

( ADVERTORIAL )



### FOUR THINGS YOU CAN DO IN 10 MINUTES

- Make yourself a cup of coffee
- Prepare a ham and cheese sandwich
- Relax with a facial mask
- Snooze

Mornings are difficult, we know. Have you ever wished you had an extra 10 minutes (to do any of the above) before rushing out the door? One way to shave time off your morning routine is to get semi-permanent eyebrows. With the help of Chrysalis' latest eyebrow embroidery technology, you'll wake up with naturally full brows. No more digging around for that eyebrow pencil to delicately enhance your brows.

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### HEY! Special

Flash this page to enjoy basic eyebrow embroidery for \$58 (usual price: \$243.86) and eyebrow shaping and design at \$5.35 (usual price: \$32.10).





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### **KEEP IN TOUCH!**

We welcome your ideas, views and contributions. Email us at hev@ntu.edu.sq









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### HEY! GO GREEN

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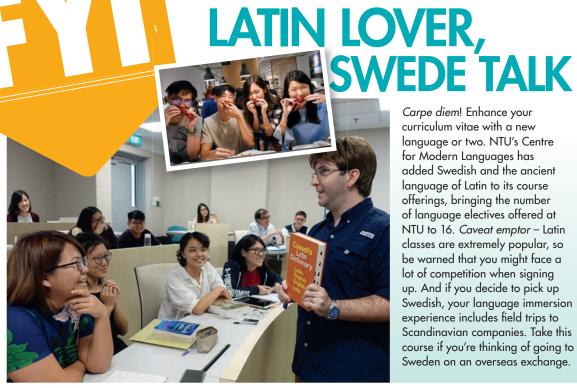
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PHOTO MARK TEO

COVER HANNAH ABBOTT TAI FNT



Carpe diem! Enhance your curriculum vitae with a new language or two. NTU's Centre for Modern Languages has added Swedish and the ancient language of Latin to its course offerings, bringing the number of language electives offered at NTU to 16. Caveat emptor - Latin classes are extremely popular, so be warned that you might face a lot of competition when signing up. And if you decide to pick up Swedish, your language immersion experience includes field trips to Scandinavian companies. Take this course if you're thinking of going to Sweden on an overseas exchange.

On this Smart Campus are many labs active in artificial intelligence (AI) research, so it is no surprise that NTU was ranked second in the world by Nikkei and The Elsevier for having the most-cited research papers in AI and data science. From social robots to smart computing, NTU has been generating global buzz for its ability to keep pushing the frontiers of AI. One of its newest initiatives is a partnership with Singtel and the National Research Foundation Singapore to start a \$42.4 million lab that will accelerate the development of AI and data science innovations to drive Singapore's Smart Nation vision.

Organisations with most-quoted	
AI-related research papers (2012-2016)	

RANK	ORGANISATIONS	COUNTRY	QUOTED PAPERS
1	MICROSOFT	US	6,528
2	NTU	SINGAPORE	6,015
3	CHINESE ACADEMY OF SCIENCES	CHINA	4,999
4	CNRS	FRANCE	4,492
5	CARNEGIE MELLON UNIVERSITY	US	4,389
6	UNIVERSITY OF TORONTO	CANADA	4,315
7	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	US	4,283
8	GOOGLE	US	4,113
9	tsinghua university	CHINA	3,851
10	NEW YORK UNIVERSITY	US	3,506



You can soon hop onto public transportation of the future with jalanX, an interactive navigation app. Jointly developed with JTC and SMRT, jalanX will include information on first-and-lastmile transport options and experimental travel modes such as the driverless vehicles that are being tested on NTU roads. You can even book bicycle-sharing services and e-scooters. With NTU being at the frontline of technology and a living testbed of the future, it looks like campus folks are going places.

### THAT SOUNDS RICH



Would a rose by any other name sound as sweet? Maybe not, say NTU researchers, who found that whether a product is deemed expensive depends on specific sounds in its name. Sounds such as *ch* (in Gucci) and *z* (in Häagen-Dazs) impart a sense of rarity and thus luxury, while sounds such as *mama* and *dada*, learnt in the early stages of our lives, evoke feelings of simplicity and familiarity. Wonder no more why the name Chanel screams luxe to you.

### CONGRATULATIONS...

### WOMAN OF THE YEAR London beckons for accountancy and

Duan Yanyan, who won the EY Corporate Finance Woman of the Year competition. By outshining other talented young undergraduates in the



field of corporate finance, she bagged \$3,000 and a coveted internship with "Big Four" accounting firm EY. She jets off in February to represent Singapore. All the best!

### Two 你好 HELLO

Here's another reason to practise your mother tongue: An NTU study has found that people who are equally proficient in two languages (in this case, English and Mandarin), outperformed bilingual peers who favoured one language on a pattern learning task. The study also reveals that honing your mother tongue into adulthood makes your brain more flexible and receptive to new learning.

# CRITICAL INTELLIGENCE Writing a new chapter for NTU and for Singapore is communication student Paige Lim, who has been chosen as a young film critic for the International Film

Festival Rotterdam.

which starts on 24 January. She's the first Singaporean to be selected since the programme was launched in 1998 to talent spot budding film critics from around the world.



# ROBOT WITH HIGH SHELF ESTEEM

Looking as cute as Pixar's WALL-E, Super Luigi gets the job done pronto with one difference – it does it in real life. This NTU-designed robot, named after the character in the Super Mario Brothers video game, picks up items for delivery so well that it even picked up a prize for emerging third in a DHL robotics challenge. Super Luigi identifies parcels by reading barcodes and can reach for parcels up to 2m high with a firm grip. We're thrilled that this robot has a long shelf life, since it works tirelessly, and doesn't need any days off.



### WAREHOUSE WONDER

Watch Super Luigi pick up items and identify parcels by reading barcodes at NTUsg YouTube and Facebook.

# GOOD PLAC 3 TO BE IN

Five undergraduates taking NTU's signature programmes tell *HEY!* what they love about their unique coursework, study experiences and the lush NTU campus they call home, which recently made Quacquarelli Symonds' list of the world's top 10 most photogenic universities

BY CHRYSTAL CHAN AND DEREK RODRIGUEZ

PHOTOS BY MARK TEO







I think we are really fortunate to be the only students in NTU with two stunning campuses to study at. The Novena campus with the Clinical Sciences Building is beautiful and serene, especially the medical library (below), which has a 360-degree view of Singapore. This is one of my favourite places to study and daydream in.

Other than the library, I spend most of my time in either the house common room or the music studio. One cool thing about the house

family system of the Lee Kong Chian School of Medicine is that each of the five houses, named after famous doctors such as William Osler and Alexander Fleming, is split into smaller groups and we are assigned house "parents" and "grandparents", the year twos and threes.

All my seniors are very supportive and they even offer help before you ask for it. Some of my fondest memories with my house family include takeout dinners and birthday celebrations at Crescent and Pioneer Halls, where most of the medical students live.

When I'm not at the Novena campus, I'm usually in my hall of residence. Fortunately for me, good campus sports facilities – a big gym, the running track and the netball court – are located just next door at The Wave (right). I represent both my hall and my school in netball so I frequently go for netball training there. After training, I might go for a

midnight supper or watch a movie in the TV lounge with my house family, where we enjoy dissecting plots.

I'm also in my school's a cappella group. We call ourselves MedLee and we've had the opportunity to perform for various school events. It's been a blast and I'm always looking forward to the next performance.

My time here as an NTU medical student has been fantastic so far. I remember how before we even started learning medicine proper, we had a "hospital week" in a public hospital to experience the patient's journey - from wearing the hospital gown to eating food prepared in the kitchen, and even to feeling the stares from the public while being pushed around in a wheelchair. It opened our eyes to what patients actually go through. We could feel their discomfort, and learnt the value and importance of empathy, which good doctors must have. After that, we always remembered to put patients first in all our interactions with them.

A striking new building with a sweeping roof recently sprung up beside the Lee Wee Nam Library. It reminds me of a grand piano and looks quite futuristic. It is supposed to be the counterpart to The Hive at the South Spine. Like The Hive, it will have numerous smart classrooms for flipped classroom learning. There will be a café on the ground floor and a large lounge for students, with recreational facilities and discussion rooms. I can't wait to visit it when



it opens later this month. Going to The Arc – that's what it's called – is going to be another stimulating learning experience on this picturesque campus.

### COVER STORY



Joining the Renaissance
Engineering Programme, or REP,
is one of the best decisions I've made.
Everyone in the programme is highly
motivated, so we spur one another
to improve ourselves constantly.
We all thirst for the same things –
novel experiences, wisdom and new
knowledge, which is why so many of us
are involved in at least three different
activities outside of classes, like extra
internships and competitions.

Last year, I took part in the P&G Pitch Day, where my classmates and I won the first prize of \$12,000 with our idea for an automated laundry detergent dispenser. I also went for an exchange to Peter the Great St Petersburg Polytechnic University in Russia to study space technologies for two weeks during the summer vacation.

REP is one progamme where you get to diversify your learning with not just academic but leadership, life and intercultural skills. In my third year, I will be heading to University

of California, Berkeley, for a year of studies. I've heard good things about Berkeley, Imperial College London, Northwestern University and University of British Columbia, so I had a hard time deciding which overseas university to pick. I finally chose to go to Berkeley because I've always wanted to experience life in California. Now I'll be able to!

But university life is not just about studying. I love music, so I'm part of a band with three of my REP classmates. We play instrumental versions of popular songs and sometimes perform at charity events. We are called the Northern Hills, because we spend most of our time jamming together in the REP room at the North Hill residences.

I'm proud to call the REP room my second home. It is where we hang out with our other REP classmates, play games and also study together. I've recently tried dancing as well, joining the Hall 8 dance group Srethgie. I've no formal training in dancing, so this was a big step out of my comfort zone, and what fun it has been, despite the hard work!

Making many close friends is one of the biggest highlights of my university

life. During the recent sports camp, all 12 of us in the group bleached and dyed our hair electric blue. We all had a good laugh after seeing the faces of passers-by when we left the salon. It may seem like a silly initiation rite but it bonded us. I know these friendships will last a lifetime.

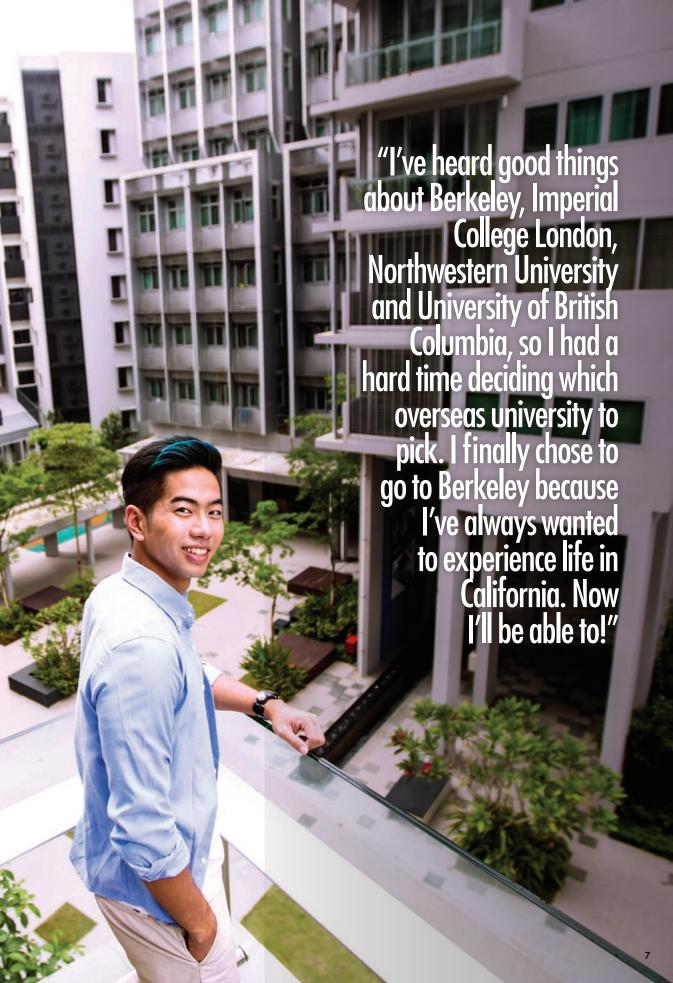












### COVER STORY



### NANYANG SCHOLAR PURSUING BIOLOGICAL SCIENCES WITH A SECOND MAJOR IN PSYCHOLOGY

oming to The Hive always brings back memories of my most intensive semester, when many of my classes were held here. It was demanding, yet enjoyable, especially since it was my first experience with the flipped classroom, where the learning is always interactive and keeps you on your toes.

Hanging out at the Co-Op Café between lessons with my friends made it even more special. We would often spot visitors, sometimes large groups of them, coming by to check out this "dim sum" building, which is one of the most Instagrammed buildings in Singapore.

The rest of my NTU years have been equally fruitful. The university has opened so many doors for me, from giving me the chance to pursue two very different fields – biological sciences and psychology – to letting me plant my flag in different parts of the world.

When people ask me about my time in NTU, I always tell them the seven months I spent in Europe were unforgettable. I did an exchange at the University of Southern Denmark in Odense, a small, quiet town. What made it amazing was making friends from so many different countries. I can now travel anywhere in Europe and have a friend there!

More importantly, it was a transformative time for me. Living and laughing with people from a mishmash of cultures with different sets of values changed my outlook on life and let me see things from other perspectives. Many of the friends I met are keen to spend a semester at NTU. Some have even heard of The Hive, which is designed by Thomas Heatherwick, the man behind the London Olympic Cauldron.

Through the Nanyang

Scholarship, I had many opportunities to see the world. In my second year, I travelled to Hong Kong to represent NTU and Singapore at a symposium for student leaders. It was humbling to hear speakers share their take on humanitarian issues and their efforts in supporting them. The symposium achieved its goal of raising awareness in future leaders, as all of us left with a burning desire to contribute to creating a better society, starting from within our own communities.

As I begin my final semester and look back at my four years here, I realise that I've been able to discover myself and my passions. My professors always give me room to explore my wild ideas and my friends in the hall have been a huge support system. I'm now busy rehearsing for the annual dance competition at the Hall Olympiad Closing Ceremony, which will be my last performance at NTU. Trainings are long and tiring but honestly, I wish this time would never end!





The School of Biological Sciences is directly linked to the Lee Kong Chian School of Medicine's Experimental Medicine Building (below) and this is symbolic of my experience here at NTU. I'm very interested in neurobiology, an interdisciplinary subject, and I've been able to work under scientists from both schools.

Right from my first year, I was immersed in the heady world of research. My most thrilling project was done at the National Neuroscience Institute at Tan Tock Seng Hospital, where I worked on the genetic manipulation of fruit flies with the aim of learning more about Parkinson's disease. In my free time, I

would walk over to the neighbouring Clinical Sciences Building at NTU's Novena Campus and either study or just chill there. The top-floor view from the library is just breathtaking.

Just as stunning

and closer to my heart is Crescent Hall, where I have lived for the past two-and-a-half years. When I moved in as a freshman, the hall was only a year older than me, so I feel like I have grown up with it. You remember most the grand things you do together with your peers, so I won't forget taking part in the hall's first performance, where I was responsible for the sound effects. The rehearsals were gruelling but seeing it all come together in the end was exhilarating.

By the time you read this, I'll be off to Karolinska Institutet in Stockholm, Sweden, a renowned biomedical university where the annual Nobel Prize in Physiology or Medicine is conferred. I'll be researching for a way to alleviate the progression of Alzheimer's disease.

After that, I'll head over to the University of Edinburgh in England to do my Overseas Final Year Project on the molecular basis of everyday memory as part of the CN Yang Scholars Programme. I'm excited about the prospect of working under Prof Richard Morris, a leading figure in neurobiology, to investigate how our experiences are consolidated and stored in the brain.

### COVER STORY



## Lica Tan UNIVERSITY SCHOLARS PROGRAMME STUDENT STUDYING ACCOUNTANCY & BUSINESS

Being in the University Scholars
Programme has allowed me to
find meaning in what I study and
to have the intellectual stimulation
to satisfy my curiosities. I've just
completed my first year and am
already working on a research project
as part of the University Scholars
Programme module, Fieldwork and
Documentation. I'm exploring how
modernisation and globalisation
affects the authenticity of traditional
handicrafts in Ho Chi Minh City.

I also took a module called Writing and Reasoning, where we delve into topics business students like me typically don't discuss in class – such as who has a right to education.

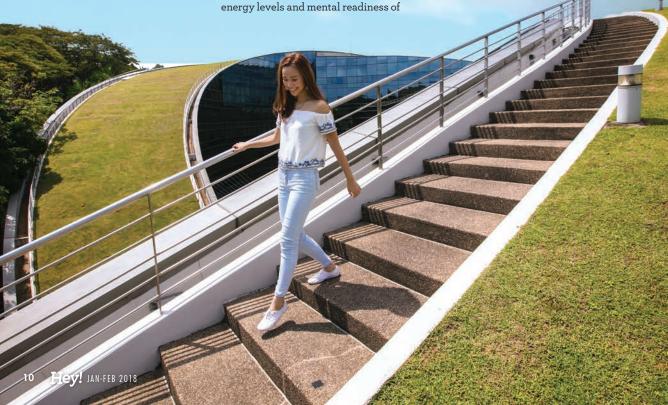
Outside of school, I am a facilitator for a programme run by Singapore's sovereign wealth fund, GIC, where I lead a group of secondary and junior college students interested in learning investment principles in a fun way through games. My task is quite challenging, as I have to gauge the

my group before deciding how best to guide their learning.

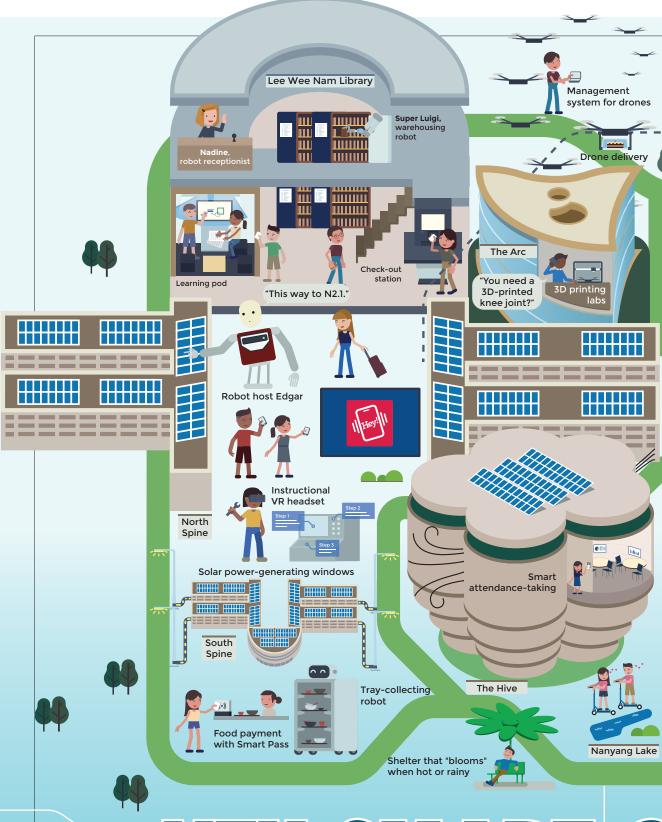
I haven't been in the University
Scholars Programme for long, but I
already like how the curriculum and the
environment we are in gives us ample
time and space to develop our critical
thinking. The multi-faceted programme
also encourages us to explore interests
outside of our major. This is why I am
starting a new co-curricular activity
called the NTU Social Emotional
Learning Club, focusing on ways to
improve interpersonal communication.

Learning at NTU has been an incredible experience so far. For the first time, I feel my journey as a student has equipped me with a fresh new way of perceiving the world. I am intrigued by architecture, and love scrutinising interesting buildings – not just to admire their beauty.

There's one such place on campus that takes my breath away: the School of Art, Design & Media. It is such an iconic building with its curved lines and grassy roof, and I always notice something new and unique whenever I see it. I'm hoping to take an art class there next semester!

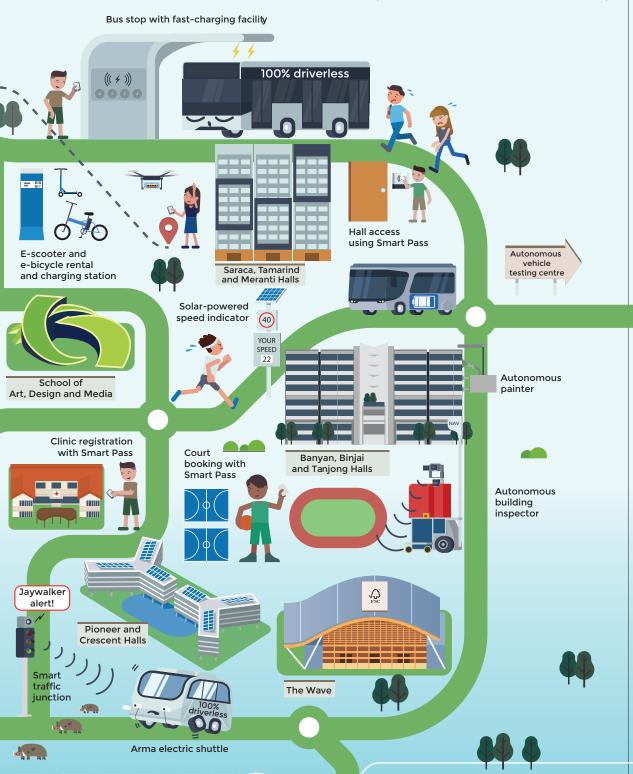




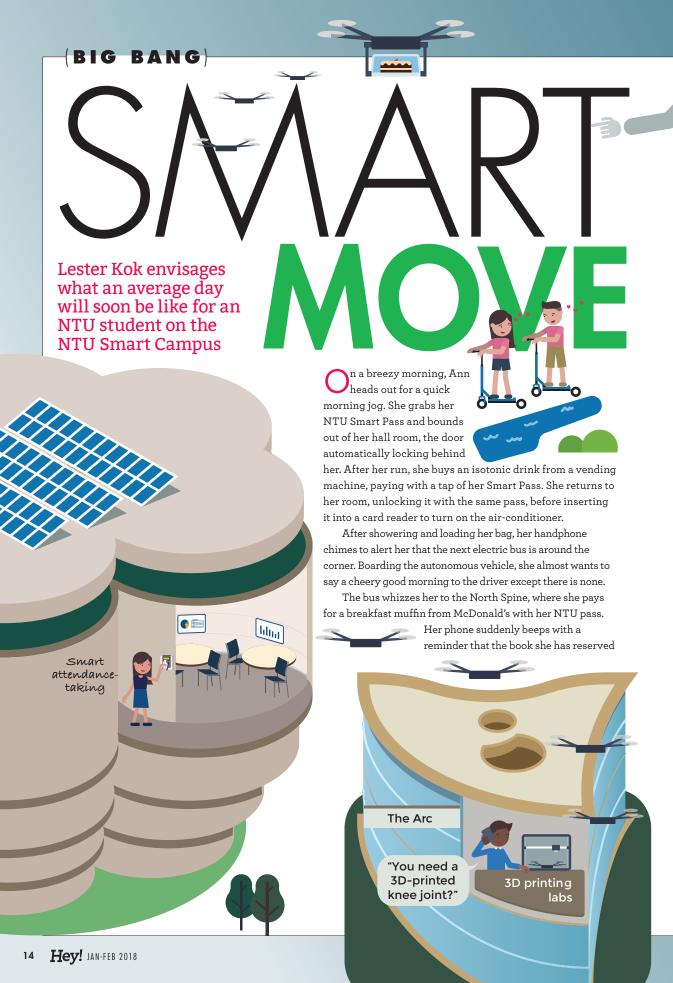


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### THE BIG PICTURE



Welcome to Singapore's largest Smart Campus, a hotbed of sustainable tech-enabled solutions that improve the way the NTU campus community learns, lives, works and plays













at the Lee Wee Nam Library is available for pick-up.

As she walks into the library,
Nadine, NTU's humanoid robot, greets
her and asks what she needs. After a
quick scan of her pass, Ann collects her
reserved book and some printed notes
at a nearby printer. As she leaves, she
sees a logistics robot tidying up books,
slotting them into their rightful places
on bookshelves.

To get to her class, Ann rents an e-scooter with a phone app and zips down to The Hive, where lessons are conducted in smart classrooms. Later, at Co-Op Café, a tray-collecting robot rolls up beside her as soon as she is done with her lunch. She drops off the reusable utensils before setting off on an e-bicycle that she rents to head to The Wave for a game of badminton with her friends.

### **PASS WITH FLYING COLOURS**

Soon, every student at NTU can have the same Smart Campus experience as Ann.

Earlier this month, NTU President Prof Subra Suresh announced his vision of transforming NTU into a Smart Campus that harnesses the power of digital technology and techenabled solutions to support better learning and living experiences, the discovery of new knowledge, and the sustainability of resources.

"As a microcosm of Singapore, NTU's large, beautiful and green campus makes it the ideal place to research, testbed and showcase new smart technologies from sustainable buildings and efficient energy use to electric and autonomous vehicles," he said. He launched the first phase of the broad and multi-pronged Smart Campus initiative with the new NTU Smart Pass for the campus community.

Replacing the old student matriculation card and employee pass, the new NTU Smart Pass is an all-in-one card for identification and cash-free payment. It also functions as a digital key.

Almost all food courts, retail shops and F&B outlets on campus will be accepting cash-free payments via the NTU Smart Pass, and in future, through mobile payment such as Apple Pay and Android Pay. Powered by NETS FlashPay, the pass can also be used for public transportation like Mass Rapid Transit trains and buses, as well as carpark payments.

running on campus, which are being test-bedded with industry partners.

With more autonomous vehicles coming on public roads and taking to the sky, NTU researchers are looking at designing traffic systems for public safety. At NTU's test circuit for autonomous vehicles, researchers are helping to formulate safety standards for driverless vehicles operating in the tropics. For accident-free airways, NTU's drone experts are also working on an airtraffic system to manage hundreds of drones flying at the same time.

Over 95% of NTU buildings have already achieved Green Mark Platinum certification, a stamp of

> Traycollecting robot



More cash-free payment options are in the works. In the pipeline are vending machines that accept NETS QR and NETS Pay, which will complement the NTU Smart Pass.

### **SUSTAINABLY SMART**

A sizzling testbed of smart technologies, NTU students can look forward to exciting trials of various innovations. In the next year, there will be at least two new autonomous electric shuttles and two fastcharging electric self-driving buses sustainability from the authorities, making NTU one of the world's greenest campuses.

Ongoing sustainability research includes innovations such as smart data analytics to reduce energy and water consumption in buildings, safer self-driving technologies, and an integrated building management system that will result in greener classrooms using more energy-efficient cooling and smart lighting where lights are turned on only when people are present.

### FACE TO FACE

A month to learn under Mr Miguel Bernas, who leads Mediacorp's digital marketing initiatives, was a golden opportunity for second-year marketing student Avril Choo to wise up on the corporate world and even offer some solutions. Chrystal Chan listens in as Avril chats with her mentor two weeks after the end of NTU's unique leadership programme, dubbed **NTIJ PEAK** 

MIGUEL BERNAS: Good to see you again, Avril. We don't usually get many opportunities to hear directly from people your age, which is why Mediacorp got involved in NTU's leadership programme. You provide a fresh perspective and an out-of-the-box way of seeing things. The challenge we gave was about radio because radio in 2017 is in a very different place from 10 years ago. It's a challenge we are thinking about deeply, and we seized the chance to hear from motivated NTU students like you.

**AVRIL CHOO:** Yes, I was excited to be part of this.

M: I realised that when we first started, none of you were talking about an actual radio set. Everyone was talking about radio apps, not even the in-car radio. It dawned on me that radio is something completely different to young people these days. Do you all still care about radio? I know people say the difference between radio and Spotify is the banter between DJs. I don't know if that's true from what you've found?



A: To be honest, I don't watch television or listen to the radio. When we knew our challenge was about radio, specifically, getting more young people to listen to the radio, we had to start listening to the radio ourselves to find out its draw. And I agree, the appeal is the banter between the DJs, which is

why we tried to play that up in our project. The first thing we all did was to download the MeRadio app. M: Wait, so not one of you listened to the radio before this?

A: Well, one of my group members said she listens to the radio in the car. Actually, many cars now have Bluetooth, which makes it easy to



listen to your own music.

M: I read that new Teslas don't even come with radios.

A: Not many of us use radio apps because we think it uses a lot of mobile data.
We've since found that it doesn't. What I like about the NTU PEAK

programme is that it provides us with mentors who can help correct some of our misconceptions. You don't get this kind of insights from googling.

### M: Really? What misconception did I correct?

A: The initial perception some of us had of Mediacorp is that it is old-fashioned and unwilling to try new things. But we were surprised when you told us you wish to see more diversity in radio television programming, even Hokkien programmes.

M: I'm all for less predictable programming. I personally love podcasts and I listen to radio stations from around the world. I think I told the group to think about the audience you're reaching out to, and the problem you are trying to solve for them.

A: We learnt from that. We hit on the idea of putting radio on public transport, because we know many young people take the train every day. When we brought the idea to you, you asked if that would be the most efficient way to reach our target audience since young people form only a segment of commuters. Your comments got us thinking harder. I may not get such insights regularly from taking part in case challenges.

### M: Do you get course credits for this programme?

A: No, we don't get any credits. It is like an extra-curricular activity for us.

M: Also, I realised you didn't know your group members at first.

A: Yeah, we all come from different NTU schools. I'm the only one from the Nanyang Business School.

M: Your different backgrounds, with some of you from engineering and others from English and business, was interesting for me. Not only were many of you learning the subject matter from scratch, you had to learn how to work with one another.

A: I've worked with peers studying communication and humanities, but not with those from engineering and computer science.

The arrangement works

well because we all see things in different ways, so we complement one another. The viewpoints shared have been eye-opening.

M: You also met some of my colleagues.
How was that experience for you?

A: We wanted to hear the views of someone working in broadcast. We spoke to Gerald Koh and Jean Danker. We met the head of MeRadio too. It was great because we could bounce our ideas off them to see if they would work. M: Today's presentation organised by Mediacorp as part of NTU PEAK lets you share your suggestions with all these people you spoke to. We may not be able to adopt your plan wholesale, but what's more important to us is getting to hear first-hand what the target audience wants. The risk for those who have been in the industry for a long time is that it is possible to become too distant from the target audience, who tend to change over time. We hope to tap your brains again for fresh insights. A: Please do - we'd love to give our

opinions.

M: Video game companies do this a lot. They get regular gamers to test their games – the kind of job I want!

The reality is that the scene is changing so fast and this applies to almost every field. Whatever you study in university may be completely irrelevant by the time you graduate, so you'll just have to keep learning. You learn on the job from mentors who will learn from you at the same time.

A: My marketing professors always emphasise that once we graduate, much of our textbook knowledge won't be relevant anymore. It's more important to hone our analytical skills, such as being able to identify and react to trends.

### M: It's good that they tell you that. I wasn't told the same in university.

A: Yes, our professors are always telling us to get exposure, which is one of the reasons I joined this programme. I'm glad I did. It was insane but insanely fun, and I'd definitely do it again.

# Tell us what you think Win great prizes!

Complete this questionnaire by 12 February 2018. To do the survey online, visit hey.ntu.edu.sg, or return your form by fax (6791-8494), email (hey@ntu.edu.sg) or mail (Corporate Communications Office, Administration Building, Level 1, 50 Nanyang Avenue, Singapore 639798). Each person should complete the survey only once, and all prizes must be collected personally at NTU. Incomplete entries will not be eligible for the lucky draw.

NAME:	
AGE: GENDER: M/F CONTACT NUMBER: EMAIL:	
CURRENT STATUS:   JUNIOR COLLEGE/POLYTECHNIC/IB STUDENT (STATE NAME OF INSTITUTION:	)
NTU UNDERGRADUATE (STATE SCHOOL:) INTU GRADUATE STUDENT (STATE SCHOOL:	)
☐ NTU ALUMNUS (STATE SCHOOL AND YEAR OF GRADUATION:	)

- TICK THE BOXES TO INDICATE WHICH ISSUES OF HEY! YOU READ IN THE LAST YEAR.
- TICK THE HEARTS TO SHOW WHICH 3 COVERS YOU LIKE BEST.















ON A SCALE OF 1 10 5,	MHFKF 2 12 1 HF	BEST, KATE THE	FULLOWING
FEATURES OF HEY!:			

<ul><li>Overall</li></ul>	editorial style				
5	4	3	2	1	
<ul><li>Design</li></ul>	and layout (pri	nt)			
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• Face to	o Face: A heart-t	o-heart talk betv	veen two		
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• Tomorrowland: How new technologies will change lives					
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Blips in My Life: Life-changing mistakes					
5	4	3	<b>2</b>	<b>1</b>	
• #seeingthings: The buzz about NTU on social media					
5	4	3	<b>2</b>	<b>1</b>	
● The Back Page: A face from NTU					
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### BE AMONG 150 WINNERS TO BAG A PRIZE OF YOUR CHOICE!

Choose which prize you hope to receive in the HEY! survey lucky draw. Up for grabs:

① Apple Watch (Series 3) ② 12 facial treatments (worth \$160 each) ③ 12 sets of FreshKon contact lenses (worth more than \$120 each) ④ 30 massage sessions by EMMA, Singapore's first robot masseur (worth \$68 each, inclusive of consultation) ⑤ 30 pairs of The Rink ice-skating passes (worth \$35 per pair) ⑥ 65 Coffee Bean gift cards (worth \$5 each)



Scan this QR code to do this survey on your mobile device

HOW MUCH OF EACH ISSUE OF HEY! DO YOU USUALLY READ?	HOW DO YOU FEEL WHEN YOU READ ABOUT THE SUCCESS STORIES
TICK ONE OPTION.	OF NTU STUDENTS, ALUMNI OR PROFESSORS? YOU MAY TICK MORE
All or most of it Whatever interests me	THAN ONE OPTION. ■ Inspired ■ Proud ■ Impressed
I only look at the headlines and pictures	Interested to know more about NTU
	Others (please state:)
HOW ARE YOU USUALLY ALERTED TO READ HEY!? TICK ALL THAT APPLY.	
#EY! magazine stands Facebook	ON A SCALE OF 1 TO 5, WHERE 5 IS THE BEST, RATE YOUR
Twitter Instagram LinkedIn	IMPRESSION OF NTU <b>BEFORE</b> YOU STARTED READING <i>HEY!</i> .
### HEY! TV screens on campus Online banner on NTU website When it arrives in my letterbox HEY! emailer	5 ■ 4 ■ 3 ■ 2 ■ 1 ■
Others (please state:)	ON A SCALE OF 1 TO 5, WHERE 5 IS THE BEST, RATE YOUR IMPRESSION
	OF NTU AFTER YOU READ HEY!.
TICK ALL THE PLATFORMS THAT YOU HAVE READ HEY! ON.  Print magazine Smartphone	5 <b>1</b> 4 <b>1</b> 3 <b>1</b> 2 <b>1</b> 1
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Print magazine     Print magazine	
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• Smartphone	Beautiful campus with good facilities
5 ■ 4 ■ 3 ■ 2 ■ 1 ■	Top academic and industry partners
• Tablet  5 ■ 4 ■ 3 ■ 2 ■ 1 ■	
• Computer/laptop	Top-notch professors
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HAVE YOU USED THE <i>HEY!</i> SHAKE APP?	Good career prospects for
Yes No	NTU graduates
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HAVE YOU SHARED YOUR PRINT COPY OF <i>HEY!,</i> AND IF YES, WITH HOW MANY PEOPLE?	Interdisciplinary education
Yes (please state how many:)	Vibrant campus environment
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HOW DOES READING HEY! HELP YOU LEARN MORE ABOUT NTU, SUCH AS ITS STUDENTS, PROGRAMMES AND ACHIEVEMENTS?	Apple Watch Facial treatment Contact lenses
My knowledge of NTU has improved a lot	Massage by EMMA, the robot masseur lesses
My knowledge of NTU has improved somewhat	Coffee Bean gift card
My knowledge of NTU has not improved	
ANY FEEDBACK OR SUGGESTIONS ON HOW	WE CAN IMPROVE THE NEXT ISSUE OF HEY! MAGAZINE?
ALL LEDDACK OK SOCIETIONS ON HOW	THE GALL WILLIAM TO THE THEAT ISSUE OF THEIR MAGAZINE:

### TOMORROWLAND

### How NTU technologies are changing our future

### AI HEARD THAT!

NOW NTU scientists have created a sound sensor powered by artificial intelligence that can identify different types of sounds, such as the sound of two cars colliding.

FUTURE With smart sound sensors placed everywhere, the relevant authorities can be alerted to a car crash or an accident, dispatching an ambulance on site immediately.





### **HI-GROWTH HYDROGEL**

**NOW** Researchers have found a way to direct the growth of hydrogel, a jelly-like substance, to mimic plant or animal tissue structure and shapes.

FUTURE Hydrogels can

grow and take on the complex structure of human tissue and body parts, spelling hope for those in need of a new organ, such as a kidney, that can be grown in the lab.

### **FAT-BUSTING PATCH**

**NOW** Here's the skinny on a painless skin patch invented at NTU that can help you burn more calories. Its tiny drug-laden

needles, when embedded

in the skin, turn white fat into energyburning brown fat. **FUTURE** These microneedle patches can be used by those who don't want to cut calories and still shave a few extra inches off their midsection. We spy a new tool in the war against diabetes and obesity.

### FEATURE)

# CAN WE HAVE THIS,

wishes they have for the new NTU

President, Prof Subra Suresh

LIYANA MAHADI, YEAR 1, MATHEMATICS Chrystal Chan rubs the genie lamp with NTU students and finds out what

"I'D LIKE A LOUNGE FOR STUDENTS TO RELAX IN. COMPLETE WITH SLEEPING PODS AND MASSAGE CHAIRS."

ONG BAO DONG, YEAR 2, PSYCHOLOGY

"More lifts and ATM machines in the halls that don't have them vet."

LISHA YEO, YEAR 1, BUSINESS

"I love animals. Could NTU start a course in veterinary science?"

**NICOLE YEE, YEAR 4, ELECTRICAL & ELECTRONIC ENGINEERING** 

"INCREASE THE **NUMBER OF STALLS AT FOOD COURTS, AND IMPLEMENT A RATING SYSTEM TO ENSURE THE QUALITY OF THE FOOD REMAINS GOOD."** 

YEO SZE-G, YEAR 2, COMMUNICATION STUDIES

"WHEN IT RAINS, IT CAN **BE DIFFICULT** TO GET AROUND PARTS OF NTU. MORE SHELTERS LINKING **BUILDINGS AND ROADS AT** PEDESTRIAN CROSSINGS WILL HELP US STAY DRY."

NICODEMUS NG, YEAR 1, ACCOUNTANCY & BUSINESS

"Can we have a double-decker campus shuttle?"

"Sleeping pods at a central area like the North Spine would be cool. With pod rental by the hour for power naps, we can stay alert during afternoon classes. ALBERT YEO, YEAR 4, MATERIALS SCIENCE & ENGINEERING

"More investments in technological innovations such as driverless buses that ferry us to school. It would be ideal to have an LRT train from Pioneer MRT station to NTU!"

**JEREMY CHIA, YEAR 2, BUSINESS** 

"I WOULD LOVE TO SEE A NICE RESTAURANT OR BAR AT THE ART SCHOOL. WE TEND TO SPEND LONG HOURS HERE DURING CRUNCH TIME FOR OUR PROJECT SUBMISSIONS."

ONG YI TECK, YEAR 3, ART, DESIGN & MEDIA

"A vending machine for hot meals in every hall. Each hall could sell different sets of hot meals for more variety overall. I would like a pizza machine that sells whole pizzas!"

PARAS BAJAJ, YEAR 1, MEDICINE

### **DOCTORS WITHOUT**

# BORDER

Bullet wounds, kindly doctors, historical specimens and more: NTU medical students share their best memories of Imperial College London

BY PETER YEO

7 hen I first saw her, the woman, who looked to be in her 30s, was plugged into her music. A familiar face at the hospital, she had been coming to the emergency room for many years for a pain in her arm. I walked up to her and asked to examine her. She told me how the pain in her arm began. Apparently, she was caught in the crossfire of a shootout some years back. A bullet caught one of her nerves or bone and the pain has been there since. She started getting emotional while talking to me and I was quite taken aback as I'd never seen a gunshot wound before."

This story by 25-year-old doctor-in-training Stewart Retnam shows a different side of medical school that Lee Kong Chian School of Medicine (LKCMedicine) students experience as part of their five-year NTU journey, with medical placements and immersions abroad.

LKCMedicine is a joint medical school set up by NTU

and Imperial College London.
The NTU students go on an exchange programme for a week during their term break in their second year, then on a six-week elective that involves attachments to hospitals or clinics, when they are in their final year of their studies. They also go overseas for community involvement projects.

### UNIQUE LEARNING PATH

The unique learning experience

at LKCMedicine is designed to train new medical professionals with both heart and knowledge. To meet Singapore's growing and changing medical manpower needs, NTU and Imperial developed a joint programme where the whole is greater than the sum of its parts, explains LKCMedicine's Vice-Dean of Education, Prof Naomi Low-Beer.

NTU's medical students have the benefit of observing







the National Health Service



With almost two centuries of heritage, Imperial also offered NTU students a peek into the annals of medicine through guided tours to medical museums located on its campus.

Hospital and other institutions and clinics.

### **AILS OF TWO CITIES**

Final-year student Toh Ching Han says: "Most patients in the UK are better historians. I met a patient in his 90s who had come to the emergency room for chest pains. He could tell me his complex medical history, all the medicines he was taking, and even what surgery was done decades ago. And he wasn't an anomaly. Patients in Singapore seem less aware of their medical conditions."

Students also said that the doctors in London spend more time on the consultation. "Singapore is pretty chop-chop. With the high patient load, you want to quickly find the

terms of the doctor-patient relationship, doctors in the UK take time to listen to patients and care feels extremely holistic." he adds.

"Even though the disease burdens of most developed countries are quite similar, London provided me with more opportunity to be exposed to patients with conditions like sickle cell anemia and Inflammatory Bowel Disease, which are much more uncommon locally," notes graduating student Bryan Ng.

### PROBLEM-SOLVING SKILLS

Do the students ever feel lost when they come across a medical condition they are less familiar with?

"Both Singapore and London face similar challenges of an ageing population and escalating healthcare costs. However, the financing models of the two countries are different as they are based on different principles. I learnt that healthcare systems have to fit the ecosystem of the country to deliver the best care for patients."

### - FOURTH-YEAR STUDENT TAN WEI JIE, WHO VISITED IMPERIAL WHEN HE WAS IN HIS SECOND YEAR

diagnosis and start managing their illness," says Stewart.

"In the UK hospital I was at, doctors see fewer cases per day, but that means patients may have a much longer wait for their next appointment," adds finalyear student Lee Hai Quan.

"During my exchange, I had my first posting at West Middlesex University Hospital, a small hospital where the doctors seem to know one another well and the case files are in hard copy," says Leon Tan, who is sitting for his finals. "But the situation at the larger Charing Cross Hospital, where I did my second posting, is similar to Singapore hospitals. In

"Problem-solving is a skill LKCMedicine has taught us well. We think about what we need for the solution, and how to find information to help our patient," says Hai Quan.

Agreeing, Stewart shares: "You just use all the knowledge you have. For the case of the patient with the old bullet wound, the slug got stuck around the arm so I relied on what I had learnt about the anatomy of the area. I may not know everything, but I know where the important nerves are. It's quite interesting. You get right down to applying everything you have learnt to try and figure out what treatment approach works."





Students at NTU can rent a pillow, a fridge or even a broom. Derek Rodriguez finds out what else you can lease to save, not just pennies, but the environment



### **LOAN-A-LINEN**

You are an exchange student who has just landed at NTU. To get your creature comforts, you need a basic starter kit comprising bed linen, pillows and other essentials like a bin and hangers.

Enter Dorm Buddy to save the day – and environment – as a "one-stop dormitory rental service".

"We saw the massive waste being generated and thought we could do better, especially given NTU's EcoCampus initiative," says

co-founder Dhanraj Bahety
(above, top left), who was
inspired to start the rental
service with some peers
after taking up the Minor in
Entrepreneurship programme.

Dorm Buddy's rental list includes everyday hallroom items, from bedsheets and

HOTO: LIANHE ZAOBAO © SINGAPORE PRESS HOLDINGS LIMITED. PERMISSION REQUIRED FOR REPRODUCTION

pillowcases to routers and extension cords. Prices range from \$3 for a power plug adapter to \$100 for a comprehensive "combo" that includes all the linen and tech connectivity gadgets a student needs to live comfortably.

Says Dhanraj: "Our no-frills service not only helps
NTU students to save money,
it is environmentally and
socially responsible as well."
But do students think it's
icky to use someone else's
bedsheets and pillow cases?
"After each cycle, the linen
is sent for commercial-grade
washing and electronics are
sanitised thoroughly. Used
towels and pillows are donated
to charity," Dhanraj explains.

It looks like Dorm Buddy is doing a roaring business with about 100 customers per semester and another 40 in the special terms.

The service will soon be open to local hall students as well. And with new items you can rent, such as a fridge and a calculator, it's easier to make the most of hall life at less than half the cost.

**SAVE MONEY, SAVE THE ENVIRONMENT:** Dorm Buddy
provided hallroom supplies to
exchange students in January 2017.



### RENT WHAT YOU NEED



### **DORM BUDDY**

### **TECH ACCESSORIES**

Ethernet cable – \$5
Extension cord – \$10
Power plug adapter – \$3
Router – \$18

### **FOR THE BED**

Bedsheet set — \$15 Blanket — \$15 Pillow — \$12

### OTHER ESSENTIALS

Broom — \$9
Bath towel — \$7
Hangers (set of 15) — \$5
Laundry bag — \$4
Trash can — \$4

All charges are per semester. You can also rent fixed sets of items at special package rates (\$35-\$100).

### **TELEPOD**

ONE-TIME DEPOSIT

— \$49 (refundable)

RENTAL RATE

— \$0.09 per minute





### **JOIN THE JOYRIDE**

It's lunchtime at the School of Humanities. You are craving the *ayam penyet* at Canteen 2. What do you do to satisfy this chicken craving in mere minutes? Zip to your meal on a rented e-scooter.

With 16 stations on campus where you can pick up or drop off these little blue vehicles, Telepod, the NTU student start-up behind the e-scooter service, is trying to reinvent the wheel of public transportation in NTU and in Singapore.

Designed by NTU alumnus Gan Jin Ni (above, left), Telepod's CEO, the Telepod app locates the nearest pick-up point by tracking your location with GPS and matching it with the closest available scooter. For \$0.09 per minute, you can whiz from the North Spine to various halls and the Sports and Recreation Centre, where The Wave is, and even to the nearby CleanTech Park, the test-bedding site for novel NTU technologies.

Since wheeling into NTU, the e-scooter service has been a hit with students, providing more than 1,000 trips a month. Demand has peaked for e-scooters from the residential halls at North Hill and the Canteen 2 bus stop.

But shortening commuting time between halls, canteens and lecture theatres is not the only reason these scooters are hired. "Couples in NTU have used them to go on dates, too!" says Jin Ni, who recently saw a pair of lovebirds zipping around on separate scooters.

GIVEAWAYS



### WHERE DID OUR **GIVEAWAYS PAGE GO?**



Now you can take part in HEY! giveaways through your mobile phone. It doesn't get any easier than that.

Simply look out for the HEY!Shake logo on a HEY! TV screen and shake your phone when you see it.

### UP FOR GRABS THIS ISSUE:

Coffee Bean gift cards, skincare products and shoulder massages

### **CALLING ALL ASPIRING** NTU FRESHMEN!

Want to win this exclusive NTU tote bag? We have 20 to give away. Download the HEY!Shake app now!



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DON'T HAVE THE HEY!SHAKE APP YET? DOWNLOAD IT HERE AND BE THE FIRST TO BE NOTIFIED OF NEW GIVEAWAYS AND FRESH CONTENT.









He's swum down the length of the Amazon River, scaled the world's tallest mountains and circumnavigated the globe along the equator. And now, Mike Horn has checked NTU off his list DEREK RODRIGUEZ

hat would you do if you break your ankle and your shoulder and the nearest hospital is a continent away? If you're Mike Horn, you will put on your ski shoes, take some morphine and carry on your day.

"It's not nice,
but it's part of
the job. You have to stay alive,"
says the 52-year-old professional
Swiss explorer, who was at NTU in
November to regale NTU students
with his latest adventure – a trek
across Antarctica accomplished on
skis and pure willpower.

It takes far more than a couple of dislocated joints to stop this man. He has lost parts of his fingers to frostbite and was almost executed.

"I was mistaken for a rebel and

put in front of a firing squad in Congo," he recounts. "They shot the guy next to me and they were going to shoot me next. Luckily, I was saved by a police officer."

Staying alive is the most difficult part of the job, along with convincing sponsors you won't

die, says Mike, who spent his formative years running, jumping and exploring Johannesburg on his bicycle. It requires lots of preparation and research, some luck and a touch of love – more specifically, the will to return to his two daughters in Switzerland.

"My wife, who passed away from cancer in 2015, was very inspiring to me. She always supported me. She was

completely selfless and lived for others instead of herself."

In between expeditions, he lends his motivational skills to sports teams, such as the 2014 World Cupwinning German football team, and stays in touch with trends and technology by visiting universities and speaking to students.

He also hosts the French version of *Running Wild with Bear Grylls*, and has a similar appetite for the wild as the reality show's famous British presenter.

"I eat anything that moves. If it doesn't move, I kick it until it moves, then I eat it!" he jokes. "The strangest tasting meal I've had is rotten walrus in the Arctic Circle with my Inuit hosts. It tastes like very old cheese. It shocked me at first but I've grown to love it."

"The world's greatest living man", as he is described by *The Telegraph*, has also given young people the chance to join him at different stages of his trips, to learn about biodiversity and creating a sustainable world.

It's no wonder that his talk at NTU ended with this piece of advice for students: "Life presents many opportunities, and you can get inspiration from everywhere. If you are passionate about what you do, you don't ever want to go to sleep. Life is exciting, so live it to the fullest."



# MY HE RT G

### **BREASTFEEDING MUMS**

**WHO** Dayna Yin, 23, third-year communication student.

**WHAT** Bare It For Baby, which raises awareness on challenges faced by mothers nursing their children in public.

HOW Dayna knew part of the solution was to desexualise the female breast. Her fun, catchy video, Breast Meal Ever, uses everyday foods –

instantly recognisable to anyone – as an analogy for breasts. The creativity of her project caught the eyes of the media as well.

WHY She started the movement after noticing her sister's

discomfort. "My sister didn't like to nurse in public without a cover and her son didn't like to feed under one. Now she has to do it all over again with her second child. I wanted to reduce the stigma faced by breastfeeding mothers so they can have the comfort, confidence and choice to nurse on their own terms."

**TOUCHING MOMENT** Convincing mums to drop their guard was not an easy task, but it gave Dayna the most sense of achievement. "A

few of the mothers told me getting photographed for the campaign was the first time they'd nursed without a cover in public. They overcame their discomfort and insecurity through the Bare It For Baby campaign. This gave my work more meaning."

what's NEXT? Dayna intends to apply what she's learnt from her campaign to her upcoming internship at the Singapore Prison Service. Having interned twice with them previously, she was touched by the work done at the correctional facility and wants to use her skills to give exconvicts a new lease of life.

### MIGRANT WORKERS

**WHO** Sazzad Hossain, 23, engineering freshman.

WHAT SDI

Academy, an ed-tech social enterprise that trains and helps migrant workers settle in Singapore,

including teaching them English.

HOW Sazzad started the social enterprise when he was still studying at St Andrew's Junior College, graduating 70 students before getting other volunteers to help him. Today, SDI Academy employs 10 full-time staff and enlists more than 200 volunteers to interact with the migrants, and Sazzad is expanding his reach to impact the 1.4 million migrant workers in Singapore.

WHY The Bangladeshi-born
Singaporean understands the difficulties of being a new immigrant. "I came to
Singapore in 2005 and found it difficult to adapt as I barely knew English. I started SDI Academy in 2013 after I'd found out a migrant worker seriously injured himself because he couldn't understand the safety instructions written in English.

**PROUD MOMENT** Validation came when one of his students, whom he





All you need is love. Peter Yeo investigates how some NTU students are creatively making waves with their passion projects

# OES OUT TO.

had coached personally, Saiful Islam, gave a TEDx talk. "It is one thing to talk about my own vision but completely different to see my vision talk. When Saiful received a standing ovation from the more than 400 attendees, my heart swelled with pride."

WHAT'S NEXT? Sazzad wants to make SDI Academy a role model for other social enterprises. "We want to let volunteers discover their passion through service. Learning about the social problems facing new settlers has led to special projects such as The Dr English Show, a

> YouTube talkshow. Perhaps my fellow NTU communication students can help us produce more of these videos. We are also working with the Ministry of Manpower on a welcome package for migrants that will teach them English and safety regulations, and engage them in cultural integration."

### **SENIORS ITH DEMENTIA**

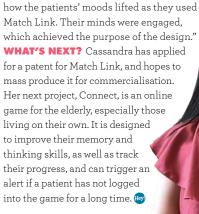
WHO Cassandra Seah, 23, final-year product design student.

WHAT Games designed to help the dementia-stricken improve their memory and thinking skills. **HOW** Her Match Link game, currently deployed at Ng Teng Fong General Hospital, uses blocks with different colours and textures to help

patients with dementia stimulate and

enhance their sense of touch and coordination through play. WHY Cassandra was moved to help people with dementia after seeing her grandfather struggle with memory problems before getting diagnosed with Parkinson's disease.

**HEARTFELT MOMENT** The joy of any innovation is witnessing people's faces light up when they use it. "I was elated when I saw













# SHE SENDS REFUGES TO UNIVERSITY

Most people help refugees with offers of donation or time in practical ways. Not Dr Gül İnanç, who is getting them schooled at university, as Chrystal Chan finds out

Three years ago, Dr Gül İnanç was a visiting fellow at Toronto's Centre for Refugee Studies at York University when inspiration struck. She realised many displaced people in Southeast Asia were denied access to education, and that she could do something about it.

She put the plan on paper, and the Open Universities for Refugees was born five months later.

"I wanted to start a meaningful nonprofit initiative that would give refugees and displaced people access to higher education," explains Dr inanc.

Today, the Open Universities for Refugees has ongoing projects in Malaysia, Indonesia and New Zealand. One initiative is a bridging course that helps students transition to university studies.

### **COOL SCHOOL**

On this three-week course, the students, who are mostly 18 years old or younger, are prepped for university by learning how to write reports, make presentations and manage their time and expectations, which in turn builds their confidence. Turkey-born Dr İnanç, an expert in education for peace and conflict resolution, teaches a class on intercultural dialogue as part of this bridging course.

The lecturer at NTU's School of Art,
Design & Media says there's no reason why
refugees should be denied the privilege of
attending university. "When it comes to our
own children, it is natural to send them for
tertiary education. Displaced families want
the same for their own kids. Several years

ago, they were functioning families in Syria or Afghanistan, and their hopes haven't changed now that they are displaced."

The Open Universities for Refugees also runs a teacher-to-teacher online mentorship programme for the volunteer teachers at refugee centres. Dr İnanç is happy that experienced teachers from two private schools in Singapore have come on board to help these volunteers.

One refugee teacher, Farzana Salehi, who has been teaching Boon Hwee Scholars Award as her student had nominated her for making a significant impact in her life.

"I have been lecturing at various international universities for the last 17 years and still feel very excited each time I enter the lecture hall," the 48-year-old says humbly. "That's because I respect my students — they are why I do this job."

She adds: "Beyond textbook knowledge, I try to impart concepts like empathy, dialogue and ethics as I teach. My hope is that such know about the cultures of others who we live with," she says.

### **CULTURE CHAMP**

Encouraging awareness is a constant theme in Dr İnanç's work. Since 2011, she has been working with a team of experts and her students to promote cultural heritage appreciation. Last year, she was commissioned by the United Nations Educational, Scientific and Cultural Organisation and the Association of Southeast Asian Nations to write



history at the Cisarua Refugee
Learning Centre in West Java since
2015, says: "I've benefitted so much
from the programme. When I had a
question about one of the lessons I
was preparing, I contacted a teacher
from Singapore for help. She gave
me very sound tips that I have been
using in class."

### **KNOWLEDGE & WISDOM**

Dr İnanç's impact as an educator has not gone unnoticed in Singapore too. In 2015, she received the Koh practical knowledge becomes wisdom for my students."

One good example is a module she teaches at NTU, Faith and Art. As a central part of the course, students are given the opportunity via field trips in Singapore to study and learn about different cultures and their practices through their art and architecture.

"I always tell my students this class is not about religion. It's about art and architecture seen through the lens of religion. It is essential to two chapters on world heritage for a teacher's handbook.

"Intercultural dialogue and respect towards others are an integral part of being educated. That's why I strongly believe in promoting global culture heritage," she says.

Growing pensive, Dr İnanç adds her work will be complete when her students continue the virtuous circle.

"I hope that in 10 years' time, the Open Universities for Refugees will be run by the refugee students that we are supporting right now," she smiles.

### BLIPS IN MY

Tentered the University of Chicago at the age of 15. I was the first one in my family to go to college. It opened my eyes to a much bigger world. I majored in mathematics, which really excited me, and I was exploring philosophy at the same time.

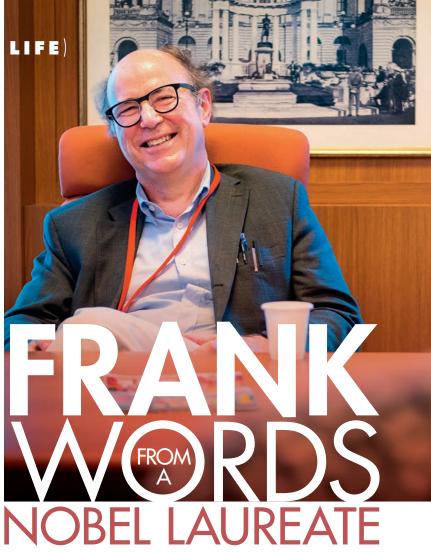
My first indication that I might not be a regular student was in elementary school, when I aced an IQ test. My parents put a lot of stock in education, and were happy to let me nurture my talents. They allowed me to enter high school a few years early.

In high school, I was lucky to have excellent teachers and to be in advanced classes designed for students like myself. I took part in the Westinghouse Science Talent Search, a prestigious competition that former American President George Bush called the "Super Bowl of science".

I did very well in it and it gave me a lot of confidence. Later in my life, when I had challenges, I would look back at this achievement and think: "Well, I can't be stupid because I did that!"

My first big crisis in life was during graduate school at Princeton University. The transition from student to independent researcher was tough because I couldn't decide what to work on. Pure mathematics was the first thing that came to my mind but it didn't really excite me. I thought I should find something that I could be enthusiastic about. So I told myself to explore and not be hasty.

Today, I take this as a lesson



BY FRANK WILCZEK

in patience that paid off. The mathematics and physics buildings in Princeton were connected, and I had been keeping a close eye on what was going on in physics, which I got acquainted with in my last year at University of Chicago.

It was risky to jump into physics, but it changed my life in the end. Not coincidentally, I met my future wife, a graduate student in biology. That helped bring me out of a deep funk I'd fallen into.

# Take a peek at these gems of

Nestled in the last vestiges of Singapore's natural forestation, NTU is home to myriad species of flora and fauna. It is also a favourite pit-stop for migrating – and resident – birds.





Nested in the 2018 NTU calendar are just some of these avian beauties (and one particularly resplendent Changeable Lizard), snapped by students, alumni and staff of NTU. Take

### "WHAT YOU HAVE IN YOU, NEVER LET IT STAY IDLE. ALWAYS TAKE THE GOOD AND THE BAD WITH THE RIGHT ATTITUDE."

Soon after, at the tender age of 21, I stumbled onto the theory of asymptotic freedom with my professor, David Gross, who at 31, was very young himself. This turned out to be the key to understanding the strong interaction – one of the four basic forces of nature, which is responsible for most of nuclear physics.

We were tremendously lucky to be at the right place at the right time. We were awarded the Nobel Prize for this discovery 30 years later – in 2004 – but we didn't have an easy ride, especially in the beginning.

Being so young, we had many critics. Scientists had for decades been trying to figure out what holds atomic nuclei together. Some even spent their entire research careers on it. Suddenly, these "kids" put together a very specific theory about it.

Not all the scepticism was bad. Sam Treiman, a physicist who later became a great mentor and friend, told me that there was no way to test our theory. Tsung-Dao Lee, a Nobel Prize-winning physicist himself, and also a great friend, said that we were over-interpreting the data.

Hearing these assessments from people we looked up to was a reality check. We needed to be more dedicated and persistent to prove our theory.

I didn't feel bad about it. We did our job, we made a very interesting hypothesis, and I hoped we were right. If we were wrong, I would have moved on to something else. Fortunately, the theory went from being a fringe hypothesis to being widely accepted within two to three years, even fulfilling some of Einstein's basic ideas relating to the conversion of mass into energy and vice versa. These discoveries opened many doors for me.

It's hard to overstate the importance my early success had for my career. So I always tell my students to keep trying whenever they run into a roadblock. Not trying is the biggest failure of all.

with more recently, I introduced something called time crystals, a theoretical concept to do with the spontaneous breaking of time symmetry. It came in for some severe criticism. "It is impossible," they said. "It goes against the laws of physics."

Again, the criticism forced us to sharpen our concepts. It was very gratifying for me that recent experiments verified these concepts, after five years. And now, it's become a popular idea in scientific circles.

Of course, I have made bad decisions as well. In the early 1980s, I had an idea about using topology, which was originally developed to model cosmic objects, to describe things in the field of materials. I did some good work on it, but I should have worked harder on it and pushed it further. Instead, I took it as a mathematical game.

Unfortunately for me (but fortunately for science), the 2016 Nobel Prize in Physics was for applications of topology in condensed material. So that was a missed opportunity.

In retrospect, 45 years later, our early success came very quickly. At the time, though, it felt like months had passed and nothing much happened. I didn't think it was very exciting – it was like watching the grass grow.

But everyone and everything blossoms in time. What you have in you, never let it stay idle.

Always take the good and the

bad with the right attitude. You may be right, and you could be wrong – no one wins all the time.

Stay the course and never let the naysayers get you down. Surround yourself with people who encourage you and push you to succeed. Who knows, one fine day, the "nays" could become "ayes". Keep your eye on the prize, whatever that may be for you.







time out today (or every day) to spot these magnificent specimens on our campus, named one of the world's most beautiful. We're giving away 10 copies of this calendar to adorn your desks. To win one, look out for the *HEY!*Shake icon on TV screens around campus. Open the *HEY!*Shake app on your phone and shake your phone when you see the icon.



as a nagging pain been getting you down? Anyone, even the young, can get migraines or backaches. Since pain can affect your lifestyle, it's never wise to just try and bear with it.

If you're suffering from aching muscles or overstretched tendons, tuina, an ancient therapy with over 2,000 years of history, could benefit you. Skilled therapists, including our unique robot masseuse, EMMA, featured widely in the news media, will target your problem areas directly by loosening tension in your muscles. Tuina is best for your shoulders, calves and lower back. Done in tandem with cupping, a technique that uses

suction cups to improve blood circulation, you may be able to heal or ease any remaining muscle soreness much faster.

Acupuncture is another tried-and-tested traditional Chinese treatment designed to stimulate blood flow by targeting your body's acupoints. It also triggers the release of the body's natural painkillers. It is said that acupuncture can even treat ailments such as migraine, anxiety or insomnia by helping to activate the body's own immunity.



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Flash this ad to get a Traditional Chinese Medicine consultation plus tuina and acupuncture session for \$28 (usual price: \$68). This promotion is valid until 28 February 2018 for first-time patients only.

BY KWOK PEI FANG



Home green home at #NTUsg Tamarind Hall.



Countdown to a flour-bulous 21st birthday.



Peek-a-blue with my MBA pals at Diwali.



Campus buzz.



Always stick up for your friends.



All ray-dy to start a new day.



Running man, NTU edition.



Food blogger Miss Tam Chiak gets her fill here.



### BRACE YOURSELF, WINTER IS COMING – WINTER SPORTS, THAT

IS. Pull on your warm clothes and head down to The Rink at JCube – just a short train ride away from NTU – for an icy good time. The only Olympic-size ice-skating rink in Singapore, The Rink at JCube offers a variety of activities that you can enjoy with friends and family.

### LET THE OLYMPIC GAMES BEGIN

Take your ice-skating skills up a notch with **figure-skating** and **speed-skating** lessons. Classes are held over five

weekends, on Saturday for figure skating and Sunday for speed skating. If competitive team games rock your snow socks, sign up for ice-hockey classes for some high-speed hijinks, or curling for a game of finesse on ice – minus the skates. And basic learn-to-skate lessons ensure beginners don't get left out.

### **HAVE A BALL OF A TIME**

Here's a truly unique experience that is guaranteed to give everyone a rollicking good time. Bring your friends together for a game of **broomball**, an eight-a-side hybrid of floorball and ice hockey that is novice-friendly, thanks to special rubber-soled shoes that let you walk on ice! With a referee to keep score, it'll satisfy the competitive streak in you too.

### THE ULTIMATE HALL PARTY

Break the ice with new friends with an eventful two-hour **bonding** session that will be the talk of your hall for weeks after. With exclusive use of the entire rink, including the multi-purpose room, for up to 150 of your friends, and even a game of broomball included in the package, there's no doubt The Rink at JCube is the coolest party venue ever.









Newly elected NTU
Students' Union
President Edward Lim has
a penchant for helping
people, even when the
sun goes down

### Tell us what's top on your agenda as the new students' union President.

Getting even more healthy and affordable food options to NTU. It's more complex and important than it sounds. We have been working with the office in charge and the external vendors. We would also like to improve how students are represented and are reaching out to other student clubs to forge a tighter-knit NTU community.

### What's one thing you want all NTU students to know?

That studies isn't everything. You need to understand your purpose in life. Why do you get out of bed every day, what do you look forward to, and why are you in university?

### What's your leadership mantra?

To inspire, develop and build. One of the most beautiful things about leadership is developing more leaders, and I feel motivated by seeing others grow and develop. I also want to build on the success of the previous students' unions by being more approachable and relatable.

### What's the biggest challenge you face?

People. We have to look out for our peers and manage various stakeholders at the same time. The student landscape is quite multifaceted, and the halls and clubs all have different goals. The students' union represents the undergraduate population so we take a macro point of view and see which policies will ultimately benefit the most students.

### Do you have a secret hobby? I am a volunteer

police officer
at Rochor
Neighbourhood
Police Centre.
I don't really
talk about it,
but my close

friends know what I do. In my
National Service days, I served
as an Investigation Officer with
the Special Investigation Branch,
where I dealt with all sorts of cases,
from sexual crimes to drug abuse,
and met people from all walks of
life. Helping those who can't stand
up for themselves is meaningful,
and uncovering the truth has
always given me great satisfaction.

### If you could be a comic book hero, who would you be?

Tintin. He's young and has a thirst for adventure, like me. He travels the world, seeking truth and justice. Also, he's always accompanied by his dog, Snowy, and I love dogs.

### Where do you see yourself in two years, after getting your double degree in mechanical engineering and business?

I'll either be travelling around trying to make a positive impact wherever I go or become a full-time police officer. I haven't decided which path to take yet. I really enjoy doing investigative work, but I also wish to play my part as a global citizen and make a bigger change in the world.

### Which will get your heart racing more, an angry NTU student or a suspicious person?

An angry student. It probably means there are things we could have done better. I'd get anxious and would try to make things right.

