes it all the more moving when he reappears in the last scenes as a broken man, who, for all his hedonistic convictions, has not found what he wanted in life.

Daniel Goode makes a good effort at playing Basil Hallward, the artist who is in love with Dorian and tries to save him from his downfall. It's a very restrained and yearning depiction, with Hallward left dismayed and powerless as Dorian slips further into degeneracy. The only thing is that the relationship between the two seems entirely one-sided. You don't really get the sense that Dorian is at all moved by Basil or that Basil 'could have saved Dorian' with his love - he just seems a bit of a side character who Dorian tires of once Lord Henry comes into the picture.

Also worth noting is Phoebe Pryce for her imperious, cool-as-a-cucumber portrayal of Lady Victoria Wotton, though her stage time was sadly limited.

All 19 scenes take place in Sarah Beaton's delightfully eerie set - the high, cracked, paint-peeling walls of an artist's studio appropriately capturing the themes of rot and decay. With no real set changes for any of the scenes, it gets a little static, but changes in lighting work well to convey the right atmosphere.

The production does suffer a little from a taste for melodrama, which rather detracts from the plot. Midway through, just to hammer home the point about Dorian's descent into depravity, Lord Henry and Dorian go off to a Killing Kittens-esque sex orgy. The lights start flashing red, various people gyrate to thumping music and to top it all off, Lord Henry starts injecting heroin in the corner. I couldn't help but giggle.

The titular picture is represented by a clear pane of plastic, which reappears as slightly cracked and opaque after Dorian's misdeeds. I found this visually underwhelming - nowhere near vile and horrible enough to represent Dorian's corrupt soul or to justify his horrified reaction at the end of the play. Dorian's death, despite the flashing backlights and his melodramatically collapsing silhouette, ultimately falls short in actual dramatic impact.

A visually pleasing production that doesn't quite give us the wittiness and nuance of Wilde's novel. Dare I say, the book is better than the play?

IC CALISTHENICS



Mens Sana In Corpore Sano



GAMES

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Okay Google. What's a replacement to consoles?

The next generation of gaming might not be defined by consoles, but by a "Netflix" approach to your gaming library.

GAMES

Anthony Onwuli

Games Editor

Console generations have been marked with gamers dropping over £300-£400 on a new console, £50 on new titles, and more recently £60 a year to play their games online. But what if the future of the next generation required no consoles, no fancy rigs nor any need to pay to access the broadband your already paying for?

The entertainment industry has mostly moved away from physical media and has embraced digital downloads and with the advent of platforms such as Spotify and Netflix. Consumers no longer need to "own" media in order to enjoy music and movies. An unlimited selection of titles is now what the average person expects. But can gaming become the next industry to be embraced by streaming? Short answer: Yes. Long answer: It's complicated.

Cloud Gaming

Now subscription-based models for access to a large library of video game titles is nothing new for the industry. The idea of a cloud gaming service is already a decade old. It has been trialled, tested, released, a bit of success before ultimately failing. This gaming achievement was unlocked by OnLive.

The First Attempt

What exactly was OnLive? It was a cloud gaming service which enabled its subscribers to rent video games without having to install games on their device. All the rendering for the games happened on remote servers and the fully rendered game would be sent to your device. No longer would you need to dedicate your 1TB hard drive to 500GB of video games and DLC. Gamers could rejoice at this revolutionary concept. There would have been no need to build expensive PC rigs and the appeal of an easier distribution platform would have surely pulled developers and publishers to this new method of

"Subscriptions based models for access to a large library of video game titles is nothing new to the industry"

distribution. It worked for Spotify and it worked for Netflix. The service, to the surprise of video game sceptics, worked!

So where is OnLive now? A myriad of business issues behind the scenes ultimately led to OnLive becoming defunct in April 2015 with Sony acquiring its patents. It was a service which was ahead of its time.



Google's Stadia aims to make gaming accessible across all your smart devices // Google

PlayStation Now

Sony, then also equipped with Gaikai, (a rival of OnLive in the early 2010s), had been making great advances in cloud based gaming with the PSP and PS Vita allowing Remote Play (a method of streaming) with the PS3 and PS4. Sony had introduced its digital video game subscription service with PlayStation Now in 2015 on PlayStation 4 and PC. This has given gamers access to over 500 PlayStation titles for £12.99 per month. This service in some aspects represents the "Netflix of gaming" narrative. But its requirements of downloads now combined with it being targeted at a pre-existing market of gamers does not embrace what OnLive set out to do.

Google Stadia

Initially conceptualised as Project Stream, the Stadia was unveiled at

Game Developers Conference (GDC) in March 2019. The Stadia aims to embrace the Netflix architecture for media as OnLive did during its era. This is Google's first step into the games industry, and it is definitely a bold move.

The heavy processing that was previously tied to expensive gaming rigs and consoles using Google's infrastructure. Claims of 10.7 teraflops of power have cited for cloud computers which make light work of the Xbox One X's 6.0 teraflops.

Stadia is designed to run simply through the Google Chrome browser. Nothing else is needed besides a controller.

Alphabet also owns YouTube, so it should be no surprise that the massive video sharing platform will be used to enhance the Stadia experience. You could be watching a trailer for a game which is currently out, and if it's available on the Stadia, then you could be playing it instantly.

With a large community of streamers on YouTube, Google can easily incorporate the average watcher into a gamer with Stadia's "Crowd Play" feature which will allow players to jump into the same game as their favourite streamer and even join their multiplayer session.

Google's not the only tech giant entering the game industry. Rival technology companies Microsoft, Apple and Tencent all have their own projects in the works with

"Stadia is a cool concept, but Google is certainly not an originator in this field"

Project xCloud, Apple Arcade and Tencent Start. The future of cloud based gaming is certainly up in the air. The Stadia is a

cool concept, but Google is certainly not an originator in this field.

Verdict?

The chief marketing officer of Xbox, Mike Nichols, has claimed that Google might struggle to compete as they "don't have the content", which is a valid claim. We still have much to learn about the Stadia including its unknown game library, unknown price, and the dependence on your internet connection. Though with improving broadband speeds as well as the 5G rollout, this issue going into 2020 could be prevented from being the Achille's Heel of Google Stadia.

The Google Stadia will release towards the end of 2019. Who knows, we might have Google appearing at E3 this year.

FOOD

food.felix@imperial.ac.uk

YUMCHOP®

Fresh, tasty & healthy - *Naturally!*

Introducing Yumchop Foods

Described by Imperial students as “a great alternative” and praised for having “really nice consistency” and “very good flavour”, meet the latest addition to the selection of food on offer at Central Library

FOOD

Abi Adefisan

*Yumchop Foods Limited
Account Director*

Yumchop Foods is delighted to be partnering with Imperial College University in the heart of London to bring an authentic taste of its quintessential multi-ethnic frozen ready meals, using the innovative automatic retail kiosk (ARK), to the 24-hour Central Library.

The range includes a mixed range of rice meals, pasta, tasty chicken meals and includes vegan and vegetarian meals.

“It is good to have healthier and different choices”

The Kiosk was launched on 1st May, with a three-day free food sampling campaign.

Yumchop Foods is in-

novative at heart and has tapped into the University markets using the innovative concept of being able to provide an additional range of healthy and tasty hot meals to students, 24 hours a day, seven days a week.

“Very filling and good for price”

Yumchop Foods manufactures a tasty variety of *home style cooked meals*, with *no added preservatives, no added artificial colouring* and longer shelf life, as it is rapidly frozen to maintain texture, taste and quality.

Students are the lifeline of universities and colleges. Refuelling between study sessions or just eating with friends during break sessions is part of their day-to-day activities.

Additionally, there is a massively growing trend for greater convenience and food-on-the-go. This is due to time-pressed students who may struggle to settle to eat healthy

meals due to lectures, pressure of assignments and preparing for exams.

This is why Yumchop Foods has introduced access to food that can be transformed to hot ‘grab-and-go’ food in minutes, using its Automatic Retailing Kiosk with its own incorporated microwave.

Yumchop Foods is immensely proud of this approach to addressing these student needs and providing a wider range of food options championing authentic and healthy flavours.

“Very nice seasoning”

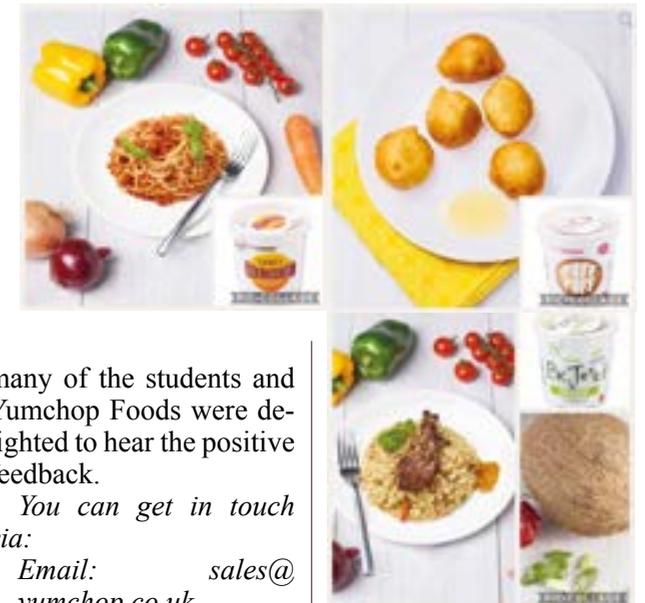
Yumchop Foods aims to create an exceptional vending machine experience for students using the latest technology and real-time remote monitoring. Yumchop Foods is determined to evolve and find new ways to improve the offering by ensuring students are engaged to understand their eating habits, trends and what they like.

Yumchop’s team understands that customer

feedback is the backbone of a food business and will be addressing this in more ways than one. The technology will allow students’ consumption patterns to be understood and to anticipate how they will behave.

The Kiosk has real time remote monitoring, providing valuable information on stock level, ensuring it is kept to full capacity to meet the student needs, especially in crucial times, such as exam periods, when students are up late studying in the library.

The food tasting campaign was a great opportunity to engage with



many of the students and Yumchop Foods were delighted to hear the positive feedback.

You can get in touch via:

Email: sales@yumchop.co.uk

Follow Yumchop Foods on:

Instagram: [@Yumchopfoods](https://www.instagram.com/Yumchopfoods)

Facebook: [YumchopFoods](https://www.facebook.com/YumchopFoods)

Top Left: Spaghetti combo pot, Top right: Puff puff combo pot, Bottom: Coconut combo pot // Yumchop Foods



The Yumchop Foods team // Yumchop Foods

SUSTAINABILITY

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Witnessing Life on the Frontline of Climate Change

Sir David Attenborough speaks up about what global warming means for the future of our planet through an absolute must-watch documentary by BBC One

SUSTAINABILITY

Monami Miyamoto
Sustainability Editor

On April 18th, BBC One broadcasted the highly anticipated documentary “Climate Change: The facts”. Needless to say, it was one of the most devastating hours of my entire easter holiday (really putting revision into perspective). Hosted by the trusted veteran, sir David Attenborough, this documentary presented the alarming and formidable consequences of global warming exceeding 1.5 degrees.

The problem with global warming for many, is that it seems to be such an abstract and overwhelming topic that we can’t quite get the grasp of it. There seems to be too much information floating around, with mixed opinions and solutions from a multitude of angles. Nonetheless, younger generations have shown strong concerns and proactivity in the recent months, through events such as the climate strikes across the globe and the extinction rebellion in London. It seems timely that BBC has broadcasted this comprehensive documentary, ‘rousing call to arms’, as stated by the Guardian.

It tackles some of the greatest threats of climate change - heatwaves in forests that have led to the massacre of the Australian flying fox; icebergs built over thousands of years



Sir David Attenborough // Climate Change - The Facts BBC One

collapsing in a matter of seconds; regions of land once inhabited now submerged, forcing ‘climate refugees’ to seek escape; wildfires in California burning down entire communities along with its families.

Our planet is quite literally falling apart.

I believe that the problem with us as students studying in London, living our day to day lives, is that it becomes almost too easy to dismiss everything happening thousands of miles away. If we aren’t the ones suffering, we seem to continue putting it off. Which is why, this documentary is so painful to watch – but should be mandatory for everyone. Sir Attenborough’s dire

tone presents shocking statistics about the reality of our planet, which, narrated over footage of grim landscapes taken from across the globe, merge in an effort to cry out to our ethos, pathos and logos. When the documentary presents to you the stark reality of real people and tragic

Our planet is quite literally falling apart

suffering, the harrowing reality will hit you like a sack of bricks, and flood you with an emotional connection that compels your new concern for

climate change.

Nonetheless, the film is not all doom-and-gloom. The last 20 minutes of the documentary offers a glimpse of hope: if we take serious action in the coming years it is possible to mitigate some of the most adverse damages of climate change. By shedding light on 16-year-old Greta Thunberg and how she ignited a youth revolution against climate change, we as audience are urged to believe that if she can do it, any one of us can too make a difference.

An interesting approach to the problem is presented through the rapid growth of renewable energy development – solar panels, windmills, and even electronic aeroplanes (though far in the

We must all share responsibility, both for our present well-being and for the future of life on earth

future). The question is whether or not all this can make the necessary difference before a looming deadline.

It seems ironic that the man whose career was born of sharing the wonders of nature to the public, is now having to

alarm us about its demise.

He concludes “We now stand at a unique point in our planet’s history, one where we must all share responsibility, both for our present well-being and for the future of life on earth. Every one of us has the power to make changes and make them now. Our wonderful natural world and the lives of our children, our grandchildren and all those who follow them depend upon us doing so”.

Being tasked with the enormous responsibility of saving this planet for the future, what can each of us, and what can all of us, do?

Climate change: The facts is available to watch on BBC iPlayer.

CLUBS & SOCIETIES

felix.clubsandsocieties@imperial.ac.uk

ESN Imperial



It's time to elect the new committee of ESN Imperial!

CLUBS & SOCIETIES

Carla Smith

ESN Imperial Vice President

Erasmus Student Network (ESN) is the largest student organisation in Europe. Whether you have been on a year abroad, are currently doing an exchange at Imperial or are keen to be part of the network, we're looking for enthusiastic students to help run the society for the next academic year.

You can join the committee and make an impact! Not only will you be involved in organising events and maintaining contact with international students, you will also be part of national and international ESN events and shape the future of the network.

Positions available on the committee*:

President:

Represent ESN Imperial in national/international platforms, with external organisations and with Imperial College Union. Overall club management.

Vice president/Local Representative:

Represent ESN Imperial in national/international platforms, call and organise committee meetings, recruit new members, ensure smooth running of the club.

Treasurer:

Manage club finances: annual budget, event reports, claims & refunds.

Secretary:

Head of communications channels (email, Facebook), taking meeting minutes. Distribution of ESN cards.

Web editor:

ESN Imperial website and social media management and upkeep.

Events officers:

Work as a team to organise weekly social events for ESN Imperial members (20 – 100 at a time).

Send us a short manifesto outlining why you would like to join the committee and what you can bring to the society, along with a photo of yourself, to erasmus@ic.ac.uk.

We will be holding a Q&A to answer any queries regarding being on the committee, feel free to come along for a chat! Keep an eye on our Facebook page (ESN Imperial) for more details.

We look forward to hearing from you!

**You will have the chance to develop your role as well as help other committee members with theirs - we know exams and coursework are a priority!*

Carla Smith - Vice President



Joining ESN this year has far exceeded any expectations. It has been so rewarding to be involved with hosting events and supporting our members, as well as being involved in national and international events with other committees from around Europe. This Easter I went to Thessaloniki, Greece, for the international AGM, and returned even more motivated to continue to be a part of ESN.

Rufus Mitchell-Heggs - President

Two years ago, I finished what must have been the craziest and most fun years of my life. In one short year, I discovered new places, new beers and made some amazing friends.

Since returning to Imperial, I joined as the ESN Imperial Vice-President and have had the pleasure of organising events alongside some of the most driven and energetic people. As a team of ex-Erasmus students, we have always aimed to enrich our incoming exchange student's experience of both Imperial and London. Furthermore, through ESN, I have had the opportunity to create international partnerships, participate in national platforms, attend an international AGM (>1000 student volunteers) and solidify Imperial's position in something much greater.



Belly Dancing Summer Workshop: Dancing with a sword

CLUBS & SOCIETIES

Sarah Lowe

Imperial College Belly Dancing Society Publicity Officer

As featured in last week's *Felix*, during the summer term ICU Belly Dancing hosts a summer workshop series instead of regular classes, due to the disruption that arises from exams happening at different points in term across departments. All of our workshops are suitable for beginners, so even if you've never danced before, you're more than welcome to join us! The series is starting tonight (10th May) 6-8pm with Polynesian Fusion in Meeting Rooms 1&2 in the Union Building (£15 otd for non-members). If that's too short notice (or if you've only just picked up a copy of *Felix* and it's now Tuesday), then here's what to expect next.

In less than two weeks we are hosting our second workshop of term: Swords. We've invited our Advanced Plus class teacher Sureya to give this workshop, after she gave an awesome double swords solo at our annual showcase back in March. Sureya is a professional belly dance performer, instructor and choreographer based in London, her passion for belly dance coming from her Turkish background. Sureya has been described as an energetic, vibrant and versatile performer who is keen to

share her love of dance through teaching around the UK. For more information, please visit www.sureyabellydance.com

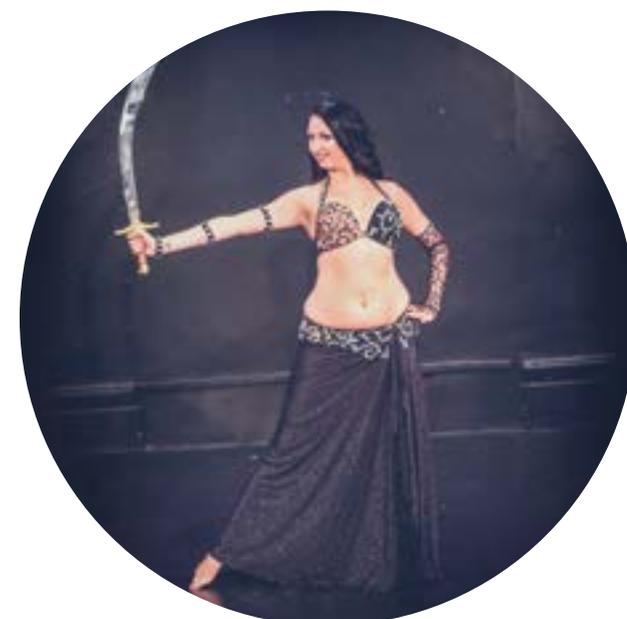
Whether you are new to dancing with sword or want to sharpen your sword skills further, this workshop is a great challenge to extend your dance repertoire. Sureya will demonstrate and break down the important techniques for sword dancing including holding and balancing it, using a sword to improve your isolations and travelling steps.

We unfortunately cannot provide swords for everyone during the class (Sureya will have a few to pass round), but we will be providing canes to use in their place, in order for you to practice the techniques (it is quite common to start with canes when learning the sword, as they are much lighter). We have a limited number of canes so it is advised to book online in advance to

avoid disappointment on the day!

We hope you'll join us for this workshop – if you can't make it but are still interested in learning to belly dance with us, we have a belly-hoop class on 4th June and a "vintage combos" tribal fusion workshop on 18th June. Our regular classes will start up again in October, when we will run a weekly beginners' class for newcomers to the style! You can email bellydancing@imperial.ac.uk if you would like details on any of our activities..

You can follow us on social media to keep up with our classes and performances. We have Instagram: [icubellydance](https://www.instagram.com/icubellydance), Twitter: [@ICUBelly](https://twitter.com/ICUBelly), a Facebook page: [ICbellydance](https://www.facebook.com/ICbellydance) and a YouTube channel: [ICBellydance](https://www.youtube.com/channel/UCBellydance). We also have a lot of info on our website: www.union.ic.ac.uk/rcc/belly-dancing, so do check it out!



"Sureya has been described as an energetic, vibrant and versatile performer" // sueryabellydance

When: 18:00-20:00, Tuesday 21st May

Where: Activity Space 1, Floor 1, Union Building

Tickets: £10 for members, £12 for non-members – on the door or on the Union website



#icuElections

Summer Elections 19

Submit your nomination

imperialcollegeunion.org/elections

Stand in the Summer Elections

In the Leadership Elections in March, we did not fill all the positions so the Summer Elections give you another opportunity to stand and vote for those roles. You can nominate yourself for the following positions:

- Academic and Wellbeing Departmental Representatives
- Constituent Union Committee positions
- Clubs, Societies and Projects Committee positions

Submit your nominations at imperialcollegeunion.org/elections

Key dates

Nominations open: Noon, Thursday 9 May

Nominations close: Noon, Thursday 16 May

Candidate manifesto deadline: Noon, Thursday 16 May

Manifestos go live and campaigning begins: Noon, Friday 17 May

Voting opens: Noon, Wednesday 22 May

Voting closes: Noon, Friday 24 May

Results released: Evening: Friday 24 May

Imperial College London



Reflect on your experiences Gain the Imperial Award

Benefits of registering and participating in the Award

- You can access a personal, private online portfolio allowing you to track your activities and experiences.
- You'll get a line on your transcript for each Stream you complete and an extra line if you achieve the full Imperial Award.
- Participating will improve your writing skills, helping with job and grant applications.
- You will develop attributes highly valued by employers.
- There is nothing to lose, only successful students have the outcome recorded.
- The Imperial Award is developmental, the skills you learn and attributes you develop will remain with you forever.
- There are plenty of support resources available, including workshops, videos and your personal tutor.

Find out more and register online
imperial.ac.uk/imperial-award



Work with the Union

Student Trainer (Student Experience)

Are you an excellent communicator? Join the Student Development team in delivering training sessions to support other students.

Student Bar Staff

Beit Bars are recruiting casual bar staff to join the team and work alongside our team of Bar Managers, Supervisors and Catering Staff.

Events Supervisor

Join the Events team and assist with the BBC Proms and our other wide range of events.

For more information and to apply:
imperialcollegeunion.org/about-us/work-for-us



Don't miss out on the Summer Ball

Tickets are going quickly! We only have a few tickets left for Summer Ball only, as After Party combo tickets are now sold out. Join your friends and colleagues on a night of celebration and glamour!

Summer Ball has something for everyone. Come and enjoy:

Carnival Rides	Food Vans	Vintage Car Rides
Silent Disco	Cocktails & Drinks	Pimms Tent
Photobooths	Live music	Official After Party

Don't miss out on your chance to attend the event of the year.
Buy your ticket at imperialcollegeunion.org/summerball



Wind Down Wednesdays

15:00 to 01:00 | in May & June

Beit Quad

Deck chairs Games
Drinks Tasty meals



Drink Outside The Box!

18:00 - 23:00 | Thursdays, in May & June
FiveSixEight & The Union Bar

2 cocktails for £7.90
and 1 mocktail for £4.70



Thank Goodness It's Friday

17:00 to 02:00 | Fridays, in May & June
Beit Quad

From 21:00
DJs in Metric
£2.50 door charge

Submit your music requests on the event page

Watch your team win in FiveSixEight

Sun 12 May

Spain Grand Prix
Race starts at 14:10

Sat 25 May

HSBC London Rugby Sevens
Kick-off to be confirmed

Sat 18 May

Mens FA Cup Final
Kick-off 17:00

Sunday 26 May

HSBC London Rugby Sevens
Kick-off to be confirmed

Monaco Grand Prix
Race starts at 14:10

[f](#) [beitbars](#) [f](#) [hbarpub](#) [f](#) [reynoldsbarcx](#)

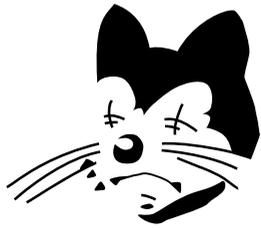


FELIX

SEX

SURVEY

COMING SOON



Hangman

NegaFelix Presents: Anti- “Male Gaze” Spray™

HANGMAN

Negafelix
Editor-in-Chief

As the weather warms up, reports are coming in about this year’s first knee sightings. Yes, you heard me right! Hem-lines are migrating north from their southern winter nests and with them are coming floaty dresses, shorts and bare knees.

However, all is not well in paradise. There have been unprecedented reports of horrific bare knee related incidents. The male gaze factor (MGF) allegedly is so strong around this time of year that the few pairs of knees that dared to emerge have been swiftly driven back into hiding. We have reports of the male gaze causing burning, blistering, chapping and becoming so aware of being viewed as an object that you spontaneously disappear. A horrific outcome for those brave

early knees!

You proud knee owners need worry no more though! We listened to our readers’ concerns and have come up with the perfect product for you this summer. Our commercial division has cooked up a special anti-“male gaze” spray. Its unique proprietary formula contains a dual action serum, in an easy to apply spray bottle, that is guaranteed to ward off those pesky male gaze rays. The serum contains minute silvered particles that reflect those rays

right back to their source, dazzling, blinding and wowing. There is even a little bit of camomile in there just to perk you up when you are feeling oppressed by the particularly high MGF present in Metric.

One grateful customer told us that they now put some on each day: “My co-workers have all started wearing sunglasses”.

The serum is now also usable by women and actual male gays!

We’re woke now!!

***All terms and



100% of men will just see a very bright light!! //

Wikimedia

conditions apply, NegaFelix Ltd does not accept any responsibility for any harm or hurt caused by

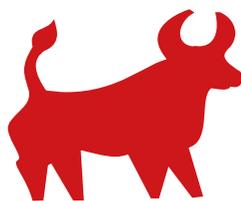
or received while wearing Male Gaze Spray™. Product used at own risk.



ARIES

This week you are the Royal Baby.

-
Turns out a quarter black is the most that the family will tolerate.



TAURUS

This week you get drunk.

-
Your coursemates spiked your lime soda looking to move up the bell curve.



GEMINI

This week you start looking for labs to join; all but one need a first

-
Psychedelic studies only requires a tie-dye t-shirt and an ‘open mind’



CANCER

This week there are four UK football teams in European competitions.

-
We’ll pull out as long as the EU let us remain.



LEO

This week your flatmate is participating in Ramadan

-
They’re the only one that knows how to cook. You’re hungry.



VIRGO

This week you pay a Computing student £1000 to ‘make sure you get a first’

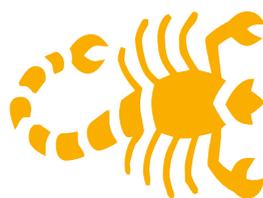
-
A timetable and motivational sticky notes weren’t what you had in mind



LIBRA

This week your flatmate’s boyfriend invites you to a lock-in party

-
You’re not sure what TF2 or a LAN cable is but you’re sure it’s going to be wild.



SCORPIO

This week you finally give in and join Tinder

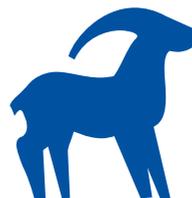
-
You find it’s exclusively guys you’ve got with at Sports Night.



SAGITTARIUS

This week you watch Game of Thrones

-
Turns out you’ve been watching rock, dragon, giant fucking crossbow.



CAPRICORN

This week you get the Tap on the shoulder

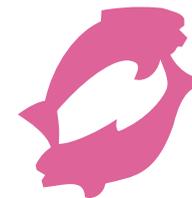
-
You’re wanted in the Science Fiction library.



AQUARIUS

This week you are a woman in STEM.

-
You figure out sexism wasn’t a thing in the past, those women just knew what a sausage fest Imperial was going to be.



PISCES

This week you show your girlfriend the body pillow she replaced

-
You’re glad you got it out of storage because it’ll do for a great rebound.

INVESTMENT

icu.investmentsociety@imperial.ac.uk



Big Daddy Oil outearns Apple and Google, wants more

INVESTMENT

Xerxes Chong

*Investment Editor
ICIS Co-Editor*

The month of April marked a historic moment for the financial markets. The Saudi Arabian Oil Company (Saudi Aramco) had its debut international bond issuance. A titan in the world of oil and gas, whose pulse is closely monitored by financial markets as a proxy to the health of one of the world's favourite commodities, Saudi Aramco has raised \$12bn from the \$100bn received in orders, the largest amount ever seen in an emerging market bond deal. Investment banks JP Morgan and Morgan Stanley were the joint global coordinators for the deal.

On April 10th, 2019, the secretive state-backed corporation released a 469-page prospectus, giving investors a glimpse into the finances of the oil giant, which have previously been kept secret for three-quarters of the century. The numbers confirmed rumours of the corporation's profitability. The year of 2018 brought in a net income of \$111.1bn, dwarfing that of rival Royal Dutch Shell five-fold and double that of Apple, leading some

"The year of 2018 brought in a net income of \$111.1bn, dwarfing that of rival Royal Dutch Shell five-fold ..."



Saudi Arabian Oil Company (Aramco) plays a pivotal role in Crown Prince Mohammed bin Salman's plans to transform the economy // *InsideArabia*

new sites to tout it as the world's most profitable company.

The proceeds from the bond issuance will fund Aramco's recent purchase of a majority stake in Sabic, a local petrochemicals company from the Saudi Arabian Public Investment Fund (PIF). The transaction represents a 70% majority stake that is worth \$69bn. As Aramco has a refining and petrochemical product line, this aligns the strategies and interests of 2 major players in the sector. The fresh injection of capital into the PIF forms part of Crown Prince Mohammed bin Salman's Vision 2030 plan to diversify the kingdom's economy away from oil via the strategic diversion of oil income into non-oil assets through the sovereign wealth fund.

While many are familiar with bonds as debt instruments, where entities in need of capital promise a percentage return on a given loan, this deal has less to do with funding than might be thought. The bond prospectus revealed Aramco's strong balance sheet and healthy cash flows, with operating

cashflows standing at 4.5 × larger than gross debt. Most energy rivals have a ratio of less than 1. The issuance follows the Crown Prince's desire for Aramco to take on a larger presence in the global financial markets and leverage its robust balance sheet to fuel the PIF. An eagerly awaited initial public offering (IPO) of a 5% stake in Aramco was delayed indefinitely last year, after disagreements surrounding its \$2tn valuation. The IPO would have seen \$100bn flowing into the PIF's coffers. With the kingdom still reeling from controversy over the killing of journalist Jamal Khashoggi, an article by the Financial Times considered the political implications of the deal, framing it as a way for the kingdom to reingratiate itself with global investors. This comes at a time when global scrutiny of some of the kingdom's more controversial actions, which have left allies and investors nervous, is at a high.

Aramco's financial health, low debt to cash flows, geographic advantage and market leading position has earned it credit worthiness

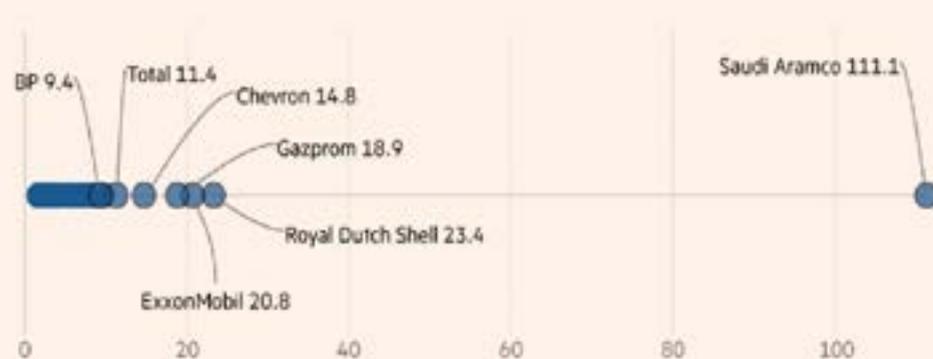
ratings of A1 and A+ by rating agencies Moody's and Fitch respectively, falling short of the coveted triple AAA rating awarded to the highest quality of debt issuers. An entity's credit worthiness determines the likelihood of the debtor defaulting on the loan obligation, i.e., the likelihood of Aramco

being unable to repay the holders of its bonds. The reason being, the corporation's close ties with the sovereign and the government's reliance on oil taxes to fund its expenditure. Despite the impressive net income, Financial Times reported a profit of \$26/barrel for Aramco (after deducting

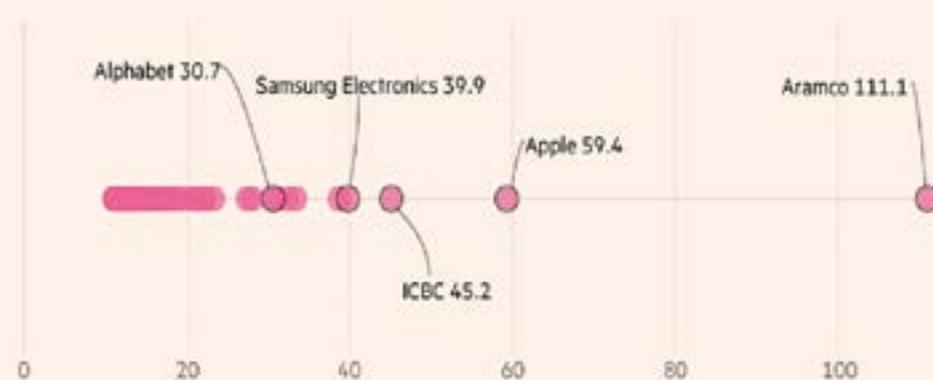
the governments share), falling short of Royal Dutch Shells \$31/barrel. Fitch commented on the ability of the state to interfere in key decision concerning production, dividend policies and taxation as barriers to obtaining a higher credit rating.

Saudi Aramco's reported income compared with rival oil companies

Trailing 12-month net income of top 50 global oil companies (\$bn)



Trailing 12-month net income of top 50 global companies (\$bn)



Aramco's net income is in a league of its own amongst the other giants // *Financial Times*

SPORTS

sport.felix@imperial.ac.uk



Hands up if you're behind on revision: Idan Gal-Shohet jumps to victory // Geoff Lowe

Imperial stay on track in LUCA Athletics League

SPORTS

Fergus Johnson
ICXCAC Club Captain

A badly scheduled athletics calendar meant the second meet in the London Universities and Colleges Athletics (LUCA) Outdoors League fell on 20th April - Easter Saturday.

Expectations of a

severely depleted squad failed to materialise, however, with 9 stoic athletes still keen to compete at the Lee Valley Athletics Centre.

The day began on the field with hammer throw and long jump taking centre stage. Super multi-eventer Maryna Voloshyna took on hammer throw in her first event of six and achieved a mighty second place.

In the long jump, scholarship athlete Idan

Gal-Shohet took a comfortable victory with a giant leap of 6.5m in an outdoors season's best.

Over on the track, after victories in both the 800m and 1500m at the first fixture at Parliament Hill, James Millett took victory once more in the 800m, beating the time he set at Parliament Hill by half a second to run 1:59.05.

In the women's 100 metres, long-jump specialist Sarah Abrams ran a speedy 12.55 to place second.

The match was also host to the annual LUCA "multi-event challenge", in which athletes get a taste for multi-event sport by competing in a selection of decathlon and heptathlon events for men and women respectively; a sprint race, a middle distance race, a jump and a throw.

Imperial were represented in this competition by Athletics Captain Jack

Mitchell and club favourite Maryna Voloshyna.

In the men's competition Mitchell competed in the shot, high jump, 100m, and 1500m, eventually scoring 1630 points to finish a respectable 4th place.

In the women's, Maryna took on the shot, high jump, 200m and 800m - as well as the hammer throw and 2km steeplechase - finishing with 1304 and securing the bronze medal!

In the final individual event of the day - the 1500m - Imperial had 3 contenders in the men's race. Fresh off his 800m victory James Millett was eyeing his fourth win of the series but after leading in the early stages could not hold on to beat Euan Campbell from St Mary's, finishing under 2 seconds behind the leader in 4:06.9 to place second.

Daniel Garcia made up the top three with a 3rd

place finish in a personal best time of 4:24.0, and multi-eventer Jack Mitchell finishing in 6th to complete his four-event effort.

With one fixture remaining in the series - Battersea Park on the 25th May - Imperial sit 5th in the overall standings with a comfortable lead over 6th-placed LSE. The club is hoping for a big attendance to give the team a chance of overtaking the reigning champions

King's who go into the match with a slim 19 point lead over Imperial's 116.

In the individual MVP rankings, middle distance specialist James Millett lies in joint-5th following his 3 wins out of 4 in the 800m and 1500m.

The final match promises to be hotly contested with medals decided in almost all the individual events and very few points separating the field.



Millett leads out the 1500m after 800m win // Geoff Lowe



Maryna makes a splash in the steeplechase // Geoff Lowe