



# Felix

The Student Newspaper of Imperial College London

## COMMENT



This week, we remember the dead

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Impromptu Part III - Realising your ideas

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Last chance to complete the *Felix* Sex Survey 2019!

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Imperial's team of Mental Health First Aiders (MHFA), recognisable by their green lanyards (see above), also provide support by helping anyone (staff or student) experiencing a mental health problem, before professional help is obtained. // Imperial College London

## Location, location, location

*Despite increased funding for Student Counselling & Mental Health Advice, Imperial College's service has been stifled by spacing issues*

## NEWS

**Andy Djaba**  
*Editor-in-Chief*

**T**he other week, when they had the big marquee on the lawn [for Postgraduate Graduation], one of my colleagues was up here quite late and two or three international students were up here. My

colleague said, 'there's nobody here, everyone's gone home', and they said, 'I just want to take a photograph of the door'; they wanted to take a photograph of the door of the room where they'd had counselling, with the counsellor's name on the door, because the counselling had got them through." This anecdote, shared by Mark Collinson, Imperial's Senior Mental Health Advisor, during a recent discussion with

*Felix* about Student Counselling & Mental Health Advice, perfectly illustrates the major issue faced by the service this year. "It was such a timely picture", Mark continued, "because my response to that was: to have a door, we need a room."

The Student Counselling & Mental Health Advice service, located on the fourth floor of the Sherfield Building, is divided into two branches: Student Coun-

selling - which is a student self-referral service - and the Student Mental Health Advice Service, which sees "students who the staff refer". Speaking to *Felix*, Claire Fox, the Acting Head of Student Counselling & Mental Health Advice explained that "the strength is it's an embedded, integrated service". Last year, *Felix* reported on the increasing pressure faced by the Student Counselling & Mental Health Advice

service, due to the increased student demand. In response, in July 2018, the counselling service received increased funding. This was acknowledged by Becky Neil, Imperial College Union's Deputy President (Welfare), who told *Felix*: "Alice Gast [Imperial's President] has just put some money aside to put into the mental health strategy that the Director of Student Services

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# EDITORIAL

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## I told you I would do it



Andy Djaba – Felix Editor

This week, I find myself particularly struggling to write this. I've finally run out of things to say, not that I've used these Editorials to say anything of profound note anyway. I asked my sister for advice and she said I should write about the fact that I'm approaching the end of my tenure - after this issue, I will only have three left - and how it is a bittersweet moment. Although I am in a reflective mood this evening, I'm not yet at the 'assessing my tenure' level of self-reflection yet (give it a couple weeks!) Instead, I remembered a promise I made at the start of the year. I promised that one day this Editorial would almost entirely consist of pull-quotes, and there's nothing you can do about it. Today is that day. Desperate times call for desperate measures of course. Before I do that, I will jot down the little I do have to say. This week's issue of Felix features the

delayed follow-up to my predecessor Fred's piece on the Student Counselling & Mental Health Advice service. I'm currently still compiling over 30 pages of notes, research and transcribed discussions with involved staff and students into one coherent two (and a bit) page article so we'll see how it turns out. To briefly summarise the article, although the service has been allocated additional funding, it is now faced

with an issue of spacing and, as a result, has been unable to increase the resources available to students in the last academic year. This is a disappointing state of affairs but the issue could soon be somewhat resolved and there is hope to be found in the recent developments. The Augur Review of tuition fees was released earlier today and will have the full *Felix* coverage in next week's issue of the paper, so be sure to look

out for that!

**"I hope I don't get in trouble for this"**

It's funny that I've managed to actually eke out an almost complete Editorial without yet using a pull quote. I would scrap everything I put in the first paragraph but (as the countless spelling and grammatical errors confirm) I have a never look back policy when it comes to writing these. Anyway, Section of the Week goes to the Comment Section. Shoutout to Copy Editor extraordinaire, Calum Drysdale, for making a triumphant return to putting his opinions on paper instead of just spewing them in the office.



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Printed by Mortons Media  
Group, Boston Road,  
Horncastle, Lincolnshire  
Registered Newspaper  
ISSN 1040-0711  
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# NEWS

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## Patchy Queen's Lawn causes complaints

**NEWS**

**Jason Murugesu**  
News Writer

The grass on Queen's Lawn has been suffering greatly due to an excess of events being held on the space, resulting in student complaints. In recent months, it has hosted the drinks reception for Imperial's Postgraduate Graduation. Heavy rainfall has also caused the grass to be waterlogged. Ultimately the grass has been left patchy and

**"The grass on Queen's Lawn has been suffering greatly due to an excess of events being held on the space"**

brown. Pablo Duran Millan, a first year Design Engineering student at Imperial,

complained to the university's Estates team about the poor maintenance of Queen's Lawn, and told *Felix* that the huge tents had "ruined" the grass. He complained that there was "not enough space when the sun comes out." Nic Dent, Acting Head of Soft Services at Imperial College London, told *Felix* that the maintenance of Queen's Lawn has been more difficult this year, as the grass was already in a poor condition due to last summer's heat-wave. Dent is currently waiting to find out how much it would cost to improve the lawn. A College spokesperson

**"The grass was already in poor condition due to last summer's heat-wave"**

told *Felix*: The Queen's Lawn is used to hold events such as Graduation receptions for students, which has an impact on the condition of the grass. We appreciate that the lawn is a valuable green space on campus and we make efforts where

possible to allow the grass to recover between uses. Unfortunately, the longer period of hot weather last year has made this more of a challenge than usual. The College will be working to re-establish the lawn and is currently in the process of working out the best method and time to do this to minimise disruption the works may have on staff and students. In the meantime, we encourage our community to make use of green space at Prince's Gardens and in the surrounding area."



The grass on Queen's Lawn has seen better days // Imperial College Library

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**THE TIMES THE SUNDAY TIMES**  
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## Location, location, location

## NEWS

(cont.)

[Hannah Bannister] is planning, so there's definitely a lot of support from above". However, this increased financial support for the service has failed to translate to increased support for the students due to the persisting issue of finding increased space on campus for the service.

Claire explained this to *Felix*, stating: "Last summer, we were allocated in the budget three full-time equivalent counsellors, which is positive; but, consequently, we weren't given or allocated the space to go with the resource." Claire went on to describe how the service has attempted to navigate these challenges: "We tried to think creatively and we went ahead and we've recruited. We couldn't recruit for the three full-time because we haven't got the space. We rented some rooms in SALC [the Seminar and Learning Centre], which aren't ideal because... they're meeting rooms. They've got meeting room furniture, counsellors up there are constantly interrupted by people just walking into the rooms, and you might have distressed students in there."

The importance of an adequate, professional space in which both the student and counsellor feel comfortable can't be overstated, as Claire and Mark stressed to *Felix*: "Just like a doctor needs a consulting room or a surgeon needs an operating theatre, mental health professionals need a professional space that respects the student in supporting them. It's about us feeling that we are grounded and can offer that professional support because we're talking with students about what's

distressing them or what they're concerned about and you don't want to be interrupted." However, the vital importance of such a room is often "misunderstood" because counselling and mental health advice is often seen as "just a chat". This is vehemently not the case. Speaking specifically about the Mental Health Advisory service, Mark contested: "We offer a skilled conversation with a mental health professional. We refer people on if we need to or we liaise with GPs. I think the main thing we do is try to see people through their time here and offer a check-in."

The requirements for a professional counselling space, which include soundproofing, privacy and natural light, as well as somewhere that is consistently available, so students "know the same space or room they're turning up to", and somewhere that feels safe for the students that's not directly in their academic faculty where they can be seen going in or accessing their support. Claire explained, "if you're with a student that's very distressed or very depressed, being in a basement or a windowless room is not good".

### "The room is everything"

Claire went on to explain that, when booking rooms, priority is given to the academic schools, especially with meeting rooms. As a result, the choices left available to the Student Counselling & Mental Health service is limited. "I think the difficulty we've encountered is each faculty feels it owns its own space... and to break into the wider institution

is very difficult", Mark told *Felix*. Another difficulty that has presented itself is the fact that, despite the fact that the service is part of Imperial, it needs to "sit a little bit separate", in order to provide students with some separation from their day-to-day routine.

This spacing issue has effectively left the service down on resourcing, despite being allocated extra resources. As Mark concisely puts it, it's akin to having "more surgeons but no more operating theatres". Despite compromising by making use of meeting rooms in SALC in an attempt to "put the students first", this has done little to improve the situation for a counselling service facing ever increasing footfall.

Recent research suggests that there has been a 50% UK-wide increase in student demand for mental health services and Imperial is no exception. Claire told *Felix*, "we've so far seen just over 1300 students – that's combined with both teams – this academic year." These students are "across all faculties, all departments, all levels, from undergraduate to postdoc to research". This is already an increase on the 1013 students that accessed the Student Counselling and Mental Health Advice service in the 2016/17 academic year and represents alleged 12% and 50% increases in the number of students accessing the Counselling and Mental Health Advice services, respectively, compared to last year. "By the time we get to the end of this academic year, it's going to be 60% up on last year", predicts Mark. This increased demand, coupled with the restricted resourcing, has had a predictably detrimental effect on waiting times. Students



The Sherfield Building, home to Imperial's Student Counselling & Mental Health Advice service // Imperial College London

accessing the Counselling Service will have an initial assessment, following which they will receive counselling, if deemed appropriate. Students then have access to seven counselling sessions for the year in what is referred to as a "brief therapeutic model" – the majority of the students will make use of four of these sessions, which is in line with the national average for universities. Last year, the wait time between initial assessment and counselling was reported to be seven weeks. This year, that is up to eight weeks. The service determines who to see first based on need, ensuring the most vulnerable students are seen the quickest; time spent on the waiting list is also taken into account to prevent those with lower-level problems being left indefinitely. It is also important to note that, if a student discloses risk – which they can do via email or on the online Counselling Referral form – there is a duty counsellor that works to expedite said student's assessment, if appropriate.

Although the system for the Mental Health Advice

service is very different, its similarly disappointing waiting time is also a reflection of the increased student demand and inadequate resourcing. Mark explained to *Felix*: "Staff often phone us, so we talk to staff about students a lot, often anonymously. We do that continually; there's obviously no wait for that but, if a student is referred, we always endeavour to see the student within a working week. However we're not achieving that, we're just absolutely not. These are quite important referrals; it's important enough for a student to have gone to their tutor and it's important enough for the tutor to have been concerned and feeling that they can't sort it, that it needs someone with some mental health expertise, so they are all quite urgent". Again, it is important to note that, in this case, if a referral flags up significant distress, there will often be a response within 24 hours.

There are many theories behind why there has been an observed increase in student demand for mental health services, including a reduced stigma

around mental health leading to people being more comfortable talking about it. Claire concurs, saying: "Mental health is becoming less of a taboo. It's being spoken about, it's in the press, the stigma is greatly diminishing and that's healthy and that's how it should be. With the media talking about mental health more, it's on everybody's agenda. With that, there's an increase in demand." One factor that could also explain the increase observed at Imperial is the introduction of the Counselling service's online self-referral form. This came in at the start of this academic year and allows students easier and quicker access to the service, leading to an inevitable increase in the number of referrals. Another contributing factor, and perhaps the largest, is the academic pressure and widely perceived competitive culture that exists at Russell Group universities like Imperial. Claire explained: "This College draws a certain type of student that is very gifted or very academically able and talented and, with

that, a lot of students want to do well and are used to doing well; that's part of their identity, it's part of how they see themselves. When you have a whole cohort of students coming, that are all very gifted and very bright and very driven... you get this culture where there is academic competition and that then creates internally within students a pressure to compete. Sometimes, when that gets a bit distorted, they can become quite self-critical and quite punitive." Shervin Sabeghi, incoming Deputy President (Welfare) for 2019/20, told *Felix*: "It's hard to deny that there is an air of competition but I think it's more about the way people respond to that". When the question of whether it is the university's duty to tackle this culture was put to them, both Claire and Mark agreed that considering it a "dual responsibility"

is the "healthy way" to approach the issue. "It should be both the student taking ownership and responsibility for their own mental health and obviously the College has a duty of care as well", Claire added. "What they are trying to think about is what they are in control of in terms of adding extra pressure. Conversations around when exams are sat, how many should be put into a week, the stuff that the university is in control of". The example of the College taking measures so as not to exacerbate pre-exam and exam time pressure and stress is particularly pertinent as the Counselling service sees spikes during these periods, often made worse by the exam schedule.

It's easy to see the issues facing the Student Counselling & Mental Health advice service as a problem which only

affects students but, with recent research showing that employees are three times more likely to discuss physical ailments over mental health issues at work, it is important to also highlight the affect that these persisting issues have on staff. Mark explained to *Felix*: "We've got a very experienced, professionally qualified team here with huge amounts of experience in dealing with students' mental health and hugely experienced counsellors. We're passionate about what we're doing, we want to provide the best care and to not be able to do that in a timely way is very frustrating for us; the biggest effect on us is frustration. Our overall feeling is frustration because we can't quite do what we want to do and what we're able to do." This effect has been noticed by students interacting with these

staff, particularly those involved in the Union's Wellbeing Representation Network.

### "Not everybody needs counselling but they might need some other support and that's where the mental health advisors come in"

Although the wider issue of how space is managed within College persists, there may have been a recent break-

through in the provision for the Student Counselling & Mental Health Advice service. According to Claire, Hannah Bannister [Director of Student Services] has been "really endeavouring and working hard to try and find space". At the time of writing, a potential space on the Hammersmith campus which could be converted into two very small consulting rooms is under site review. If the space is found to be viable, the process will be expedited such that it is made available for 1st August. Question marks still surround the provision of mental health support across campuses, particularly with the College's expansion into White City, but this development could mark the start of an upturn in fortunes for the counselling service.

Claire ended the discussion with *Felix* with the following important

message: "One of the first things I say to a student when I'm with them in that kind of session is it takes a lot of bravery sometimes to come and sit with a stranger, albeit a mental health professional, a counsellor in a confidential space, it takes some courage. Accessing mental health or counselling support is a sign of strength. It's a sign of strength because you're actually prioritising yourself".

### "It's a containing anchor space"

## A comparison of mental health systems in the UK, US and Asia

## NEWS

Daisy Jennings-Gray  
IC Mentality Vice President

On Friday 17<sup>th</sup> May, Mentality hosted a talk from Rosie Dutt (BSc, MSc, MRes) on Mental Health Systems in the UK and Abroad. Rosie came in to discuss her Mental Health placement that she will be undertaking over this summer in a psychiatric facility in Bali; as well as to talk about the differences in the mental health systems in the UK, the US and south eastern Asia. Thereafter, Rosie will

go on to study for a PhD in the US with a focus on imaging applications within mental health.

The talk addressed the differences between private and public mental health services, with respect to the whole referral process from GP appointment through to a patient's first therapy session in the UK, compared to using the private system in the US, which involves multiple return visits and the trialling of various medications, often due to the push for pharmaceutical profit in private healthcare. However, Rosie stressed the idea that both of these developed nations have established and well organised, albeit slightly

different guidelines for diagnosing and treating mental health disorders. She went on to compare the mental healthcare systems in the UK and the US to those in Bali, explaining that the outlook on mental illnesses remains outdated. Rosie showed images of a technique they use in Bali called "pasung", which entails the shackling of people showing signs of psychological disabilities in order to restrain them in isolation. Although banned in 1977, she explained that the practise is not well regulated in rural areas and that it remains regularly carried out, both in formal institutions and in a domestic setting.

Rosie's talk went on to

show a case study of a man who underwent Pasung for 12 years, before his family were approached by community workers and taught how to better approach mental health illnesses and the treatment for them, including therapy and medication. The man went on to be the breadwinner for the family after successful treatment, proving that community schemes are improving the wellbeing of mental health patients in Bali.

Rosie will be heading to Indonesia herself this summer to undertake a PhD placement in a psychiatric facility in Bali, and is currently raising funds for this. Mentality is supporting Rosie in this



Rosie Dutt (BSc, MSc, MRes) // IC Mentality

venture, and would like to invite *Felix* readers to help her out through her fundraising page.

For anyone who is interested in being more involved in hosting talks similar to Rosie's, as well as continuing to raise awareness for mental health awareness and wellbeing around

Imperial, Mentality is still looking to fill positions on their committee for the 19/20 academic year. The roles are casual and can take up as much or as little time as you would like, so do get into contact with [mentality@imperial.ac.uk](mailto:mentality@imperial.ac.uk) or contact us on our Facebook page 'IC Mentality'.

# COMMENT

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COMMENT

**Calum Drysdale**  
Comment Writer

## This week, we remember the dead

*It has been 30 years since the Tiananmen Square and still no justice*



Tiananmen Square protests // Independent

Early Western explorers to China returned telling stories about a land of silk, jade and dragons. A whole artistic movement was birthed, Orientalism, that imagined the East – in particular China – as a semi-real land more out of story books than realism. The ruling Communist Party seems determined to do the same thing in modern China. However, unlike the past, the party wants to make its people believe the myth as well.

A modern visitor to China could be forgiven for thinking that 4<sup>th</sup> June is no different from any other day: the predictable rush hour roar of people heading to work or the shops belies the immense suppression of thought that is going on online.

In the past, suppressing ideas in a populace was difficult for a government. How, other than breaking down doors and confiscating dissident material, could you modify patterns of thought? With the advent of the internet, the Chinese government gained the ability to filter a large proportion of communication that goes on between its citizens. Crucially, however, this is not done through heavy handed laws preventing assembly. Instead, words, phrases and images can simply be plucked out of the information stream and prevented from ever

reaching an audience. The difference is akin to that between a boulder lobotomy and modern neurosurgical techniques.

Nowadays information regarding the Tiananmen Square protests in 1989, of which we are now commemorating the 30<sup>th</sup> anniversary, is almost impossible to come by in China. In previous years, censorship has been so fervent in erasing any suggestion of the event, they have prevented even the word ‘today’ being used. The effect of this on the population has been collective amnesia. Without any information available, children not alive at the time have no awareness of their history. Parents choose not to teach their children because it is too complicated a burden to place on them, and those who were there live under the Sword of Damocles – always at risk of being pulled off the street and being disappeared. Former student leaders, such as Chai Ling, often chose to flee the country rather than risk imprisonment.

The effect of this excising of history is similar to the effect of a stroke on a relative: suddenly their behaviour seems to make no sense. They are scared of things of no consequence, grow angry without provocation and refuse to believe that their view of the world is wrong. They are working off a different set of memories and experiences and processing them differently to us. In a situation like this, no one in their right mind would set aside everything that they knew, remembered

**“The difference between a boulder lobotomy and modern neurosurgical techniques”**

and believed and join in the delusions of the sick. Unfortunately, I believe

this is what we are at risk of doing. Britain during the Cameron years courted China furiously, inviting Xi Jinping to come and dine with the Queen, inviting Chinese companies to purchase stakes in our nuclear power plants and, in our particular case, inviting ever more students to come to study in our universities. George Osborne, at the time, talked about the unique connection that Britain and China shared and about the exciting future projects we shall undertake together. All this was based on the assumption that engaging with China would encourage it to become more western in its outlook and more liberal in the treatment of its people. This has proven to be false.

President Xi has not moved to liberalise his country. Instead, he has doubled down, consolidating power and reaffirming the repressive messages of the past. Instead, we in the West have moved towards China in outlook. Our companies have

bent over backwards to accommodate the desires and whims of the Communist Party. Google, the company whose informal motto used to be “Don’t be evil”, has quietly dropped that commitment and invested significant time and money into developing a search engine that conformed to Chinese censorship standards.

China is currently fighting an internal battle against the will of its own people. The events of 1989 prove that the desires for democracy and accountability exist and are powerful impulses present in China that are being suppressed, rather than simply a quirk of Western life. The active suppression of the memory of Tiananmen Square reveals a country terrified of its own people and its bloody past. Whilst they have successfully suppressed the memory of the last upspring of democratic will and pacified their people with economic bounty, the events of 4<sup>th</sup> June 1989 will be repeated until China acknowledges its sins.

This week, we remember the people that died at Tiananmen square in defiance of the government

### What Happened

In 1976, Mao Zedong died, ending the Cultural Revolution that killed anywhere between 400,000 to 10 million people. Spearheaded by him as a way to rapidly modernise China, it resulted in widespread poverty and economic ruin.

Tentative efforts through the 80’s were only partially successful and were exploited by corrupt Party officials.

While this harmed the cause of the reformists in 1988, complete market-pricing system was still implemented. This caused waves of cash withdrawals, hoarding and further economic woes.

At the time, the country was led by Hu Yaobang a prominent reformist. Hardliners, hating his modernising attitude, ousted him in January 1987.

When Hu Yaobang died suddenly on 15<sup>th</sup> April 1989, students came out onto the streets celebrating him and his legacy. They called for a return of the liberalism that his time as General Secretary had represented and for broader reform, including more democratic rights and investigations into the corruption of Party officials. Small gatherings of students around the Monument to the People’s Heroes in Tiananmen square spontaneously started to form and grew over the next couple of days.

Hu’s state funeral was held on 22<sup>nd</sup> April. Over 100,000 students came to Tiananmen square just next to the Great Hall where the funeral was being held, despite orders from the government not to. The funeral was broadcast to students outside and many felt it was rushed and disrespectful. Frustrated students started a class strike and rioting broke out round the country.

After this, Deng Xiaoping endorsed a firm response and, on 26<sup>th</sup> April, an editorial in the party’s official newspaper, entitled, “It is necessary to take a clear-cut stand against disturbances” was published. Rather than

# COMMENT

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cowing the students, it enraged them and protests only grew larger. The next day 50,000 – 100,000 students marched through Beijing to Tiananmen Square and received widespread public support.

This march was hugely successful and the government’s tone turned conciliatory. In a speech, the government called the movement “patriotic”, negating the message of the 26<sup>th</sup> April editorial. This pacified many students who began to lose interest.

In order to regain momentum the student leaders organised a hunger strike. It was widely popular and, by 13<sup>th</sup> May, there were 300,000 people gathered in Tiananmen Square. By 17<sup>th</sup> May, over a million Beijing residents had demonstrated solidarity with the protesters and 400 protests of various

sizes sprung up in other cities. Foreign journalists also began sending news of the protests to the rest of the world, causing the leadership to worry about how it looked abroad.

On 19<sup>th</sup> May Deng Xiaoping made the decision that martial law would be declared. By the next day, 250,000 soldiers were sent to the capital. When they tried to enter the suburbs they were surrounded by crowds that made any further advance impossible. Demonstrators climbed on the vehicles and soldiers were given food and shelter. On 24<sup>th</sup> May, the troops were withdrawn to the delight of the protesters. However, across the country, plans were being drawn up for an assault.

By 3<sup>rd</sup> June, plans were finalised. While they did not contain explicit orders to shoot-to-kill,

troops were told to “use any means to clear impediments” which was interpreted as permission by many units.

At 10pm on 4<sup>th</sup> June, troops moved into Beijing. While they initially only fired into the air, when soldiers came up against barricades, they turned their guns on the demonstrators. Troops used expanding dum-dum bullets, so called because they expand upon hitting a body causing massive internal trauma.

**“Troops were told to ‘use any means necessary”**

At about 10:30pm, the army was halted at Muxidi where a bridge

had been blocked with burning busses. 36 people are confirmed to have died here, though this number is thought to be low.

Troops advanced further into the city, firing indiscriminately, killing both demonstrators and onlookers. Doctors that went to treat the wounded were also shot and killed.

Demonstrators tried to form barricades, human chains, negotiate or fight back but, in each case, they were pushed back with armoured personnel carriers running over barricades and demonstrators and negotiators, such as Duan Changlong, were shot as they tried to reason with troops.

Between 10:30pm and midnight, news began to trickle back to the demonstrators in the square. At this point, there were between 70,000-80,000 in the square.

By 2:00am, the square was sealed off with soldiers blocking all entrances and firing on any reinforcements that were attempting to enter the square.

Despite the clear threat to their lives, the students didn’t renounce non-violence. The leaders of the movement even confiscated sticks, rocks and guns in an effort to prevent further escalation.

At 04.30, after negotiation between student leaders and government forces, the troops marched up to within ten metres of the students and set up machine guns pointing at the students.

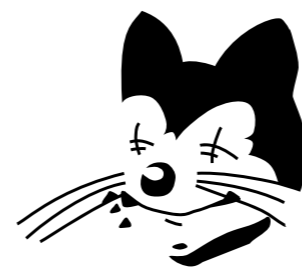
There are reports of troops firing into the crowd, though this is unconfirmed. What is known is that, at 5:00 am, students were allowed to move out of the square through a corridor opened

by the soldiers. Again, though hotly disputed, some have alleged that these students, who thought they had been given a chance to live walked into prepared machine gun nests.

While this marked the end of the main incident, students walking near the square later in the day were shot at and killed and an ambulance was caught in the cross fire.

The next day, 5<sup>th</sup> June the famous photo of tanks leaving Tiananmen square being blocked by a man carrying a shopping bag was taken.

The death toll remains controversial. The Chinese Red Cross has estimated that 2700 people died but this number is contradicted by a British diplomatic cable, which has alleged that the number was at least 10,000.



COMMENT

**Daniel Wigh**  
Comment Writer

## PAARRY launch

*Daniel Wigh writes about the launch of Political Action Against Rape Required Yesterday*

Campaigners across the world have brought the issue of sexual misconduct into the spotlight in recent years and it has become apparent that it is a problem everywhere, including at Imperial. In an institutional culture report about Imperial from 2016, researchers found that: “Despite Imperial’s ‘no tolerance’ stance on harassment and bullying (...) women in particular reported being silenced in various ways.”

Imperial College London is currently re-

viewing their policy for how sexual misconduct is dealt with in a designated working group, after having sought advice and recommendations from an external expert - a commendable step. However, there are no permanent members of this working group who are students or sabbatical officers, and this limits student input.

In November 2017 Felix brought an article that, among other things, highlighted that a person had been found in breach of Imperial’s sexual misconduct policy but was allowed to remain in a position of responsibility within a society. The Union’s policy has since been changed (by us), with >95% of Union Council voting in favour of the

rule changes. However, despite vigilant efforts, it was only in January 2019 that the new by-law clauses were finalised, 14 months after the issue was initially raised. We must find a solution to prevent these delays.

We believe Imperial should have a campaign group dedicated entirely to raising awareness and ensuring that the student voice is heard on this important issue, while making the path from idea to action easier - something that is clearly needed.

That’s why we’re starting PAARRY: Political Action Against Rape Required Yesterday. In case you’re wondering about the name, it’s a play on words: parry is a term

from fencing which means “to ward off an attack with a countermove”.

- We want to:
- Arrange events across Imperial to decrease prevalence and increase awareness of sexual misconduct on campus.
  - Ensure that the College’s new disciplinary framework has the students’ best interest in mind, by creating a forum for students to discuss it and collectively campaign for changes.
  - Influence the adaptation of the College’s new framework into the Union.
  - Get involved in the nation-wide debate. In order for the idea

to become recognised as an official Imperial Campaign group we need your support! if you agree with our message please

show your support by signing up on the Union website or by using the QR code below



# SCIENCE

science.felix@imperial.ac.uk

## UK tour of Tim Peake's Spacecraft attracts 1.3 million visitors

*The Science Museum marks anniversaries of Apollo moon missions with a Summer of Space*

### SCIENCE

**Sânziana Foia**

*Science Editor*

The Soyuz TMA-19M spacecraft carried Russian commander Yuri Malenchenko and US and UK flight engineers Tim Kopra and Tim Peake to the International Space Station (ISS) on 15 December 2015, and returned the same crew to Earth on 18 June 2016 (expeditions 46 and 47 to the ISS).

Soyuz TMA-19M is the first human-rated, flown spacecraft in the Science Museum Group Collection. The module weighs approximately 1.5 tonnes and its outer surfaces have been charred by temperatures of around 1,500 degrees Celsius - experienced during atmospheric re-entry. It goes on permanent display at the Science Museum after attracting 1.3 million people while touring venues in Bradford, Shildon, York, Manchester, Edinburgh, Peterborough, Cardiff and Belfast, on the National Tour of Tim Peake's Spacecraft presented by Samsung and the Science Museum Group.

Sir Ian Blatchford, Director of the Science Museum Group says: "The tour of Tim Peake's spacecraft to museums in all four corners of the UK has been a testament to the power of culture to inspire. With Russian, European and UK space ingenuity all contributing to the success of Tim's mission, the importance of international collaboration in achieving progress

for us all is more starkly obvious than ever."

As the world heralds half a century since the successful Apollo manned moon landing, the Soyuz has been joined on display at the Science Museum by the original Apollo 10 command module simulator console; a key object in NASA's contribution to the space race, and one which has never been seen in the UK before.

On long term loan from the Smithsonian, the control panel goes on display alongside the Apollo 10 command module 'Charlie Brown', which still holds the record for the fastest crewed vehicle in history having reached 39,897 km/h during its return to Earth on 26 May 1969. The Apollo 10 mission took astronauts Gene Cernan, Tom Stafford and John Young on two successful orbits of the Moon in a dress rehearsal for the historic Apollo 11 Moon

**"The record number of people who saw Tim Peake's Soyuz spacecraft highlights how science and space travel continue to inspire us."**

landing which followed two months later in July 1969.



Tim Peake and his Soyuz spacecraft at the National Science and Media Museum // Science Museum Group

"It's wonderful how the Science Museum Group and Samsung have come together through this tour to extend the Principia Mission's impact in inspiring the next generation of scientists and engineers.", said ESA astronaut Tim Peake. The emergency space suit worn by Peake during his descent to Earth, the Sokol KV-2 space suit, joined the Soyuz TMA-19M on tour, and will go on long-term display at the National Space Centre, Leicester, from this summer.

Also accompanying the Soyuz TMA-19M spacecraft on tour was the Space Descent VR, a stunning virtual reality journey voiced by Tim Peake himself, enabling nearly 50,000 people to experience in first-person the high-speed descent to

Earth from the International Space Station.

The VR experience was produced especially for the Science Museum Group and is powered by the latest Samsung Gear VR technology. It was also incorporated into a three-strand Education Programme developed by the Science Museum Group and Samsung, which reached over 20,000 students. The Education Programme involved a combination of in-school sessions with the Science Museum Group's Explainer team, special visits to see the Soyuz, and a bus designed to replicate the setting of the International Space Station with headsets showing Space Descent VR. The bus also visited communities across the UK, welcoming over

21,000 onboard.

The Space Descent VR experience, and an opportunity to try on a replica suit of Tim Peake's Sokol KV-2 space suit, will be open to visitors this summer at the Science Museum.

The Science Museum will be marking the 50th anniversary of the lunar landing with a dedicated Summer of Space, including the Museum's biggest ever sleepover: the Apollo Astronights featuring a lunar rover workshop and other special activities. IMAX screenings of Apollo 11: First Steps, which uses never before seen footage that tells the incredible story of the first moon landing, will also be part of the programme.

Other events include a conversation on space travel with Brian May

and Astronomer Royal Lord Martin Rees, a special preview of BBC Two's new docu-drama 8 Days: To the Moon and Back and a screening of Smithsonian's Apollo's Moon Shot film, with a live score by Teeth of the Sea, introduced by former NASA astronaut Wally Funk.

Culture Secretary Jeremy Wright has expressed, "the record number of people who saw Tim Peake's Soyuz spacecraft highlights how science and space travel continue to inspire us. The tour's success underlines why we make our world-class culture accessible to everyone in all corners of the country".



# impromptu.

Spontaneous Things To Do With People Nearby

Impromptu is launching to Imperial students in two months' time // Impromptu

## Impromptu Part III - Realising your Ideas

*Founders of Impromptu share advice on creating a tech start up*

### TECH

**Sahir Khurshid**

**Tom Burgoyne**  
*Impromptu*

**W**elcome back *Felix* readers, time for our third instalment! Having laid the correct framework for your ideas and performed your background research, we now discuss how you realise your ideas in practical terms....

### Funding

Having validated your idea, your primary concerns will be economic. Where do you get the funds to realise your app? If you are in a position to self fund, fantastic! Greater risk equals greater reward. If you are not, you have several options. These include obtaining grants, angel funding, venture capital and even crowdsourcing. There is a wealth of infor-

mation online regarding each of these avenues. It is important to remember that you will be giving up equity in your business to obtain these funds (successfully obtaining a grant being the exception).

Most app start-ups go through multiple rounds of fundraising to cater to their different stages of growth. As you become more successful, the amount of equity you give up reduces as the risk to

**“There are programmes in place that cater to start-ups at different stages of their growth.”**

investors is minimised.

Many universities and financial institutions offer incubators where accepted start-ups are mentored through the entire process

and introduced to potential funders. These are powerful tools for a young start-up but do remember that you will probably be giving up equity and potentially IP rights too. In fact there are programmes in place that cater to start-ups at different stages of their growth, scalability awards being a prime example.

### Getting it built

First question, do you have someone capable of building your platform? If you or a partner are a computing whizz and are able, wonderful! Failing that, there are several things to consider (and these typically revolve around simple economics). If you're well funded, you can approach a local company to build your platform for you. If you aren't, you can source a partner capable of doing so. This will again involve giving up equity in your company. Another option is to outsource. There are many websites which allow you to put your

ideas out to tender. Developers will then compete for your job. Having a non disclosure agreement here is valuable. You can find simple templates for these online although most freelance developers will already have their own. There are always success and sob stories when dealing with developers, regardless the route taken.

Dealing with developers overseas is notoriously challenging. Being able to relay technical information to someone who speaks English as a second (third, or even fourth) language is not easy. Culture can also dictate branding and the way your platform may look. Hence, a hybrid approach might be the most sensible option. Many UK based development houses will offer a cut price prototype service where they provide high res mock ups of how your platform should look and function. They may also have input to colourways and branding. All this IP belongs to you and you can then hand this over

to someone overseas who can code at a fraction of the cost.

No matter the route you decide, it's important to frame the project correctly and to ensure that payment is made based upon completion of milestones or deliverables. This will be worded into your contract. It is important to ensure that you own the rights to everything, especially in the unfortunate instance of this relationship turning sour. You must also ensure that your platform is not shared with anyone else without your express permission.

**“Many UK based development houses will offer a cut price prototype service”**

### Marketing

You obviously want your core audience to download and use your app. In most cases the key to success is marketing. Not just in terms of having a healthy marketing budget but having a targeted marketing plan.

Utilising social media is immensely powerful. You can advertise on Facebook and Instagram. This is more sophisticated than most would think and allows you to reach specific audience demographics and locations. The price for this service is also not prohibitive. Local advertising campaigns (think leaflets, posters and placards) and trade shows are also helpful.

As you grow, you may want to seek the assistance of a marketing specialist who will help you get your message to your target audience.

*Next week we will be detailing our app 'Impromptu' and its back story....*

## ARTS

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## Life, Love and Robots: A Conversation

Following on from last week's feature on AI: More Than Human, Arts Writer Amanda interviews the father of the exhibition's humanoid robot: Alter 3.

## ARTS

**Amanda Hertzberg**  
Arts Writer

The exhibition 'AI: More Than Human' (explored in the previous issue of Felix) is taking place at the Barbican right now, where visitors can explore the topic of artificial intelligence and machine learning, spanning back to the Middle Ages, then jumping to 1940's Alan Turing to today's newest gimmicks in the field. In my eyes, the exhibition gives rise to more questions than it does answers. In an attempt to answer some of these questions, I spoke to Takashi Ikegami, professor at the University of Tokyo and one of the main (human) brains behind Alter 3.

*Hi Takashi! Your background is a doctorate in Physics, and today you have your own AI lab in Tokyo, Japan. How come your career took this turn, were you always interested in AI?*

Basically, I am interested in what life is. People, or even physicists like Schrödinger, the father of quantum mechanics, want to know why some matter becomes life, and some matter doesn't, and what the distinction between the two is. Then came the personal computer back in the 80's, and now everybody has a computer. There's still so many things to discover, and

that's how I started doing systems studies. We didn't call it AI, we call it "Artificial Life", life comes first, intelligence might come as a by-product or a side effect.

*What would you define as life?*

Well it's a difficult question, but humans are the ones who decide what is and isn't life. We came up with the Turing test. The Turing test is a more language based distinction between human and non-human. You interact with an android and judge how human-like they are. It's based on a lot more than just appearance, but once you think you could be in love with her/him, and you don't care whether it's a machine or not, that's when we've reached the goal.

*Would you say there is artificial intelligence that meets this standard already?*

Well, people don't really know what artificial intelligence is. Already, computers can calculate much faster than humans, but people shouldn't call it AI. It's difficult because people call what is essentially just machine learning AI. So we're not at that level yet.

*Do you think we'll know when we get there?*

Hopefully. But I'm not sure. Like I said, on some level people don't care what something is made out of, whether it's a computer programme or not. When you become friends with someone, you don't just suddenly

stop liking them or stop being friends with them because they consist of a programme. That's why artificial life is more important than artificial intelligence. Artificial life is more about how you can interact with the mind, if there is such a thing as the mind. Mind can emerge on top of computational processes and chemical processes.

*You are part of the team that created Alter 3, which can be seen here at the Barbican right now as part of the "AI: More than Human" exhibition. Would you describe that as life?*

We don't call it life, but we do think it is a different type of robot. It's an alternative robot in the sense that it is not based on the task, it's not based on computational functions, instead it is based on artificial life principles. Alter 3 has been given the basic task to mimic a human being. If a person steps up in front of Alter 3, he will try to mimic the person, but also to consult his memory of behaviours to try and pick up and match the human in front of him. He will try to retrieve past behaviours from his memory.

*So Alter 3 shows machine learning?*

Alter 3 shows machine learning, yes, but the basic processes behind it we call Darwinian evolution, picking up one pose and making a variation of it, attached to the memory. So a memory organisation is built. The personality of



Meet Alter 3 (left) and his human creator (right) // Anna Dabrowski, Barbican

Alter 3 arises from these complex memory-tree structures.

*Do you feel like you have a personal relationship with Alter 3?*

Yeah, I do think so. The more time you spend with Alter, the more you start to like him. I feel like I want to know more about him.

*Takashi, you are obviously a scientist, but do you consider yourself an artist as well?*

Yeah I consider myself an artist after 5 pm. When you conduct scientific research, you have to produce papers for journals, and that's what everything revolves around. However, there's a lot of things you can't show through simple figures and numbers. Art is a totally different way to present these ideas to people, and can be easily understood.

*In your work you've stated the theory that the mind emerges from mass flow of data. Would you*

*say this school of thought makes you different from other researchers in the field that might take a more reductionist approach?*

Yeah, usually people think life emerges from neural networks. One of my theories is based on the work of artist Nam June Paik. Usually you build a robot in a laboratory-setting and you experiment on it there. But Paik took the robot to the city. And in the city the robot was hit by a car, and then became the first robot to ever have been involved in a traffic accident. The world is so messy, so complex, and that's the challenge you're really facing in all of this. I think the difference between Alter 3 and other robots has to do with its complex environment. Autonomy is not performing random acts regardless of what's going on in the environment, life-like autonomy is interacting with your environment. The mind is not encapsulated in the body, the mind is constantly interacting with the environment. Alter 3 is not trying to stop the massive data flow, instead to receive it all and be more adaptive towards it.

*Where do you see artificial intelligence going in the next decade?*

The market needs more robot-to-robot interaction. It might be interesting for creating a new kind of mathematics. I always think of the human as a bottleneck. With big data, AI don't need to visualise and write down equations like we do. They just go from big data to big data, bypassing the rest. They can therefore create their own mathematics and own languages. How we understand things is different from how AI understands things, so we need better translation between these two.

After talking to Ikegami I'm left pondering about AI and the definition of life. Could the future really contain some sort of Ex Machina-style androids for us to fall in love with? Will a version of Alter 3 one day be someone I come home to find on the couch, eating Ben & Jerry's and watching Love Island? I can't help but view Takashi Ikegami as a bit of a Victor Frankenstein, perhaps a misunderstood genius, but so devoted to his craft of creating life that this might not be the last we hear from him.

## ARTS

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## Dog Without Feathers

## ARTS



**Where?** Southbank Centre  
**When?** Ran till 10 May  
**How Much?** £20 - £30

**Elizabeth Thong**

*Arts Writer*

Transport yourself to the dried-out Capibaribe River in north-eastern Brazil, where ‘crab men’ covered in mud desperately try to survive the harsh, violent environment, where water is scarce and life is returned to its primal origins. *Dog Without Feathers* is a virtuostic dance production by the award-winning choreographer Deborah Colker. Based on Joao Cabral de Melo Neto’s poem *Dog Without Feathers*, the experimental dance-cum-film embodies the poem

in movement, whilst combining classical, contemporary and ritualistic dances in an intense and passionate manner. It brings even the desolate, cracking landscape into motion, in a spectacular fashion I did not know possible.

The visceral performance immerses the audience into life on the edge, with the mythology of people living on Brazil’s Capibaribe River seamlessly intertwined with suffering and tragedy. With the dancers’ skin-coloured costumes and mud-slicked hair, their dehumanisation is embodied through their primal passion. Their contrasting anguish and exuberance speaks of our dependence and careless disregard for nature and our environment, whilst also highlighting the inequalities of Brazilian life. Through this, Colker effectively conceptualizes

both geographical and human nature. The performance speaks to a deeper part of the audience’s soul, asking us to contemplate the inconceivable and unimaginable aspects of the human condition.

We were brought on a journey from the dried-out river banks, to a lone crab, to the sugarcane plantations, and to a mangrove teeming with life. The simple set design and black-and-white film reflected the empty and deprived landscape, allowing us to focus on the dancers themselves. This was exemplified by the lighting design that cast brilliant and effective shadows, transporting us into a different world. Within each movement, the dancers were intense and powerful, moving in perfect synchrony to embody the scene and bring the audience on an adventure as the poem was transversed.



**Dog Without Feathers** // *Cia de Dança Deborah Colker*

The beautiful, fluid shapes created by the dancers were deliberately contrasted with their perfectly timed and harsh movements, highlighting the guttural nature of these communities that were in perfect synchrony with the raw beauty of nature.

Whilst filled with passion and drama, there were points where some of the intense energy lost its way and seemed to drag on. Perhaps this was intentional, reflecting the people’s return to basic re-

quirements and the loss of energy as they struggled to survive the long days and months. However, it also took away from the captivating world they had worked so hard to transport us to. Nonetheless, the world created is one that leaves you contemplating human nature and our environment.

Overall, I was pleasantly surprised at how effective dance is as a communication tool that

transcends all languages and practices, and gave me a newfound appreciation of the ways in which we can express ourselves. The performance beautifully combined cinema, poetry, music and dance to transport the audience into a different, enthralling world. At the same time, it effectively delivered a pertinent message on humanity and nature, and left us reflecting on our own lives and practices.

## Operation Black Antler

*A new identity, an undercover operation, a theatrical performance. A bizarre but sensational and immersive experience.*

## ARTS



**Where?** The Globe Theatre  
**When?** Until 29th Nov  
**How Much?** £23; £16 students

**Thomas Allen**

*Arts Writer*

Sitting alone in the dark, on a bench in a South London park waiting for a text from my ‘handler’, I felt as though I had found

myself at the blunt end of the biggest practical joke since the admin team at the 2017 Oscars switched the winner’s envelopes. Instructed to remain vigilant for any ‘suspicious activity’, it’s fair to say that I was absolutely bricking it! Eventually, however, the rest of my team arrived and after a brief introduction we did indeed receive instructions from our handler.

Operation Black Antler is an immersive theatre experience, and this really was whatever you made of it. You are talked through

how to come up with an effective false identity and told to construct a back story explaining how you and your team know each other. The more you throw yourself into your new alias, the more fun you have... And you’ll be surprised how hard it can be to remember your alias’ name in the heat of the moment - I certainly messed it up at least once, ironic since you keep the same Christian name!

Not only does this alias have to have a history, they also have to possess some pretty strong views

on immigration and Brexit, all in order to get closer to your targets. I found myself making some very inflammatory claims and statements in a South London pub to people I had never met, all in the attempt to gain some ‘intelligence’. By the end of the evening, I had sympathised with a Luton based Anti-Islamic protester and arranged a meeting the following Saturday with the head of the EDL – not my usual Thursday evening out!

As a piece of theatre, this evening was faultless.



**Operation Black Antler** // *Southbank Centre*

I spent the entire evening unable to differentiate between actors, members of the public and fellow guests.

If you are someone who feels uncomfortable talking to strangers, who is overly cautious about what you say, or who is uneasy about breaking into fenced compounds, then perhaps give this a miss.

However, if you are the sort of person who reads MI5 biographies and watches *Line of Duty* thinking ‘I wonder whether I could do that?’, then this is certainly for you! Not your standard trip to the theatre, this experience requires concentration, nous and above all the ability to completely suspend reality for one sensational evening.



20:34:48

24-05-2019

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# GAMES

games.felix@imperial.ac.uk

## Smash Corner: King Dedede - Surely you jestin'?

*"Long live the king" the crowd shouts as his royal highness returns to the stage to teach some loyalty!*

### Games

#### Mahdi Rahim

Games Writer

**D**o you want to play Smash with sass and style? Perhaps you're a swordfighter, looking for a change up in weaponry, maybe something with a bit more brute force, maybe a mallet? Do you wish to infuriate your opponent by living to the most obscene of percentages, coming back each time to serve a mightier clobbering than the last? Most importantly, do you want to summon the image of ultimate perfection, simply by holding down on the left-stick? If you answered yes to any of the above, the King of Dreamland has it all.

On the ground, Dedede has numerous options to pile on pressure and keep his rivals out. Most notably, his forward tilt makes him reach out with a spinning mallet, and it outranges most characters' swords or close quarters combat options. His up tilt is good for covering the air, keeping airborne fighters in check and creating aerial follow-ups, and his down tilt makes him roll into his opponents, setting up consistent tech situations and jab lock combos. To finish up his grounded arsenal, dash attacking will send this flightless fellow into an all-in dive across the stage - a high-risk high-reward option which can also kill at higher percentages. The hitbox also lingers for a while, enabling two-frame punishes at the ledge.

While he may be a penguin, Dedede's aerial

game is nothing to sneeze at either. On top of strong aerial attacks, he has a total of four jumps, giving him strong recovery and makes him a huge threat (figuratively and literally) vertically. His jumping jack-like neutral air comes out extremely fast, trading favourably with aerial opposition in almost all instances, and fast falling out of n-air (normal air) also allows you to combo into grabs, jabs, tilts, or even another n-air, making it a decent approach option. Looking at his other aerals, his back air swing is his go-to aerial option when going for a knockout thanks to its high knockback. His n-air, fair and up air are all good followups to his down throw, allowing you to tack on damage early in the game.

The real flair in Dedede's gameplay comes from his Specials. His neutral Special, the Inhale, sucks anything from projectiles to whole opponents into his stomach, doubling as both a command grab and a projectile reflector. This move is also the source for some of the funniest and most undeserved stocks you can achieve in the game. In a rough spot off-stage and your opponent is too close to the ledge? Simply hold down that B button as you descend, suck your opponent in, and spit them under the stage leaving them sweating to make it back to stage, or simply drop gracefully into the void of the bottom Smash Box and take them with you.

This goes hand in hand with his own projectile, the Gordo - a sentient spiky bouncy ball that can



"I do not like this painting Charlie, it's smug aura mocks me" // Nintendo + IASIP

be thrown with his side special, and can cause a lot of damage, and even has the chance of sticking to the ledges to give recovering fighters hell. Combo this with the Inhale to send the Gordo at your opponents with even more speed and stopping power.

His Up Special, the Super Jump, sends him flying upwards, and eventually crashing downwards to devastating effect when landed on an opponent on stage. This does have immense end-lag and is by far the most punishable move in his arsenal however, so it is best used to simply make it back to the ledge. The insane vertical gain on this move, along with multiple jumps, serves as the basis for his recovery and allows him to make it back from seemingly anywhere. Lastly, his down Special, the Jet Hammer, is a chargeable mechanised swing of his already hefty hammer, which has super armour and the ability to break shields when charged

up. This can be used in combination with Gordos at the ledge to force your opponent into unfavourable get-up situations that can give you the lead.

**"He shines most in dealing with his victims off stage - possessing some of the best edge guarding"**

In terms of overall gameplan, Dedede is a defensive heavy, best played by keeping approaching opposition out with his disjointed tilts and strong aerals, while also creating openings and conditioning the opponent with his projectile and multiple jumps.

He shines most in

dealing with his victims off stage - possessing some of the best edge guarding and ledge trapping tools in the game, he's able to maintain this advantage state to ensure a stock. Unlike his other heavy peers, Dedede excels in the air thanks to his four jumps and high-reaching Up Special. This allows him to chase deep off-stage, while being able to make it back from what would be unreachable for most of the cast without a scratch.

He is an exceptionally solid mid-tier pick. Regardless of his strengths, it doesn't save him from his lack of approach options, making patient play and zoning against him very effective and difficult to break. His rotund body habitus also makes him pretty difficult to miss, further making him susceptible to lengthy combo strings when in disadvantage, allowing rush-down characters to quickly rack up free damage on him. All is not woes for this merry monarch though

- even with his glaring weaknesses, playing with patience, foresight and active planning will gain you the most mileage with this character. Use his heavy status and amazing recovery to live to really high percents, and this will give you more interactions to partake in and study, buying you the time to download and adapt to the other player's habits, and capitalize in ways nobody else in the cast can.

Despite his flaws, you can't really knock self-proclaimed perfection. If you are interested in learning more about this engorged, flightless bird, YouTubers such as D3nsity produce dedicated content, with detailed matchup guides and tech tutorials. The Dedediscord on Smashcords also has a plethora of guides and resources, including a 9 page document dedicated to Gordo tech alone. So what are you waiting for? Pick up the mallet and find the true King within yourselves!

# INVESTMENT

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## Which sector will prevail in the current market?

### INVESTMENT

**Alexander Koh**

Investment Editor  
ICIS Writer

In an economically uncertain environment subject to policy-driven volatility, the underperformers would be high beta stocks such as the technology sector. The friction and tension surrounding the US-China trade war uncertainty has dampened the forecasted earnings of technology companies such as Apple who recently revised their first quarter earnings forecast. This reduction in profitability has had its roots in the trade disruption which has had a direct impact on the operating costs of the company. The increased trade risks and risk premiums are reflected in the equity prices of technology stocks.

Nevertheless, the two main economic indicators of recessions – rising unemployment and yield curve inversion - are still

**“Trade friction has a direct impact on the operating profits of technology company [Apple]”**

absent with the yield curve remaining flat and unemployment falling, it is reasonable to assume that the U.S. economy will not, barring any major eventualities go into recession in 2019. Despite the current market

conditions, investors are vulnerable to fears of an impending downturn and often turn to equity with a record of strong performance in terms of sustainable growth, clean balance sheets and good cash flows. One sector which may meet these conditions may be the Telecomm sector. Firstly, the Telecomm sector has an increase in growth potential due to the 5G data plan which Telecomm giants such as AT&T and Verizons are investing heavily in. Beyond that, the consistently high dividend yields (5.5%) in 2018 attract investors who are looking for stability and sustainable returns amidst increasingly chaotic economic conditions.

In June 2018, I did a stock pitch on AAPL (Apple stock) during which I proposed shorting the AAPL stock due to how overvalued it was. Taking the results from a Discounted Cash Flow (DCF) analysis and a Canonical Correspondence Analysis (CCA), along with the lowered sales figure for the latest iPhone and iPad models, I concluded that AAPL was likely to underperform and drop in

valuation in a Next Twelve Month (NTM) outlook. This stock pitch held true in the Oct 18 stock sell-off, during which there was an equity self-off of technology stocks, with the tech heavy NASDAQ benchmark having its worst quarterly loss since the 08-09 Global financial Crisis.

I would like to talk further about the highly volatile Technology sector. Let us use the Tech-heavy NASDAQ index as a benchmark to measure the aggregated performance for the Tech sector. Observing the NASDAQ index, you will see three major equity sell-off periods – Feb, October and December. Comparing this with the VIX index, you will observe that the same 3 periods stood out as periods of high volatility and high market fear.

Overall, the performance of the Tech sector suffered, particularly due to the existing trade war between the U.S. and China, where tariffs have been enforced on tech goods.

The February sell-off originated from increasing wage pressures (inflation), where investors expected

the Fed to raise interest rates. The fact that the seemingly positive news of rising wages would be treated as bad news, is a sign of a late-stage bull market. Investors began suspecting that the financial conditions would tighten and this led to a harsh equity sell-off, particularly for tech stocks due to the commonly held view that tech stocks are overvalued.

The October Tech-

stock stemmed from the Fed increasing its funds rate (conversely interest rates). Coupled with lowered earnings due to the trade war between U.S. and China, where operating profits of tech companies took a hit. Similarly, the Dec sell-off stemmed from the rise in Fed fund target rates. This sell-off may have been due a change in investor’s views regarding the

U.S. economy (i.e. it has reached a peak).

The 2019 outlook for technology company stock will likely be turbulent, depending on which part of the tech sector a company is involved in. The performance of tech stocks will depend on their innovation and their ability to keep up with investor’s expectations of high earnings.

### Market Summary > Nasdaq Composite

INDEXNASDAQ: .IXIC

**7,016.75** +110.84 (1.60%) ↑

15 Jan, 12:11 GMT-5 · Disclaimer

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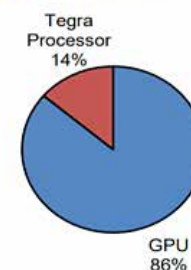
1 day 5 days 1 month 6 months YTD **1 year** 5 years Max



Google Finance // NASDAQ COMPOSITE

Market Data			
Last (Delayed)	148.83	Market Cap (mm)	88,590.3
Open	144.33	Shares Out. (mm)	610.0
Previous Close	145.23	Float %	95.9%
Change on Day	3.60	Shares Sold	18.4
Change % on Day	2.5%	Dividend Yield %	0.4%
Day High/Low	149/143	Diluted EPS Excl...	7.48
52 wk High/Low	292/124	P/Diluted EPS	19.92x
Volume (mm)	21.77	Avg 3M Dly Vlm	17.14
Beta 5Y	2.03		

NVIDIA Revenues Breakdown



Source: Company filings and BMO Capital Markets estimates

Key Statistics	12 Months	12 Months	12 Months	12 Months	12 Months
	Jan-29-2017A	Jan-28-2018A	Oct-28-2018A	Jan-31-2019E	Jan-31-2020E
Total Revenue	6,910.00	9,714.00	12,422.00	12,214.09	13,106.25
Growth Over Prior Year	37.9%	40.6%	38.4%	25.7%	7.3%
Gross Profit Margin %	58.8%	59.9%	62.5%	62.9%	63.0%
EBITDA Margin %	30.7%	35.1%	38.8%	38.2%	36.6%
EBIT Margin %	28.0%	33.0%	36.9%	39.6%	38.1%
Net Income Margin %	24.1%	31.4%	37.8%	37.0%	34.1%
Diluted EPS Excl. Extra	2.57	4.82	7.48	7.33	7.27

//BMO

# SUSTAINABILITY

artur.donaldson15@imperial.ac.uk

## Ground-Breaking Hackathon to make meat without animals

Imperial College to host first Cellular Agriculture Hackathon from Monday 3rd June - Tuesday 4th June. Limited places open to students from all disciplines

### SUSTAINABILITY

**When:** Mon 3rd - Tues 4th June. **Location:** Imperial College Advanced Hackspace, White City campus. **Registration:** apes@imperial.ac.uk / Facebook Event Page / Eventbrite

**Clarisse Beurrier**  
Sustainability Writer

Calling on all scientists, engineers, business students and hackers! Do you want to harness the power of technology and join the revolution? You are invited to use your skills and passion at the world's first "Cellular Agriculture Hackathon at Imperial"

Cellular agriculture is the process of growing cells to make agricultural products. Growing meat and milk without using animals is not only an extraordinary feat scientifically, but also addresses some of the major issues of our generation: climate crisis, antibiotic resistance, resource scarcity amongst others. Currently, meat production is responsible for more greenhouse gas emissions than the entire transportation sector combined. It is also the main driver of biodiversity loss and deforestation. As well as being unsustainable, if considered pragmatically, meat production is highly inefficient. For example chickens only convert 11% of what they eat into



Join the first ever Clean Meat Hackathon // APES, EA, Veg and Environmental society

meat, yet this is the highest caloric conversion rate for any land-based animal. This suggests there is room for invention!

With your help, we could achieve a sustainable process of meat production which can meet the growing worldwide demand for food, with a fraction of the environmental impact and animal suffering.

The field of cellular agriculture began in 2013 when the first cell-based, "lab grown" burger was made by Mark Post. It is currently facing four main challenges: reducing costs for resources such as growth mediums and cell sources, engineering tissue scaffolds to mimic the in-vivo myogenesis environment, scaling up into commercial scale bioprocessing, and finally, marketing to aid customer

adoption. You will be able to choose which of these issues to tackle.

This hackathon is not limited to meat only. It is open to any potential application of cellular agriculture even leather! We are recruiting talent

**"the first cell-based, 'lab grown' burger was made by Mark Post in 2013"**

from all academic areas to facilitate collaboration.

It will be guided by Benjamina Bollag, the CEO and founder of Higher Steaks, a UK clean meat start up. There will also be a large team of

mentors who are experts in the following domains: cell culture, engineering, marketing and innovation management.

If you are looking to network with other driven hackers or dive into the field of cellular agriculture this event is for you! Here's what you will gain contribute to solving the greatest challenges of our time, dive into the field of cellular agriculture and its opportunities, show off your talents, network and meet people as passionate as you are, get a chance of winning large cash prizes, and finally, with a free book and food to top!

The hackathon will begin with a launch event on **Monday 3rd June** at the Advanced Hackspace, at Imperial White City campus, with talks by scientists, entrepreneurs and influential actors in the

field, from 5pm to 9pm. The hackathon proper will kick off on Tuesday at 9:30am. You have until 5pm to complete!

Thanks to APES, Effec-

tive Altruism, VegSoc and Environmental society, Imperial Enterprise lab and the Advanced Hackspace.

### FELIX SUSTAINABILITY COLUMN IS RECRUITING!

For further details see <https://tinyurl.com/y2dggnc> (or use QR code). Email sustainability.felix@proton-mail.com.



Applicants will be given free training on how to use industry-standard publishing software at a workshop in June.

### GLOBAL EVENTS THIS WEEK

**World Environment Day: Wed 5th June**  
Search #BeatAirPollution. More next issue



## Work with the Union

Are you an organised and reliable individual, who likes helping others? Want to earn some extra cash whilst studying? Apply to be a Student Trainer, and gain some valuable skills while giving back to your community.

In this role, you will be running workshops and training sessions for Student Development programmes such as Imperial Plus, a new leadership development programme and Student Activities training.

You don't need any prior experience in training - you will receive initial training and ongoing support from the team.

Apply before **9 June 2019** at: [imperialcollegeunion.org/student-trainer](http://imperialcollegeunion.org/student-trainer)

## Join the Welcome Team

Sign up to be part of the team that welcomes new students to Imperial College Union next year. We're looking for volunteers to help students move into halls, assist at stalls, run events, and provide general guidance to First Years during Welcome.

We'll provide training, a t-shirt that identifies you as part of our Welcome Team, and anything else you might need to be a great source of support for new students. You'll meet people, gain new skills and the reward of knowing you've made a difference. More than that you'll be entered into a raffle to win an iPad, £100 John Lewis vouchers and £50 Amazon Voucher. What are you waiting for?

Sign up now at [imperialcollegeunion.org/welcome-team](http://imperialcollegeunion.org/welcome-team)



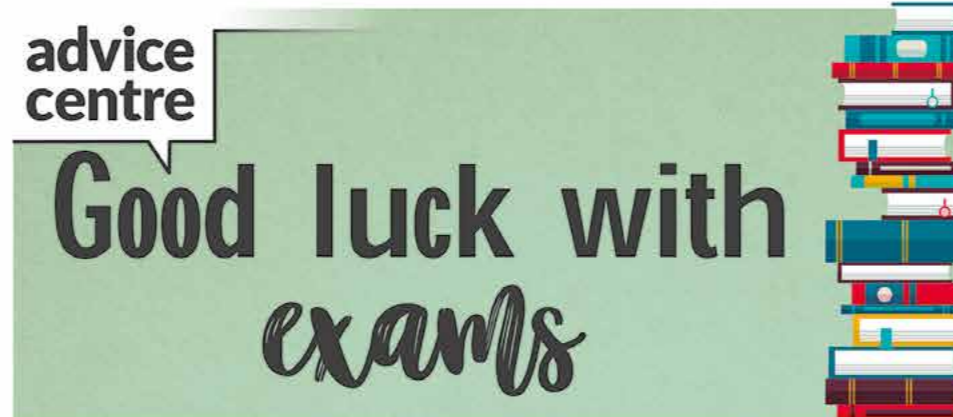
## Keep your gin up

Celebrate World Gin Day on **Saturday 8 June** between **12:00-23:00** in **FiveSixEight**. Come along and sample our bespoke menu.

Want to try something new? Between 15:00-17:00, there will be an opportunity to taste some of the finest Gordon's Gins. Please note you must be 18+ to attend this event and it is open to all Imperial College Union members and Associate members only.

Keep up to date at: [imperialcollegeunion.org/world-gin-day](http://imperialcollegeunion.org/world-gin-day)

\*Reminder: Check out the events page for more info on what's on, and join us in supporting our favourite teams in 568 over the weekend.



## Need help with your exams?

It's not too late to seek help this exam season. If you feel you can't sit or prepare for an exam, or meet your deadlines, come and talk to the Union's Advice team. Depending on your reason, we may be able to help you through the College's Mitigating Circumstances Policy and Procedures.

With each case being different, we advise students who are facing unique challenges that affect their ability to prepare or sit for an assessment to come and talk to one of our advisors. They CAN provide impartial and confidential advice.

Visit [imperialcollegeunion.org/examtime](http://imperialcollegeunion.org/examtime) for more information.



## 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

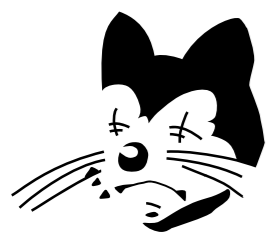


# Keep your gin up

## World Gin Day 8 June 2019

15:00 - 17:00 | Gordons Gin Sampling | Beit Bars

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



# Hangman

## #WhiteSexLivesMatter movement gains traction after white Europeans black-balled from sex survey

The annual NegaFelix sex survey has drawn criticism after failing to include a major ethnic group in the data collection.

### HANGMAN

Negafelix  
Editor-in-Chief

Partakers of white European descent were incensed when they found themselves unable to identify themselves in the survey questionnaire.

Question 4 of 69, which asked for the individual's ethnic background, failed to acknowledge the existence of non-British/Irish white people, with the only white ethnicities acknowledged being those indigenous to these islands.

**"I'd love to say I did it on purpose but that's giving myself too much credit"**

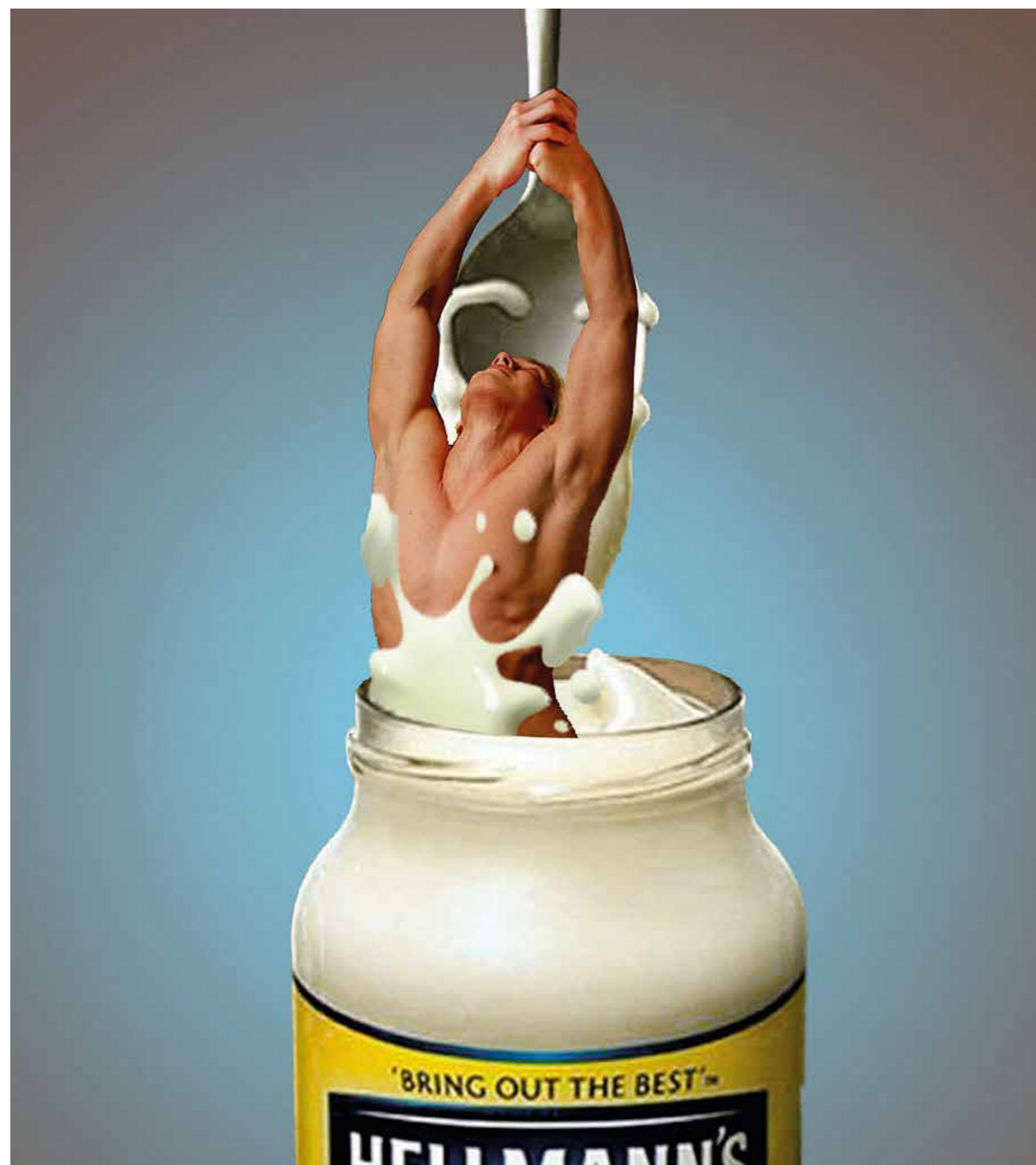
As frustrated students vented on social media, the hashtag #WhiteSexLivesMatter was started by the Facebook page 'Imperial College Indecently Exposed' over the perceived slight. The move, however, subsequently evolved into a full-blown campaign, looking to raise awareness of the struggles faced by Caucasians in their sex lives.

Montplaisant, who spearheaded the campaign, was adamant in his campaign's decision. "This is cultural erasure, pure and simple," he exclaimed in irritation. "We refuse to be made into token whites, we are people who have sex too!"

**"We refuse to be made into token whites, we are people who have sex too!"**

Liberation Officers have moved to rally behind the campaign, gaining funding to support it from the Union. John Smith, White and Majority Ethnic (WAME) Students Officer, told of his disappointment at the survey, stating that they were symptomatic of a much larger problem at Imperial. "As someone whose family has had to endure historic oppression, I find this to be completely unacceptable," he thundered. "Life doesn't come easily to people like me - do you know how hard it is to have an ethnic name like mine? There are so many assumptions that come with it."

Calls for an apology from the NegaFelix editor, Akim Djamba, was met with nonchalance. "I'd love to say I did it on purpose but that's giving myself too much credit,"



Presented without comment. // Flickr

he said, speaking on the gaffe. "I really couldn't give a shit whether or not they had sex with a custard crème tart, I'm just trying to get content for next week. Plus, why are they even talking?

I swear Brexit means Brexit; who cares about them anyway." Mr Djamba has previously been alleged to supporting questionable fringe groups on campus, most recently a campaign to

replace Pieminster with a Caribbean takeaway under the guise of diversification.

The annual sex survey was initiated in 1998, after mass hysteria during an STI epidemic dragged

the already low sexual activity at Imperial to near zero. The hope had been that doing so would encourage Imperial students to get frisky with one another.

# HANGMAN

negafelix@imperial.ac.uk

## Need measles for your mitigating circumstances? There's an Imperial start-up for that

### HANGMAN

Negafelix  
Editor-in-Chief

A concept to connect diseased patients with desperate students has been awarded £10,000 by the Business School to develop their business plan.

The platform, Sickr, aims to help students in need of

mitigating circumstances connect with infectious patients, in order to avoid exams or submission deadlines.

Diana Rhea and Seb T. Semia, both on the MSc Innovation, Entrepreneurship and Management course, received the funding after participating in one of the money-grabbing schemes available to Business School students last week.

"Sometimes we go into the library, to see how the other half live," Ms Rhea said, "and we always hear people sobbing and saying 'kill me now' or 'why couldn't I get tetanus too'.

So we thought, this is a captive market that will always be refreshed and importantly will move on before they suffer the worst of the side effects"

**"This is the kind of entrepreneurship we breed here at Imperial"**

Users connect with each other over the mobile app, that allows a user to set their location and

desired infection. For a small additional payment members secure access to required medication once the deadline has passed.

The Dean of the Business School, Frankincense Velocirapto, praised the students for their ingenuity. "Imperial means Intelligent Bullshit, and that's exactly what these students have done. They've spotted an opportunity and built a business to exploit it to its full potential. This is the kind of entrepreneurship we breed here at Imperial."

Concerns as to the ethics of the venture were



No more need to break limbs // Imperial College

dismissed by the College's CFO (Crusty Fiscal Opening), Mair Patterson. "Stop fucking asking me dumb shit," he snapped. "As long as they pay their

goddamn fees I don't care what happens to the damn students - they'd probably be waiting for a Counselling appointment anyway.."

 <b>ARIES</b> This week, you finally gain the confidence to break out of your shell and make friends. Too bad you're four years too late.	 <b>TAURUS</b> This week you're fed up with your rodent situation at home and take matters into your own hands. Now you're wanted for questioning about your flatmates' disappearance.	 <b>GEMINI</b> This week you go to a new barber. Your trim ends up looking worse than Queen's Lawn.	 <b>CANCER</b> This week you finally say hi to your library husband. Turns out he's actually library zaddy.	 <b>LEO</b> This week you're Boris Johnson. That's it. You're the joke.	 <b>VIRGO</b> This week you're the Union cameraman asked to capture Imperial's diversity. The cameras flash. The rugby lads remove their sombreros.
 <b>LIBRA</b> This week the Union rejects your request for a Virgins Liberation Officer. Apparently Liberation Officers are for minority groups only.	 <b>SCORPIO</b> This week you're an Armenian Arsenal fan blocked at the Azerbaijan border. Whatever, The final wasn't worth watching anyway.	 <b>SAGITTARIUS</b> This week you need to go to the library toilet. Why does somebody not know how to flush the toilet after they've had a shit?!	 <b>CAPRICORN</b> This week you're worried about filling out the Sex Survey anonymously, because really, how many Mongolian non-binary polyamorous people in Earth Sciences can there possibly be.	 <b>AQUARIUS</b> This week you smuggle hot food into the library a-la-cartel. It tastes like ass.	 <b>PISCES</b> This week you're an anti-vaxxer. You're terrified of tiny pricks.

22 JUNE 2019  
*Summer Ball*  
RED CARPET

SATURDAY 22 JUNE 2019 | 8PM - 6AM

SOUTH KENSINGTON CAMPUS

●  
GET YOUR TICKET NOW

[imperialcollegeunion.org/summerball](http://imperialcollegeunion.org/summerball)

●  
HEADLINING:

*PINK  
RANITA*

AND

JACK  
SAUNDERS

(RADIO 1) DJ SET

OFFICIAL AFTERPARTY - FIREWORKS DISPLAY -  
SILENT DISCO - PHOTO BOOTHS - FREE FUNFAIR  
RIDES - AMAZING PERFORMANCES FROM STUDENT  
GROUPS - DELICIOUS FOOD TRUCKS - COCKTAILS &  
MOCKTAILS - PIMMS TENT AND SO MUCH MORE!

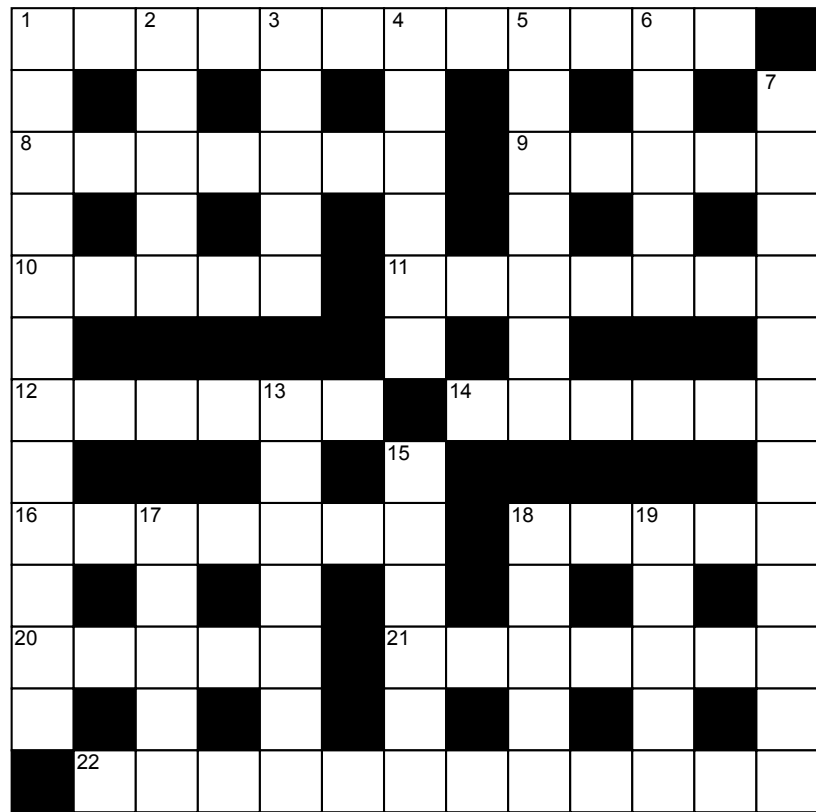
[imperialcollegeunion.org](http://imperialcollegeunion.org)

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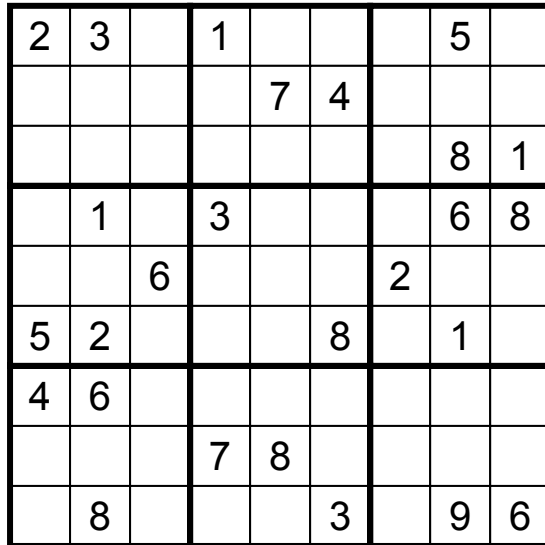
# PUZZLES

fsudoku@imperial.ac.uk



### SUDOKU

Fill all the boxes with a number between 1 and 9. A number can only appear once in a row/column, and only once in each sub-box.



### FUCWIT

1	Trollheim	209
2	DQ	205
3	Yeet Infection	201
4	Maxiane	177
5	O1G	175
6	Wooloomooloo	148
7	Big H's Boys	126
8	Rock, Flag & Eagle	108
9	Computer Magic	95
9	S. B. S.	95
11	Quizlamic extremists	87
12	KBLB	82
13	Fleesh and the tooters	80
14	Shark	74
15	Luncheon Pals	72

Send your solutions to [fsudoku@imperial.ac.uk](mailto:fsudoku@imperial.ac.uk) before Wednesday midday to take part in the leaderboard!

### Points available

Crossword	5
Sudoku	2
Minesweeper	3
Slitherlink	3
<b>Total</b>	<b>13</b>

### Across

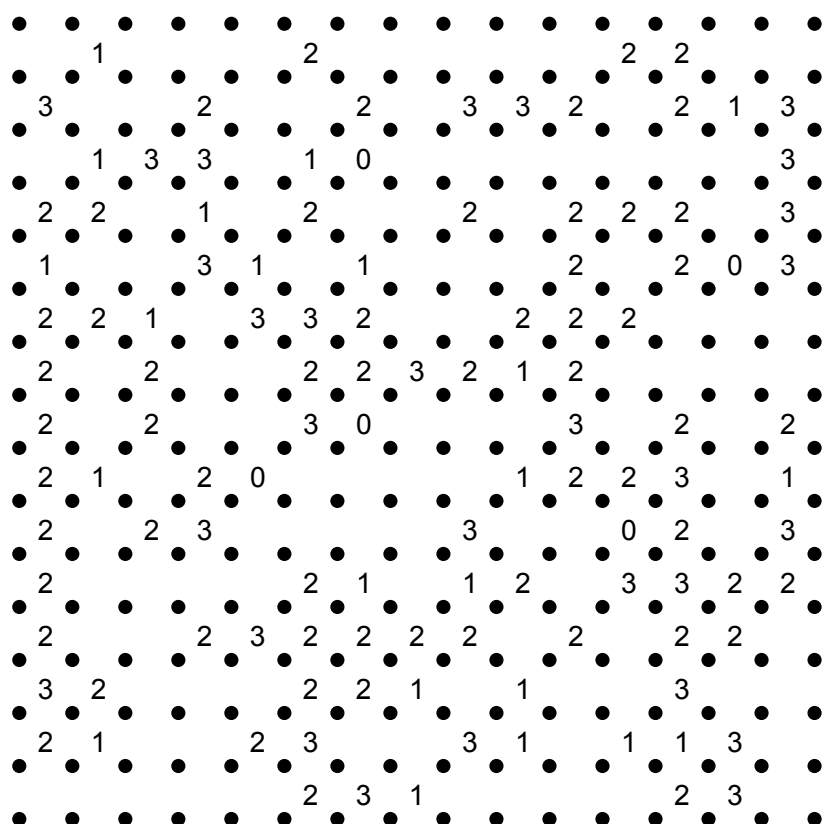
1. Cold, hard numerical data (12)
8. Supercontinent (7)
9. Grieve (5)
10. Greek angle (5)
11. Distinguished musician (7)
12. Parentless child (6)
14. Borrowed permanently (6)
16. Follow a winding route (7)
18. Recurring sequence of events (5)
20. Elizabeth's is 67 years (5)
21. Bumpy writing system (7)
22. The King's wife (5,7)

### Down

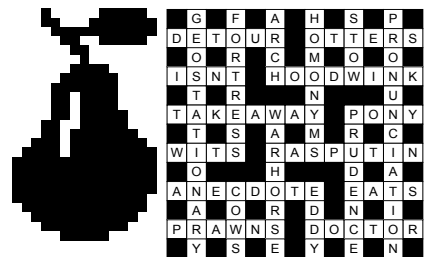
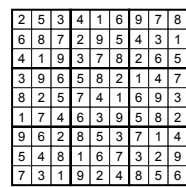
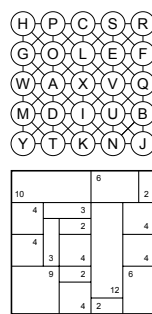
1. Doubtful punctuation (5,7)
2. See eye to eye (5)
3. Electric car company (5)
4. Severe shock (6)
5. Violent storm (7)
6. Bank storage (5)
7. Made over a loudspeaker (12)
13. Slightly undercooked pasta (2,5)
15. North African and Middle-Eastern language (6)
17. Sad goodbye (5)
18. Links prisoners to balls (5)
19. Large string instrument (5)

### SLITHERLINK

Connect horizontally and vertically adjacent dots so that the lines form a simple loop with no loose ends. The number inside a square represents how many of its four sides are segments in the loop.

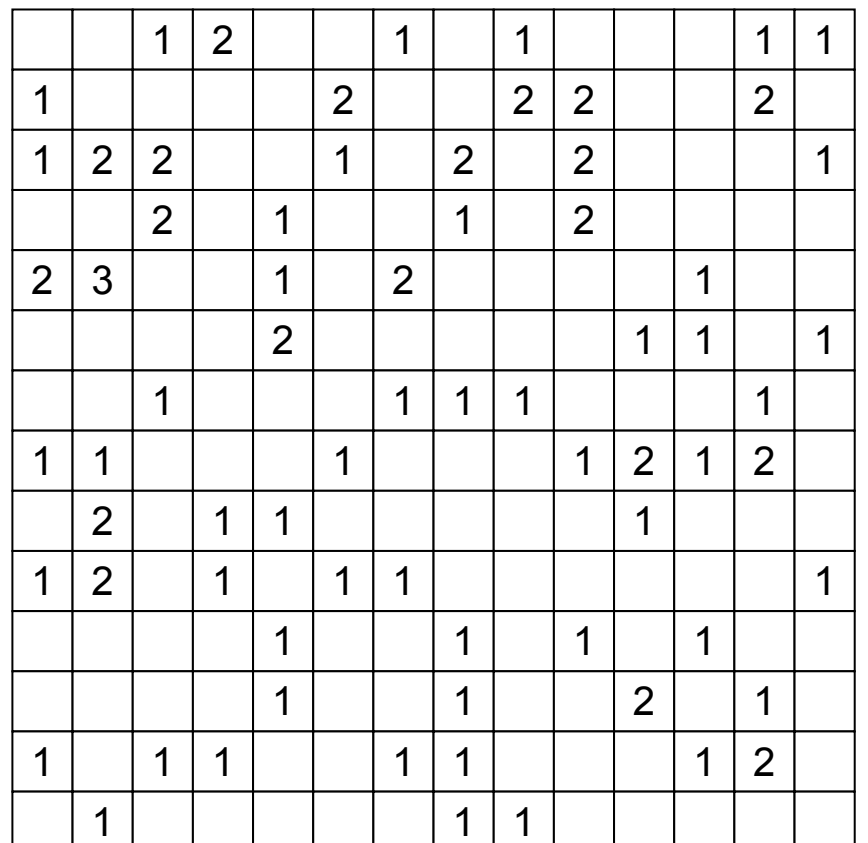


### Last week's solutions



### MINESWEEPER

The number in a cell represents the number of mines adjacent to that square (up/down, left/right, diagonal). Find and mark all of the mines to clear the board.





**FELIX**

**SEX**

**SURVEY**

**LAST CHANCE TO COMPLETE THE SURVEY:  
BIT.LY/FELIXSEXSURVEY2019**