Healthcare in the Crosshairs

Dealing with healthcare challenges on the horizon

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Brought to you by NTU’s Office of Housing & Auxiliary Services
Dear Alumni,

I am glad to share with you news about how NTU has continued to perform well in global benchmarks of teaching and research excellence since the beginning of 2019.

In a first for NTU, five of our subject offerings—Materials Science, Electrical & Electronic Engineering, Communication & Media Studies, Chemistry, and Civil & Structural Engineering—rank among the world’s top 10 in this year’s Quacquarelli Symonds (QS) World University Rankings by Subject. I am also proud to announce that NTU has risen six spots to 49th place in the 2019 US News & World Report’s Best Global Universities Rankings, which is all the more significant given that it has typically been a US-centric metric.

Despite our advances, we are not sitting on our laurels, nor are we focusing primarily on rankings and accolades as we strengthen NTU’s foundation and core mission through our relentless pursuit of excellence in education, research and innovation. As a forward-looking university that seeks to make an impact on society, NTU recognises the need to steward science and technology for greater good. Thus, the NTU Institute of Science and Technology for Humanity (NISTH) was officially launched in March 2019 by then Deputy Prime Minister of Singapore Mr Tharman Shanmugaratnam, with the aim of tapping into NTU’s multidisciplinary strengths to foster research on the impact of science and technology on humanity.

Among the many innovations that will transform society are autonomous vehicles running on electricity. Anticipating a paradigm shift in urban mobility, NTU partnered with Swedish vehicle maker Volvo to launch a full-size electric bus that was transformed into an autonomous vehicle by incorporating NTU-developed hardware and software. Equipped with sensors and an artificial intelligence system, the 80-passenger bus requires 80 percent less energy than its diesel equivalent, providing a glimpse of the future of public transportation. While plans are in place to test the first bus on the NTU Smart Campus, a second one will undergo tests at a bus depot managed by SMRT.

Meanwhile, NTU has also launched NTU SCARCE, a research centre to develop innovative recycling techniques for electronic waste, in collaboration with the French Alternative Energies and Atomic Energy Commission (CEA). This is the CEA’s first research centre outside of France, and researchers at NTU SCARCE will look into the recycling of lithium-ion batteries, silicon-based solar panels and printed circuit boards, as well as the detoxification of plastic parts in electronic waste.

These are just a few examples of the great strides we have made on the research front. We are also redoubling efforts to enhance education at NTU. This effort includes the introduction of six new SkillsFuture Work-Study Degree Programmes (WSDPs) to deepen our students’ industry exposure. Students from Bachelor programmes in Materials Engineering, Mechanical Engineering (Design), Data Science and Artificial Intelligence, and Maritime Studies can opt for the respective WSDPs, under which they will complete three mandatory internships and an industry-sponsored final year project during their undergraduate programme. For our graduate students, NTU and the National University of Singapore (NUS) have launched Singapore’s first PhD student exchange programme. Eligible PhD students from NTU and NUS can attend classes at the other university, resulting in a much broader and richer spectrum of PhD course offerings that students from both universities can benefit from.

We are also continuing to expand our efforts to reach out to NTU alumni everywhere. Two new alumni associations have been launched in Germany and Switzerland. I attended the launch in Germany and was deeply moved by the close ties among alumni based there. Such camaraderie among our alumni is precious, and we are doing more to foster a deeper sense of community with alumni all over the world. I encourage you to join us, wherever you are, in our alumni activities, and I hope to see you on campus and beyond.

Yours sincerely,

Subra Suresh
President,
Nanyang Technological University, Singapore
Young and research-intensive, Nanyang Technological University (NTU Singapore) is ranked 12th globally. It is also placed 1st among the world’s best young universities.

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Advances in science and technology have drastically reshaped the global landscape of the 21st century, profoundly remodelling relationships, work cultures and lifestyles. As the Fourth Industrial Revolution continues to press upon us, the question we ask cannot be limited to "what's the latest development in science and technology?" but "what does it mean to be human in the 21st Century?"

To ponder such questions and more, NTU has established its Institute of Science and Technology for Humanity (NISTH). Officially launched on 11 March 2019 by Mr Tharman Shanmugaratnam, then Deputy Prime Minister of Singapore and current Senior Minister and Coordinating Minister for Social Policies, NISTH will bring academia, government and industry stakeholders together to find ways to wield technology for the betterment of humanity.

"The establishment of NISTH is significant as Singapore embarks on the Smart Nation initiative in its next phase of development, where technology will empower people to lead meaningful and fulfilled lives," said NTU President Professor Subra Suresh, who went on to elaborate on the foreseeable issues that come with Industry 4.0.

"There are potential concerns, challenges and questions surrounding ethical dilemmas, inequality, work force retraining, policies, regulations, sustainability, and the impact of technology on the lives and livelihoods of people. A human-centric and ethical approach to science and technology is therefore imperative," he emphasised.
Professor Vanessa Evers, who is joining NTU on 1 August 2019, will helm NISTH. She is renowned for her work in the field of socially intelligent computing and human-computer interaction. Currently, she is the Professor of Computer Science at the University of Twente’s Human Media Interaction group in the Netherlands.

Prof Evers strongly believes in an institute dedicated to pursuing scientific and technological achievements for the benefit of society “so that humanity on our vulnerable planet can prosper.”

To celebrate the launch of NISTH, NTU organised the NISTH Ideas Challenge, a university-wide competition, to map out fundamental issues and principles that would guide the development of artificial intelligence (AI) for the benefit of humanity. The winner of the competition was Emmanuel Tan, an educational development specialist at NTU’s Lee Kong Chian School of Medicine, who proposed an online mediation system for AI to resolve AI-related disputes, such as human-robot conflicts.

Three students from the School of Computer Science and Engineering and the School of Physical and Mathematical Sciences—Bisakha Das, Mohit Prashant and Poorvi Ashok—won the second prize for raising the issue of discriminatory profiling with AI. Finally, the third prize went to Dr Kadek Ratih Dwi Oktarini and Dr I Made Riko of the Asian School of the Environment for their proposal on an intelligent internet chatbot system that interconnects with various medical facilities.

**NISTH WILL FOCUS ON 3 KEY AREAS:**

**Responsible Innovation**
- To address ethical implications of innovations

**Governance and Leadership in the Era of Industry 4.0**
- To examine how new technologies impact leadership and policy decisions

**New Urban Asia**
- To understand how technology is transforming the urban landscape in Asia

**OPPOSITE**
(From left) NISTH Founding Director Prof Vanessa Evers, NTU President Prof Subra Suresh, then Deputy Prime Minister of Singapore Mr Tharman Shanmugaratnam, and Chair of the NISTH international advisory board Mr Peter Ho at the launch of NISTH.

**TOP**
Minister Tharman Shanmugaratnam addressing NTU faculty, staff and students at the launch of NISTH.
INNOVATION KNOWS NO LIMITS

TURNING E-WASTE INTO TREASURE

NTU and the French Alternative Energies and Atomic Energy Commission (CEA) have launched a joint research centre to develop innovative, energy-efficient solutions for the recycling and recovery of resources from electrical and electronic waste (e-waste).

Named the NTU Singapore-CEA Alliance for Research in Circular Economy (NTU SCARCE), the centre was unveiled by Singapore’s Senior Minister of State for the Environment and Water Resources, Dr Amy Khor.

“This joint research centre will grapple with one of the most increasingly important issues in recycling as the world continues to produce more electronic devices and e-waste,” said NTU President Professor Subra Suresh at the launch event.

A BETTER WAY TO LEARN

With funding from Temasek Foundation, NTU researchers led by Associate Professor Goh Wooi Boon have developed an interactive educational tool called the i-Tile, which makes learning more engaging for children with special needs.

They worked with teachers from the Movement for the Intellectually Disabled of Singapore (MINDS) in Fernvale Gardens School to develop lessons based on the i-Tile technology for children and youth with moderate to severe intellectual disability and autism spectrum disorder. Research findings suggest that the design of the i-Tile learning activities are effective in increasing and sustaining student engagement.

“The students who are involved in the project have gained huge strides not only in academic areas but also in other areas such as ability to display great sportsmanship, communication and interpersonal skills,” said Ms Koh Gee May, Deputy CEO of MINDS.

DETECTING HEAVY METALS IN WATER

Combining a chemical compound with an optical measurement system, Associate Professor Yong Ken-Tye and Professor Tjin Swee Chuan from the School of Electrical and Electronic Engineering developed a device that can detect trace levels of heavy metals in drinking water in just five minutes. For instance, it can detect lead levels of five parts per billion in water, which is lower than the ten parts per billion limit stipulated by the Environmental Public Health Act in Singapore.

“We are exploring ways to translate this technology for domestic use, such as in domestic water filtration systems and electric water kettles,” said Prof Tjin.
EXPANDING HORIZONS

From 1 June 2019, PhD students from NTU and the National University of Singapore (NUS) will be able to enrol for courses in both universities—a first in Singapore.

“The exchange programme integrates the diverse and complementary strengths of NTU and NUS to provide a more comprehensive selection of course offerings for our PhD students,” said NTU President Prof Subra Suresh. Also, in line with NTU’s unique pedagogy and practice of nurturing graduates who are workplace-ready, NTU is launching six new SkillsFuture Work-Study Degree Programmes (WSDPs). Students from Bachelor programmes in Materials Engineering, Mechanical Engineering (Design), Data Science and Artificial Intelligence, and Maritime Studies can opt for the respective WSDPs, under which they will complete three mandatory internships—40 weeks in total—and an industry-sponsored final year project within the four years of their undergraduate programme.

OF SUSTAINABLE ENERGY AND ENTERPRISES

NTU, Enterprise Singapore and the Sustainable Energy Association of Singapore (SEAS) have joined forces to help small and medium-sized enterprises (SMEs) and start-ups innovate, grow and thrive in the competitive energy sector.

Serving as a one-stop hub, the new EcoLabs Centre of Innovation for Energy will enable these companies to further develop their clean energy-related innovations and business ideas, and commercialise them into technologies that will benefit industry and society.

“This partnership would also add value for start-ups in the SEAS network in the areas of research and development, technology innovation and test bedding,” said Ms Kavita Gandhi, Executive Director of SEAS.

A ‘SHRINK WRAP’ FOR BUILDINGS

NTU, Jurong Town Corporation and Prostruct Consulting Pte Ltd have developed a fast wrapping fibre reinforced polymer that can be used for rehabilitating ageing infrastructure in urban cities. The material is made of commercially available glass fibres and a proprietary glue-like resin developed by NTU materials scientists.

The unique feature of the resin is that it will harden only when exposed to light, making it easier to be packaged in a ready roll of sticky wrap. “Our invention allows companies to save on manpower costs, increase efficiency and make structural reinforcement much easier to execute,” said Assistant Professor Ng Kee Woei, Lead Project Investigator at NTU School of Materials Science and Engineering.

DUST MITES AND FUNGI COULD LEAVE YOU BREATHLESS

An international research team led by NTU’s Assistant Professor Sanjay Haresh Chotirmall reports that patients with bronchiectasis, a lung disease in which parts of the airways have enlarged, also often display sensitivity to airborne allergens.

“We have found that bronchiectasis is often associated with allergic reactions to fungi and to the house dust mite. There are already existing treatments for these allergies. For example, steroids are commonly used to treat fungal allergy. Our finding is important for improving the quality of life of those with bronchiectasis, as currently there are no licensed treatments for it,” said Asst Prof Chotirmall.
Dealing with healthcare challenges on the horizon.

Living in an era of better nutrition, improved sanitation as well as greater access to a range of antibiotics and vaccines, it’s easy to take health for granted. Had you been born around two centuries ago, even if you survived war, famine or unfortunate accidents, you would probably have kicked the bucket by the time you were 30 to 40 years old because you’d contracted some form of infectious disease.

Today, the average life expectancy at birth hovers around 72 years, but this longevity brings with it a new set of challenges. Chronic ailments such as stroke, diabetes, cardiovascular disease and cancer now top the list of medical conditions afflicting billions worldwide, and this number is likely to be revised upwards as global populations age. A perfect storm for healthcare is on the horizon, and governments, working with medical professionals, are mobilising to avoid the potentially disastrous consequences of a breakdown in healthcare systems already under strain.

But rather than depend solely on the medical profession to deal with the burden of healthcare, it is crucial to motivate people to live responsible, healthy lives, said Professor Pang Weng Sun, Vice-Dean (Clinical Affairs) at NTU’s Lee Kong Chian School of Medicine (LKCMedicine).

“No amount of diabetes medicines is going to help if a diabetic person doesn’t manage his or her diet. And muscle wasting will occur if one doesn’t exercise,” he noted. “Very often, it’s not about the availability of treatments, but about compliance and lifestyle changes.”
SSHAIRES
Where East meets West

As the Deputy Group Chief Executive Officer (Population Health) of the National Healthcare Group, Prof Pang knows very well the need to prepare for the silver tsunami and its associated effects. “I think the most important focus is that we shouldn’t see ageing as a problem, but as an expected change as society evolves,” he said, taking a matter-of-fact approach to the issue.

Prof Pang noted that better drugs have been invaluable in the management and treatment of several chronic conditions, thus highlighting the need for sustained investment in research and development. In the case of wear and tear of body parts, advances in medical implants such as hip and knee replacements have allowed people to function better even in old age, he explained.

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– Professor Pang Weng Sun, Vice-Dean (Clinical Affairs), NTU LKCMedicine

WHERE EAST MEETS WEST

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Complementing this Western approach to maintaining health is traditional Chinese medicine (TCM), which has seen a surge in popularity beyond China in recent years. “We are seeing more non-Chinese patients and a more diverse group of individuals ranging from babies to the elderly who are open to receiving TCM treatment,” said Ms Tjoe Yan Yin, a senior physician at NTU’s Chinese Medicine Clinic and a Class of 2010 alumna of NTU’s School of Biological Sciences.

Used carefully and under specific circumstances, TCM could help improve a patient’s quality of life, said Ms Tjoe, citing the example of how TCM treatments may be used in cancer patients who are recovering from surgery, chemotherapy or radiotherapy. Importantly, rather than replace Western medicine completely, TCM could be woven into the broader context of patient care, albeit with close monitoring and consultation with practitioners from both backgrounds.

INNOVATION STATION

Technology can also have a significant impact on healthcare. As ageing populations face the increased prospect of frailty or impairment of physical function, innovations in medical...
“With technology such as the EsoGLOVE, rehabilitation can even be carried out in the comfort of patients’ homes.”

— Ms Jane Wang (MAE/2009), Co-founder and CEO, Roceso Technologies

robotics can be a boon for physiotherapy and rehabilitation.

Pushing the frontiers of medical robotics is Ms Jane Wang (MAE/2009), Co-founder and CEO of Roceso Technologies, a firm that specialises in the development of soft robotic exoskeleton technologies for rehabilitation and assistance. The key word here is ‘soft’.

“Hard robotics are generally advantageous in terms of precision and control. However, they have drawbacks when it comes to comfortability, weight, safety and flexibility,” said Ms Wang. “These limitations can be overcome with soft pneumatic actuators—in essence, elastic materials with variable stiffness along their lengths, through which air is pumped to generate movement.”

Soft pneumatic actuators are used in Roceso Technologies’ flagship product—the EsoGLOVE, a soft robotic glove designed to help patients regain hand functionality after experiencing a neurological disorder such as stroke. “The EsoGLOVE is one of the lightest and most portable hand rehabilitation devices in the
older people prefer to stay in their own homes. So, we need to build systems to enable that to take place and create elder-friendly environments to help maintain them in the community,” said Prof Pang.

This would entail changes to housing design, community spaces and transportation systems. For example, housing units may come with built-in motion sensors for monitoring the activity of the elderly in their homes, or more ramps may be needed for wheelchair-friendly access in neighbourhoods and transport hubs.

Employment policies may also need to be revised or updated. “Unless we delay the retirement age and create job opportunities for older people, the burden of care will lie on younger persons,” Prof Pang added. Furthermore, at the grassroots level, initiatives to encourage a more caring community can go a long way towards achieving the ideal of allowing the elderly to age in place.

“Today, we rely on family members or domestic helpers to look after the frail elderly. What we hope to see, and indeed we are seeing more of, are ‘young olds’ who are still active and independent, playing a role in supporting ‘old olds’ who may be less independent,” said Prof Pang. Therefore, dealing with the healthcare needs of the future will require a holistic approach, involving cooperation across all levels of society. The goal is to “Live long and prosper”, to borrow the Vulcan salutation from the science fiction series *Star Trek*, and with adequate planning and preparation, society has a chance to transform that phrase from aspiration to reality.

CARE BEYOND THE CLINIC

But better drugs and novel medical technologies will not be enough to cater to the healthcare needs of an ageing population. “In addressing care of the elderly, we also need to build community social networks to support them. We will never have enough nursing homes, and indeed, many
For Professor William Chen, the words ‘food for thought’ aren’t just a catchphrase—food is never far from his mind, although it’s not because he’s hungry. Rather, as the Michael Fam Chair Professor in Food Science and Technology as well as the Director of the Food Science & Technology Programme (FST) at NTU, Prof Chen is always thinking about how food is produced, processed, packaged, plated or disposed of.

For instance, his research group has found a way to produce sustainably a natural plant-based food preservative using baker’s yeast. This finding could reduce the use of chemical preservatives such as nitrates and nitrites, which may interfere with thyroid hormone production. His team also devised a method to turn durian seeds that would have been thrown away into food stabilisers and probiotics.

Given his expertise in what might be considered food alchemy, Prof Chen was appointed Director of the Fraser & Neave (F&N)-NTU Innovation Lab, which was recently opened by Singapore’s Minister for Education Mr Ong Ye Kung in January 2019. In this interview with NTULink magazine, Prof Chen shares about the latest developments in food technology and why food innovation and security are essential for Singapore.

How would you define food innovation and why is food innovation important?

There are three key areas in food innovation for enhanced food security in Singapore: the first is primary production, like urban farming. Secondly, we have food processing technology, and thirdly, nutrition for Singapore’s ageing population.

Singapore should be more focused on enhancing food processing technology because we import so much food from other countries. That is inevitable since we have less than one percent of land set aside for farming and agricultural activities. We therefore need to maximise the utilisation of imported food and reduce food waste, which ultimately leads to more cost-effective food import.

All the same, we can’t just blindly import food, because it’s equally important to know how much is needed to fulfil the nutrition requirements of local consumers.

Please explain what you mean by maximising food utilisation.

When we talk about maximising food utilisation, we’re talking specifically about minimising food waste and how to to prolong the shelf life of food. But we can go beyond that—we can recover nutrients from side-streams produced by the food processing industry (soybean residues, spent brewer’s grain, etc) and eventually “give back” to the food chain. We have been adopting this circular economy approach quite successfully, and we hope we can reduce the pressure of importing food in the near future because we’ll know how to use food better.

At present, there is a huge amount of food waste generated in Singapore yearly. For example, we produce more than 80,000 tons of food processing side-streams a year! Since we only have less than one percent of land for agriculture and virtually no animal farming, all this waste is sent to landfills or incinerated instead of being recycled. There are two drawbacks to this: first, there is the issue of landfill capacity. Second, incineration consumes large amounts of energy.

Could you share a bit more about the F&N-NTU joint lab?

F&N and NTU have jointly opened an innovation laboratory in Singapore to develop novel products and recipes for F&N’s range of beverage products. This is the first external lab in F&N’s 135 years of history. Over the next four years, our focus is on developing healthier food and drink products, along with greener packaging. We will also find ways to up-cycle side-streams produced from food processing into valuable ingredients or materials.

Everybody knows about fermentation, but no one really thinks about its beneficial effects. When microbes grow on a
substrate, they actually produce vitamins, amino acids and antioxidants. Hence, we aim to explore more economic ways of incorporating micronutrients from fermentation into food products to enrich their nutritional value. We are working with a number of other food companies to commercialise our food technology innovations, not limited to fermentation.

How do you think collaborations between industry and academia are beneficial in pushing forward food innovation?

I believe it takes two hands to clap. When it comes to industry-academia collaborations, there are two types of industry partners: small- and medium-sized enterprises (SMEs) and multinational companies (MNCs), each with different strategies for tapping on R&D for their product development.

For example, Uni-Tat is a local SME that makes ice products. We’re working with them to make their ice cubes more beneficial for the consumers—by adding probiotics to them. Ice cubes containing probiotics will be more versatile than, say, Yakult, because people can drink it with whiskey, apple juice, or coke. So SMEs may approach us for new ideas, and we work together to formulate the right approach for product development. We can then pitch the new, refined idea for funding, and we start a collaboration.

As for large MNCs, we have been engaged to integrate our innovations into their food production processes. One example is our natural food preservatives, which have attracted strong interest from many food companies, resulting in a number of Research Collaboration Agreements (RCAs) being signed and implemented.

In addition to forging partnerships with the food industry through RCAs, we are also actively working with the NTU Development Office. This approach is very much like fundraising for a purpose, which is to bring in industry funding to support NTU FST beyond research to include bursaries for needy students, scholarships and endowed professorships, among others. This new approach has shown encouraging outcomes so far. Companies would also benefit from this model of partnership as it offers them greater brand awareness and publicity.

What are your big picture dreams for food innovation at NTU and in Singapore?

I hope NTU can become a powerhouse of food innovation for the business-to-business (B2B) sector. NTU is not an established food company, neither is it directly involved in the food industry, so we are not well-positioned to develop final food products. That said, food-related innovation and research can develop from NTU or any other institutions of higher learning. The Singapore government has pledged up to S$144 million to write the “Singapore Food Story”. Under this new framework, we are working closely with all relevant stakeholders to drive food technology innovations that further enhance Singapore’s food security.

“We can’t just blindly import food, because it’s equally important to know how much is needed to fulfil the nutrition requirements of local consumers.”

– Professor William Chen
“Am too old to pick up new skills” is a common refrain amongst many adults. Yet, science has long dispelled the notion that learning ability is reduced in adults. “Adults are as good, if not better, in acquiring new information. Older brains are better at complex problem-solving and information synthesis than younger brains,” said Associate Professor Ong Lin Seng, Executive Director of NTU’s Centre for Professional and Continuing Education (PaCE@NTU).

Whereas in the past, a university degree almost guaranteed one with a stable career for life, the same cannot be said of this era of digitalisation and technological disruption. PaCE@NTU was thus established to help adult learners upskill (to go deeper into something you’re familiar with) and reskill (to learn a different skill) in order to stay relevant and remain globally competitive in the modern economy.

Choose how you learn

Prof Ong, who has a strong background in engineering, is clear-eyed about the impacts of the Fourth Industrial Revolution, otherwise known as Industry 4.0, which promises to drastically change the industrial landscape, as well as the way we work.

“As technology becomes more sophisticated and integral to all sorts of businesses, the shelf life of skills also becomes shorter. Hence, consistent engagement in lifelong learning is the key to maintaining our continued employability,” Prof Ong explained.

Yet, most working adults have allowed themselves to believe that continued education is a luxury they cannot afford, said Prof Ong. This is where PaCE@NTU steps in to reduce the friction of going back to school.

For instance, PaCE@NTU offers what is known as ‘blended courses’ consisting of both online and offline sessions so that adult learners need not be physically on campus all the time to access course content. Prof Ong also noted that the Delta-NTU Corporate Lab is developing online training content distributed on a mobile app learning platform. 14 funded courses and 27 bite-sized modular courses are now accessible via the mobile app, allowing adult learners to learn on the go.

However, Prof Ong believes that face-to-face interaction with lecturers and peers is still crucial for effective learning. “Although adults are generally more self-directed than children, they still require guidance and support throughout their studies,” he shared.

Meeting the demands of industry

If employability is the main impetus for lifelong learning, then the curriculum offered to adult learners at NTU must align with the needs of industry. Hence, in order to maintain the relevancy of the courses it provides, PaCE@NTU works closely
with corporate leaders and trade associations, listening to their needs to tailor education programmes.

“We want to develop industry-specific courses for upskilling and reskilling, as well as for skill qualifications recognised and endorsed by the industry,” said Prof Ong, giving credit to NTU’s world-renowned faculty and strong industry connections for their efforts in rolling out high quality programmes for adult learners.

PaCE@NTU has also been exploring deeper partnerships with schools, colleges, and corporate laboratories at NTU to carry out courses that are “stackable” towards a certain competency-based qualification. This makes the notion of becoming a student again appear less daunting and grants adult learners greater flexibility in planning their own skills upgrading, knowing full well that their efforts will pay off once they’ve ticked off all the items on a curriculum checklist.

“By giving adults greater control over the pace and format of their learning, we hope to encourage more of them to better themselves, regardless of where they are at in their careers,” said Prof Ong.

As technology becomes more sophisticated and integral to all sorts of businesses, the shelf life of skills also becomes shorter.”

— Associate Professor Ong Lin Seng

### Funding lifelong learning

Another key philosophy of PaCE@NTU is that no one should be denied the opportunity to upgrade themselves simply because they cannot afford it. Prof Ong mentioned that Singaporeans and PRs are eligible for subsidies of up to 70 percent when enrolling in SkillsFuture Singapore-supported programs. This includes courses in both part-time Bachelor of Engineering (B.Eng) Degree programmes and Semester-Long Courses, which are bite-sized courses taken from both the Undergraduate and Graduate full degree programmes. These courses can be taken individually, are credit-bearing, and stackable towards the relevant qualification.

### List of courses offered by PaCE@NTU

#### Part-time Bachelor of Engineering (B.Eng) Degree programmes

These programmes are offered by the School of Electrical and Electronic Engineering, the School of Mechanical and Aerospace Engineering, and the School of Computer Science and Engineering. The programmes are of 4 years duration and consist of a ‘blended’ learning model with a mix of self-paced online and on-campus learning.

#### Semester-Long Courses

These are bite-sized courses taken from both the Undergraduate and Graduate full degree programmes. These courses can be taken individually, are credit-bearing, and stackable towards the relevant qualification.

#### Seminar Series in technology-focused areas

Dive into the wave of Industry 4.0 through these short seminars organised by PaCE@NTU in partnership with the Employment and Employability Institute of Singapore.

#### In-House Training

NTU can deliver in-house training programmes at its state-of-the-art facilities or at a location of a client’s choice, locally or overseas.
courses, adding that working adults over 40 years old are eligible for subsidies of up to 90 percent of course fees.

“We also partner with the National Silver Academy, the Employment and Employability Institute, and the NTUC Union Training Assistance Programme to provide more financial support for those who lack financial means,” he said.

Prof Ong also reminded NTU alumni that they each have S$1,600 in course credits which can be used to fund their studies at NTU. Furthermore, to inspire more alumni to engage in lifelong learning, PaCE@NTU is partnering with the NTU Alumni Affairs Office to organise bi-monthly talks and interaction sessions. The message that Prof Ong wants to send is clear: acknowledge the need to improve your knowledge and skills before it is too late, and NTU stands ready to help.

“If jobs and tasks can be automated, workers will slowly become redundant over time, and jobs will disappear from the market. We may not know when it will happen, but it will happen progressively. It is therefore critical for the people of Singapore to engage in lifelong learning,” Prof Ong emphasised.

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<th>Course fee funding</th>
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<tr>
<td><strong>Singaporeans/Singapore PRs</strong></td>
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<tr>
<td>Cat-A SkillsFuture Singapore-funded Courses</td>
</tr>
<tr>
<td>- Up to 70% of course fee funding</td>
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<tr>
<td>Enhanced Training Support for SMEs</td>
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<tr>
<td>- Up to 90% of course fee funding</td>
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<td><strong>Singaporeans</strong></td>
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<tr>
<td>Mid-Career Enhanced Subsidy</td>
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<tr>
<td>- Up to 90% of course fee funding</td>
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<tr>
<td>- Aged 40 and above</td>
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<tr>
<td>Workfare Training Support</td>
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<tr>
<td>- Up to 95% of course fee funding</td>
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<tr>
<td>- Aged 35 and above (13 years and above for persons with disabilities)</td>
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<tr>
<td>- earning not more than S$2,000 per month</td>
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For more information on funding available, please refer to http://pace.ntu.edu.sg/Funding/Pages/default.aspx
In an increasingly globalised society, to translate language is to transcend communicative differences between cultures. Whereas human translators used to be the sole means of distilling meaning from foreign languages, advances in technologies such as natural language processing software have made it possible to interpret words spoken or written in another tongue.

Yet, as anyone who has used a translating software can testify, some terms and nuances in language still cannot be adequately captured by machines. For now, at least, human translators retain their functional edge, but they cannot afford to be complacent.

To help Singaporean translation and interpretation (T&I) practitioners further develop their capabilities and attain mastery of their skills, the National Translation Committee, formed under the auspices of the Ministry of Communications and Information in 2014, has set up the Translation Talent Development Scheme (TTDS).

This is a co-sponsorship programme where successful recipients can use the grant to subsidise 90 percent of the fees (capped at S$10,000) for translation-related courses, workshops, seminars and certification examinations. T&I practitioners from the private sector with at least three years of combined experience in translation and/or interpretation are eligible for the grant.

“A translator is not unlike a painter who must patiently work on the artwork to get it as close to perfection as possible.”

– Mr Yuen Kum Cheong
Mr Yuen Kum Cheong, a TTDS recipient, first became interested in T&I when he was the Director of Public Outreach and Public Relations at the Intellectual Property Office of Singapore. There, he improved his command of English and Mandarin in legal matters, also translating media articles and interpreting at briefings to overseas Chinese visitors.

“A translator is not unlike a painter who must patiently work on the artwork to get it as close to perfection as possible,” he quipped. As he became more skilful and confident, he eventually decided to start his own translation company, and appreciates how TTDS enables him to develop and deepen his skills, as well as expand his business networks.

“Finding local, regional and international networks to tap into becomes both an opportunity and a challenge,” said Mr Yuen, who holds a Master of Arts in Translation and Interpretation from NTU. “By attending international seminars and conferences, I keep myself abreast of the latest developments in my industry. My business horizon has broadened through meeting like-minded professionals and experts,” he said.

Another TTDS recipient, Ms Lim Xiangyun, who has a Master of Arts in Literary Translation from the University of East Anglia and a Bachelor of Arts with Honours in Communication Studies from NTU, said that her experience at The Select Centre’s ‘The Translator’s Lab’ was her first step into the field of translation. When Ms Lim applied for TTDS, she was looking to deepen her skills and experience in applied translation. She strongly believes that language is a dynamic reflection of society and the human condition.

“The hyper-connectedness of our world today will require solutions to potential linguistic and cultural differences, and translation is a wonderful and essential bridge for these gaps,” she said.

Through TTDS and literary translation collaborations, Ms Lim hopes to shine an international spotlight on Singaporean literature and the stories of the Chinese diaspora in Hong Kong, Taiwan and Singapore. “Translating remains one of the most challenging and engaging crafts I have been exposed to,” Ms Lim said.

Interested applicants may visit the TTDS website at www.mci.gov.sg/ttds for more information. Any queries related to this scheme may be emailed to MCI_NTC_Secretariat@mci.gov.sg with the subject line ‘TTDS Enquiry’.

“The hyper-connectedness of our world today will require solutions to potential linguistic and cultural differences, and translation is a wonderful and essential bridge for these gaps.”

— Ms Lim Xiangyun
An Ace in Entrepreneurship

Most people know Mr Inderjit Singh as the straight-talking politician who served for 20 years as a member of parliament in Singapore from 1996 to 2015. But overlapping with his political career is an entrepreneurial journey that spans the globe and reaches dizzying heights of success.

For certain, scaling those heights came with its fair share of difficulties, but Mr Singh, CEO of Solstar International Pte Ltd and Chair of the NTU Board of Trustees’ Enterprise Committee, is not one to shy away from challenges. In fact, from the way he recounts the hard times he faced when setting up his many companies, he almost seems to relish being put to the test.

“I grew up thinking that there is no problem in the world that can’t be solved. I’m an engineer by training, so I believe any problem—be it technical problems or family problems—all of it can be solved,” he said to an audience of NTU alumni and guests during a Tête-à-Tête session at the NTU Alumni House at Marina Square on 26 February 2019.

Pop a Panadol

One of five siblings, Mr Singh knew poverty as a child. His father was a bus driver with Hock Lee Bus Company—a loyal employee who continued to ply the roads even as tensions between the company and its workers rose in the lead up to the infamous 1955 riots. Money was tight, and the family lived in a one-room workers’ quarter in Guan Hin Coffee Factory. “Every evening, when the workers left, the whole factory was our playground,” said Mr Singh, chuckling.

An NTU alumnus, Mr Singh was among the first batch of electrical and electronic engineers to graduate from what was then known as Nanyang Technological Institute in 1985. Wasting no time, he found employment at American technology company Texas Instruments where he spent 13 years in various roles, eventually rising to become its Director of Operations.

“I was involved in product engineering, marketing, quality assurance and so on. I took on nine different roles in those 13 years,” said Mr Singh, adding that his problem-solving skills were what the company valued most.

“What’s a common prescription that doctors give you when you fall ill? Panadol. That was my nickname at Texas Instruments,” he quipped.

Waste not, want not

Even as an employee at Texas Instruments, Mr Singh found ways to flex his entrepreneurial muscle. Being familiar with the intricacies of the semiconductor industry, he noticed that a lot of silicon went to waste.

“For example, even if one bit in a 64 Meg DRAM failed, we used to throw the DRAM away,” he said. Drawing inspiration from the karang guni man who could create wealth out of old or discarded items, Mr Singh pushed for silicon salvage at Texas Instruments—the innovative repurposing of circuits with minor defects for use in functional products. Not only would this save cost, he thought, but it could also serve as a new revenue stream.

Mr Singh compiled his ideas on silicon salvage and presented them to Texas Instruments’ global management team.

“Three-quarters of the room laughed at me! Luckily, there was one Japanese executive who supported me,” he said. Given the green light to try and justify his position,
Mr Singh spent three weeks visiting all of Texas Instruments’ sites to see how much scrap they were throwing away. With that information, he managed to implement his proposal. “In the first year, Texas Instruments made US$69 million of revenue from scrap. By the third year, that number increased to US$200 million in revenue with a 90 percent profit margin. I had created a business out of nothing by thinking like an entrepreneur.”

Opportunity and optimism

Equipped with a deep understanding of his field and confident in his own ability, Mr Singh eventually struck out on his own when he founded United Test and Assembly Centre (UTAC) in 1998. Immediately he ran into difficulties in securing funding. “I went to semiconductor companies in Singapore and no one wanted to fund me. I went to Temasek Holdings and they didn’t want to fund me,” he said. Not finding traction locally, Mr Singh ventured abroad. He made a pitch to investors in Taiwan and managed to secure almost US$100 million of capital. That was when local investors took notice and added to his pool of money. In total he had US$138 million in the bank to start UTAC.

At the time he was making his debut, the semiconductor industry was in a slump, but Mr Singh felt that he was entering the market at an opportune moment to ride to the top when the industry rebounded. Rebound it did, and UTAC achieved unicorn status—a start-up valued at more than US$1 billion—in 2001. Mr Singh has since left UTAC and gone on to establish several other companies over the years. “I saw opportunity where others saw failure, and I had a very good team. Many of my colleagues challenge me; they don’t just let me have my way. That’s important because you cannot have a monopoly on ideas. Diversity is very important,” he advised.

Mr Larry Tong (NBS/2017) was glad he attended the Tête-à-Tête session. “I felt that Mr Singh’s entrepreneurship story was very inspiring,” he said.
many people invest in assets such as properties or stocks to grow their wealth passively. While these are good options, Dr Lim Jui, CEO of NTU’s innovation and enterprise company NTUitive, suggests that “the best investment we can make is actually in our ideas.”

“As you go about your daily work, you may occasionally think of things that improve a situation or help solve a problem. If you do, consider how you can develop and protect that intellectual property and commercialise it,” he said to some 100 NTU alumni gathered at the Tête-à-Tête session held on 7 May 2019 at the NTU Alumni House at Marina Square.

Highlighting entrepreneurship as one of the most effective ways to earn a return on one’s investment in ideas, Dr Lim shared about some of the schemes NTUitive has in place to help budding innovators find their foothold in industry.

Getting started

Arguably, the hardest part of a journey is its beginning, and the entrepreneurial journey is no different. Having an idea and a plan is not enough—the proof is in the pudding, as they say, and unless the idea can be shown to solve a real-world problem, it remains a work of fiction.

To help aspiring entrepreneurs think strategically and innovate practically, NTUitive organises hackathons, usually in conjunction with corporate partners, such as SMRT Corporation and Dyson Ltd. What this means is hackathon participants are exposed to the actual pain points faced by industry players, and therefore will have to tailor their solutions accordingly.

“After the hackathon, we will invite the winners into our Minimum Viable Product (MVP) studio, where we provide resources to help them prototype their prize-winning solutions,” Dr Lim explained.

NTUitive also places great emphasis on entrepreneurship education and mentoring, so hackathon winners who have matured their innovations can look forward to joining the Lean LaunchPad (LLP) programme. Modelled after the US National Science Foundation I-Corps programme, the LLP programme helps research scientists and engineers turn their inventive technologies into commercially viable products and feasible business ventures.

Building strong teams

Dr Lim further highlighted the need for experience and talent to grow small technology startups into thriving companies. “In Singapore, our Achilles heel is the lack of seasoned startup leaders. This is because the opportunity cost of leaving a big company to join a startup is so high in Singapore,” he said.

To encourage risk taking and lure talent away from traditional career paths in large corporates, NTUitive has set aside funding to provide financial support to startups looking to strengthen their management teams.

“Usually, our best spinoff companies are not led by the inventors themselves. It takes someone from a different background to team up with the inventors and push a startup to the next level,” Dr Lim noted, adding that “the objective, at the end of the day, is to create the fittest possible teams, selected from amongst our students and alumni, to start and grow companies.”

Venturing abroad

After a startup has stabilised and courted the local market, the next frontier would be to expand into neighbouring countries in Southeast Asia. With its network of partners
“The objective, at the end of the day, is to create the fittest possible teams, selected from amongst our students and alumni, to start and grow companies.”

– Dr Lim Jui, CEO of NTU’s innovation and enterprise company NTUitive
Not everyone is cut out to be an entrepreneur, but for those who have had a go at setting up their own businesses, the journey to success may be long, difficult, but ultimately worth it. This was the general sentiment of the two speakers at the Distinguished Alumni Forum held at the NTU Alumni House at one-north on 25 April 2019, themed ‘Unleash the Entrepreneur in You’.

Addressing some 100 NTU alumni and guests, Ms Annie Yap (NBS/1993), Founder of AYP Asia Group and JuzTalent, and Mr Samuel Pei Yuh Chieh (NBS/2005), Co-Founder of kcuts, Apgujeong Hair Studio and Rong Hua Bak Kut Teh, shared their insights on what it takes to thrive as business owners.

**Fail fast, learn faster**

For Ms Yap, being comfortable with failure is critically important for someone who wants to be their own boss. Obstacles and unexpected wrong turns are inevitable when starting a business, but each hurdle teaches an invaluable lesson. For instance, Ms Yap recounts how her first foray into entrepreneurship in her teenage years came to an abrupt and immature end.

“I was at a pasar malam [night market] and noticed that the vendors there were only selling shoes and clothing. No one was selling drinks,” she recalled. “My dad is a coffee shop owner, and he has always encouraged me to seize opportunity when it arises, so I packed drinks from his shop and sold them at the pasar malam.”

Before she knew it, the authorities arrived on scene and shut down her little venture because she had not applied for a license to sell the beverages. Seeing past the disappointment, Ms Yap learned that there were proper rules and procedures to follow when starting up a business. The next time she tried, she knew she would do better.

“You can be knocked down, but you cannot be knocked out. I learnt a lot because of failures like this,” Ms Yap quipped.

**Learn to disrupt yourself**

Resilient as one may be, life tends to throw curve balls to test one’s mettle. Ms Yap’s AYP Group was built around the idea of connecting great talent with great companies, but when LinkedIn sprang onto the recruitment scene, her company’s ‘rice bowl’ came under threat.

“Previously, when companies wanted to recruit, they had no choice but to look for head hunters. But with LinkedIn, companies now have their own databases and applicant tracking system, so they don’t need to outsource their talent search anymore,” she said.
A Knack For Business

“We try to live a very balanced life so that we can go the distance. It’s no use pushing yourself so hard that you end up exhausted, bitter and not liking what you do,” he advised.

This philosophy extends to his employees as well. For example, when he started kcuts and Apgujeong Hair Studio, he began to notice an unusually high divorce rate among professionals in the industry. Realising that this was due to the long hours at work, Mr Pei introduced two separate shifts at his saloons. “This way, my employees can have dinner with their families at least two to three times per week. There is something magical about dinner. It brings your family closer,” he added.

Alumni who attended the session found the speakers engaging and inspiring. Mr Tan Soon Liang (NBS/1997) left the talk with a few lessons about entrepreneurship on his mind. “The greatest takeaway from the two speakers is that if you are interested to pursue entrepreneurship, then you need to be able to withstand hardship and failure. You also must have a plan and a vision to follow through,” he shared.

This experience spurred her on to embrace new technologies to “disrupt her own business”. She started by creating software for payroll processing. “Software is very scalable because whether you deploy the software for ten or 100,000 people to use, you tap on the same pool of manpower,” she explained. Since then, the software suite has been expanded to include functions such as the processing of employees’ leave applications, claims and allowances. Leveraging technology, her company now operates in eight countries and employs more than 80 staff.

Going the distance

Given the demands of running a business, the line between work and life can be blurred for an entrepreneur. Hence, setting aside time for leisure and family is crucial to avoid burnout, said Mr Pei. This is easier said than done. For Mr Pei, simple actions such as putting his phone away for a few hours help him to unwind after a long day of work.

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Ms Petrine Loo, an engineering graduate from NTU's Class of 2003 is well-equipped to juggle work and family, thanks to flexible work arrangements.

When her children fell ill—once it was from Hand, Foot and Mouth Disease, then chickenpox—or when her mother had to be hospitalised, Ms Petrine Loo, regional product manager, could have found herself in a very tight spot of having to choose between her work and her family.

So she was utterly grateful that her company, M.Tech Products, a distributor of cybersecurity products and services, was more than accommodating of her request to take up flexible work arrangements (FWAs).

"In the beginning, I was apprehensive if my director would agree with the arrangement and if colleagues would feel that I wouldn’t be as productive," she recalled of the time she first asked for FWAs after delivering her second child in January 2014.

Her company’s openness to FWAs is made possible by WorkPro, a programme offered by Workforce Singapore (WSG), to help defray existing costs of implementing the company’s in-house cloud software. The software is one of the resources M.Tech offers its employees to allow them to access their emails and process work remotely whilst away from the office, with little to no compromise in terms of productivity and efficiency.

“For two months, I arranged to work half days in the mornings so that I could tend to both of my sons before my elder one started childcare,” said Ms Loo.

Ms Loo expressed her gratitude to her bosses for agreeing to her request so readily. "Once, during those two months, there was a colleague from another department who thought I was still on maternity leave and didn’t think she could contact me to ask for advice," she said. "Her boss then told her that I am working remotely and would be able to help. I’m glad that the management trusts that I am doing my job and that I know my work."

M.Tech has a mutual understanding with its employees when it comes to FWAs. It saw in the beginning how some of its staff members had to resign in order to address family needs, such as looking after young children or elderly parents. The company thus decided to implement FWAs to help those who need it.

Shared Ms Sandra Goh, regional human resource manager at M.Tech, “We believe that in helping our staff address their personal challenges, they would be happier and be able to remain focussed in their work, resulting in higher productivity and lower staff turnover.”

Thanks to such arrangements by her company, Ms Loo is much better equipped to handle both her professional and personal duties, without having to compromise either side. She’s able to spend precious time with her two sons in the morning, whilst staying on top of her job tasks. FWAs have also allowed her to contribute to her church’s ministry work.

And she’s not alone in reaping the benefits. FWAs have been a great help to her colleagues who have kids with special needs or elderly parents at home. FWAs also allow employees to attend night courses to upgrade themselves.

“FWAs increase the employee’s sense of belonging to the company,” said Ms Loo. "They also increase open communication between staff and managers, as staff can openly share their needs, knowing that they have supportive managers who would trust them to continue to do their work."

With FWAs being so well-appreciated by employees, M.Tech intends to continue implementing it as part of its business operations, with support from Workforce Singapore. “As the workforce matures, we will continue to review and study the needs of our employees and avail these alternatives to any staff who may need it in the long run,” shared Ms Goh.

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1. **What is WorkPro?**
   WorkPro is a programme by Workforce Singapore that encourages employers to implement progressive employment practices to benefit Singaporeans.

2. **What does it do?**
   WorkPro provides funding support to help employers adopt progressive age management practices, support job redesign, as well as implement and sustain flexible work arrangements.

3. **How can I apply?**
   Employers may contact WSG-appointed programme partners such as NTUC’s e2i (Employment and Employability Institute) and SNEF (Singapore National Employers Federation) for more information.

4. **Who can apply?**
   Any company registered or incorporated in Singapore, including societies and non-profit organisations. Find out more at bit.ly/NTU-WorkPro.

This article is contributed by Workforce Singapore. WSG promotes the development, competitiveness, inclusiveness, and employability of all levels of the workforce. Its key mission is to enable Singaporeans to meet their career aspirations, take on quality jobs at different stages of life, and help enterprises be competitive and manpower-lean.
New friendships were forged at NTU’s first EAT.GROW.LOVE campaign as the University’s alumni returned to their alma mater on an early Saturday morning to do their part for those in financial need.

The event, held on 23 February 2019, rallied some 100 participants to pack 500 bags of groceries for lower-income families in Singapore, which were delivered to the beneficiaries of five voluntary welfare organisations: Methodist Welfare Services, Club Rainbow, Viriya Community Services, NTUC Nursing Homes and Beyond Social Services. Each bag contained daily food necessities, such as cans of baked beans, cream of chicken soup, packets of instant chicken porridge, and more.

Ms Priscilla Gan (NBS/2000), Director of Community Chest and President’s Challenge at the National Council of Social Service (NCSS) thanked alumni for “shining [a light] into someone’s life” and for “putting a smile on someone’s face.”

Professor Alan Chan, NTU Vice President (Alumni & Advancement), also commended alumni for their commitment to contributing back to the university and society. In addition to the food drive, the campaign raised S$83,000 in donations.

“With this campaign, we are sending a very powerful signal to Singapore society: This is what NTU stands for,” said Prof Chan, emphasising that “NTU is ranked as one of the best universities in the world, not simply because of the many papers that we manage to publish, not because of any other bibliometric indicators, but fundamentally because of the values we embrace—the kind of values that we want to pass on to our students.”

Alumni who participated in the EAT.GROW.LOVE campaign were proud to have performed a good and practical deed. “I think it’s great because as busy working professionals, it’s hard to find time to volunteer. Now NTU gives us this opportunity to do so,” said Ms Seah Pei Jun (HSS/2015).

Ms Canan Yazicioglu, Customer Intelligence Practice Lead for Asia Pacific at SAS, speaking to a room of some 40 NTU alumni at the NTU Alumni House at one-north on 14 March 2019. She was sharing how data analytics, together with artificial intelligence (AI), could improve customer experiences.

Importantly, she noted that data should be collected from various customer touch points to provide business leaders with a holistic representation of specific customers. Data should also not be siloed, but rather, flow freely between departments and among different applications.

But manually curating contextual information can be very time consuming, which is why companies are leveraging AI in their business activities. Having said that, business leaders must keep the end-goal in mind when implementing any data analytics solutions—the aim should always be to create value for customers.
Formed by a group of passionate School of Civil & Environmental Engineering (CEE) alumni in 1997, the NTU CEE Alumni Association (NCEEA) aims to establish mutually beneficial relationships among its members through meaningful events. Er Chong Kee Sen (CEE/1987), who has been the President of NCEEA since 2003, has been working incessantly to realise this objective, be it through organising golf tournaments to raise funds for underprivileged CEE students or bringing alumni together at networking sessions.

“For example, NCEEA recently worked with the Class of 1987 and raised more than S$100,000 to set up another perpetual CEE Class of 1987 alumni bursary fund that could benefit more CEE students,” Er Chong said proudly. “We also invite our alumni to share their experiences and perspectives with CEE undergraduates during talks organised by the CEE Student Club,” he added.

Er Chong shared that it is the joy of serving that keeps him motivated, and he gives credit to his inclusive and supportive NCEEA committee for sustaining the club over the years.

Treasuring Chinese roots is something that will always yield fruit for Dr Joan Gan Chui Goh (EEE/1990), President of NTU Chinese Society Alumni (NTUCSA). It was formed in 1996 by NTU’s 9th batch of Chinese Society student members to encourage the love for Chinese tradition, as well as to strengthen friendships. Seeing the spirit of Chinese culture being passed down from one generation to another is something Dr Gan holds very close to her heart, especially when the members bring their children to join in the activities organised by the Club.

The merits of long-term friendship and the importance of maintaining Chinese practices have always been a priority for NTUCSA. As such, the NTUCSA committee frequently organises activities to continually engage alumni members and their children. Some of their recent events include Chinese New Year gatherings, dumpling and lantern festival celebrations and heritage guided tours.

“Let us always treasure our friendships, walk with each other down the path of our lives, and continue to engrave NTUCSA companionship into the memory lanes of the future,” Dr Gan said.
The NTU Alumni Association (AA) (Malaysia) was officially launched on 18 January 2014 by then NTU President Professor Bertil Andersson. It was an important chapter for NTU, as Malaysia has a substantial number of alumni residing within the country. NTUAA (Malaysia) aspires to provide a platform for closer networking among Malaysian alumni, as well as with other global NTUAAAs.

When it comes to making friends, Mr Chris Choy (CEE/1986), President of NTUAA (Malaysia), believes that there can be no substitute for the age-old practice of having quality face-to-face meetups. "We live in a socially connected world, but unfortunately spend more time connecting through our gadgets than in person. My advice for the AA members would be to stay in touch in a human way," he said.

Hence, the AA has created special interest groups such as the NTUAA (Malaysia) Agriland & Health Group, which brings together alumni members who are passionate about developing their 'green fingers'. Its traditional Chinese medicine (TCM) interest group also helps enrich members' knowledge of TCM and its applications.

Being a globally renowned hub for technology and innovation, it comes as no surprise that Silicon Valley is home to a large group of NTU alumni. In this bustling area of San Francisco, several engineers, business leaders, finance professionals and innovators make up the NTU Alumni Association (AA) (USA-West).

Mr Myo Thu, the President of NTUAA (USA-West), works hard to maintain a strong presence in the USA West Coast region. He believes that it is important for members to stay connected with one another and be forthcoming in sharing the latest relevant career and life tips.

However, it may not always be an easy feat as the West Coast area itself is huge, and alumni are scattered across different cities like Seattle and Los Angeles. Nonetheless, Mr Thu is undaunted, believing that a common background and similar goals will serve as the glue to draw members together at academic meetings, dinner gatherings and family picnics.
On 7 March 2019, more than 300 alumni, guests, graduate students, and short-term executive programme participants attended the talk on ‘US-China Trade & Tech War: Challenges & Future Trends’ held at the NTU Alumni House at one-north.

The speaker was Professor Tan Kong Yam, Professor of Economics at NTU’s School of Social Sciences, and Director of Asia Competitiveness Institute, Lee Kuan Yew School of Public Policy, at the National University of Singapore.

He commenced with a brief introduction of the current US-China trade and tech war, and touched on President Xi’s ‘Made-in-China 2025’ Industrial Development Plan as well as the ‘One Belt One Road’ Economic Development plan. The ‘Made-in-China 2025’ plan, in particular, is believed to have a negative impact on the United States’ national and military security.

Prof Tan envisions that economic growth in China will slow down in the future despite the increasing purchasing power of China’s middle class. Therefore, he suggests that lowering personal income tax, reducing the high prices of houses, developing financial assets, and reducing the burden of healthcare expenditure and the elderly’s pensions can help China expand its domestic market further.

Although Prof Tan foresees the US-China tech war to be a potentially long-wrought “battle”, he stated that China’s most important weapon is the growing domestic market and the innovative potentials of both government and privately-owned high-tech companies. He also shared about how semiconductors are the bedrock and future of product innovation, including 5G technology. Mastering 5G technology will, therefore, be key to becoming a long-term leader in the global science and technology industry, he said.

The participants were inspired by Prof Tan’s insightful discourse and participated enthusiastically in the lively question-and-answer session.
The NTU Alumni Association (AA) (Germany) was launched on 29 March 2019 at Hilton Munich Park in Munich. The event was attended by Singapore’s Ambassador to Germany Mr Laurence Bay, NTU President Professor Subra Suresh, NTU Vice President (Alumni & Advancement) Professor Alan Chan, College of Business Associate Dean for Corporate Engagement and Relations Professor Guido Gianasso, Director of NTU Alumni Affairs Mr Th’ng Beng Hooi and more than 40 NTU alumni from all over Germany.

Prof Suresh presented the NTU flag to NTUAA (Germany) President Ms Elizabeth Chee. This was followed by tapping open the beer keg, a tradition in Germany. Alumni and guests then proceeded to enjoy their sumptuous dinner while networking with one another.

A day later, the NTU Alumni Association (AA) (Switzerland) was successfully launched on 30 March 2019 at the Marriott Hotel in Zurich. More than 40 alumni and guests were present for the event.

Prof Chan presented the NTU flag to President of NTUAA (Switzerland) Mr Alexander Weinert, and the event concluded with a dinner and music performance, as well as a meaningful celebration of Earth Hour with all the lights turned off, leaving only candles and a cosy atmosphere.

The ‘Revisit the Silk Road’ (3rd phase) event organised by the Nanyang International Club (NIC) was held from 5 to 12 January 2019. The expedition to the Philippines and Indonesia was led by President of NIC and NTU Alumni Association (Beijing) Dr Sun Xia (NBS/2006).

In the Philippines, NIC representatives visited the Base Conversion and Development Authority, Ministry of Energy, and the Federation of Filipino Chinese Chamber of Commerce and Industry.

The trip to Indonesia was equally inspiring, with visits to the Indonesia Investment Coordinating Board, the Employers’ Association of Indonesia and the Indonesian Chamber of Commerce & Industry.

On the last day, the trip concluded with ‘The Belt and the Road Initiative Forum’ and a poetry recital, graced by Ms Sim Ann, Singapore’s Senior Minister of State for Ministry of Communications and Information, Ministry of Culture, Community and Youth, and Deputy Government Whip.
On 13 February 2019, the NTU Alumni Association (Hanoi) and the Embassy of the Republic of Singapore in Hanoi jointly organised an alumni networking session at the Pan Pacific Hotel in Hanoi. The event was attended by some 40 NTU alumni and Mr Tan Weiming, Deputy Chief of Mission and Counsellor at the Singapore Embassy.

This year, as the gathering was held over the Lunar New Year period, the alumni had a wonderful time interacting with one another and celebrating the occasion with festive food and cheerful wishes.

On 23 February 2019, the NTU Alumni Association (Yunnan) held its 4th committee election meeting at Kunming City, Yunnan. The meeting was presided over by Mr Soon Min Yam, Director of NTU Alumni Affairs.

Mr Cai Qing (NBS/2006) was re-elected as the AA President, and Ms Chen Yue (HSS/2003) was re-elected as the AA Secretary General. Both Mr Wang Minzheng (NBS/2004) and Mr Pu Le (NBS/2004) were reappointed as Honorary Presidents.

The 4th term committee election for NTU Alumni Association (Hunan) was held a day later, at Changsha City, Hunan, chaired by Mr Soon Min Yam.

Ms Jiang Tang (NBS/2015) was elected as the AA’s new President, while Ms Zhao Xiangrong (NBS/2007), President of the AA’s 3rd term committee, was elected as its Honorary President. Ms Liu Sisi (NBS/2013) was elected as the AA’s Secretary-General.
GETTING SMART ABOUT INVESTMENT

Close to 30 alumni picked up useful tips at the ‘Global Business and Investment Outlook Workshop for 2019’ held at the Alumni House at one-north on 17 January 2019. The session, organised by the NTU Alumni Club, was conducted by Mr Francis Tan, an Investment Strategist from UOB Private Bank. Alumni enjoyed the enriching session immensely and look forward to more of such events.

WILLING HEARTS AND HANDS

Make a meaningful difference! That’s what the NTU Alumni Club (NTUAC) did with its 4th annual clothes donation drive held from 22 January to 12 February 2019. The event drew generous contributions from NTUAC members for Willing Hearts, the selected beneficiary.

NETWORKING IN TORONTO

NTU alumni based in Toronto, Canada, had an enjoyable time interacting with NIE Director Professor Christine Goh and other NIE officials over a pleasant dinner on 5 April 2019. The team from NIE was in Toronto for the annual American Educational Research Association conference from 5 to 9 April 2019.

A JOYFUL GATHERING IN BRISBANE

NTU alumni in Brisbane had a pleasant time at the NTU Alumni Networking Dinner on 11 April at Il Centro Restaurant. It was a great opportunity for alumni to catch up with one another and learn about the latest developments of their alma mater.
On 20 February 2019, about 50 Nanyang Business School (NBS) alumni, faculty and guests learned how being digitally savvy isn’t a luxury but a necessity during the Alumni Affairs Office (AAO)-NBS Business Camp.

The collaboration between NTU AAO and NBS was held at the NTU Alumni House at Marina Square and saw industry experts share about the latest digital marketing trends. Participants also learned how to wield digital tools to actively shape the future of marketing.

Can you create spoken worlds? The NTU Alumni Toastmasters Club had its annual Speech Contest Day at the NTU at one-north Executive Centre on 26 January 2019, where members delivered their most inspiring speeches. It was a fun and unique learning experience for both new and seasoned speakers.

On 7 March 2019, over 100 Nanyang Business School (NBS) alumni, faculty, guests and staff of Nestlé attended the NBS-Nestlé event, ‘Leading together for better gender balance: From aspiration to action’, held at the Four Seasons Hotel. Professor Guido Gianasso, Associate Dean (Corporate Engagement and Relations) of NBS, delivered the keynote address on better gender balance at the workplace. There was also an empowering panel discussion by women of varied corporate backgrounds.
Close to 40 alumni and guests had an enriching session during the NTU School of Civil and Environmental Engineering Alumni Association (NCEEA)’s 22nd Annual General Meeting at the NTU Alumni House at Marina Square on 21 February 2019.

Mr Aaron Chia (CEE/2007), Vice President of NCEEA, commended the two recipients of the Nanyang Alumni Awards 2018, Er Chong Kee Sen (Achievement Award) and Mr Foo Hee Kiang (CSE/1987) (Service Award), who displayed passion and commitment to their profession.

Some 100 School of Materials Science & Engineering (MSE) alumni, faculty and students gathered on 18 January 2019 at the Nanyang Executive Centre for a networking event, ‘Spark a conversation and establish a connection’.

Attendees learned about meaningful networking and also gleaned advice from Mr Willie Keng (Class of 2012), Dr Stephen Tay (Class of 2011), Mr Jerry Lee (Class of 2010), Professor Nripan Mathews (Class of 2013), and Ms Lee Wen Di (Class of 2018).

MSE alumni, faculty and students had a great time at the networking masterclass.

Alumni and faculty learned valuable lessons at the workshops organised by the School of Electrical and Electronic Engineering.

Learn life skills before life skillets you! 30 alumni and faculty from the School of Electrical and Electronic Engineering (EEE) participated in ‘Story Selling’ and ‘Develop your personal resilience’ workshops held on 16 and 23 February 2019.

They picked up valuable skills and knowledge on how to engage with an audience so as to inspire connection as well as action. They also learned how to tap into a wealth of positive emotions when faced with problematic or adverse issues.
HAVING **SoH** MUCH FUN

So you think you can cook? 20 School of Humanities (SoH) alumni whipped up a feast in a French cuisine cooking class held at ToTT Store’s Suntec City Cooking Studio on 23 February 2019.

Then on 9 March 2019, some 180 SoH alumni and students watched ‘Captain Marvel’ at The Cathay. The President of SoH Alumni Association (SoHAA), Mr Henry Loh (SoH/2017), gave a welcome address before the movie screening and encouraged SoH alumni to follow SoHAA on social media platforms for the latest updates.

**GETTING ARTEASTIQ**

Over 20 School of Humanities alumni let their imagination run amok on 12 January 2019 at the Arteastiq Painting Studio in Mandarin Gallery. The leisurely bonding and painting session was a great time for alumni to reconnect with each other over art, snacks and banter!

**A BRUSH WITH CALLIGRAPHY**

Over 20 School of Social Sciences (SSS) alumni showed off their creativity with a brush during a modern brush calligraphy workshop held at The Workroom Studio on 16 February 2019. At the session, they learned writing basics, brush movements and different types of lettering. Everybody went home with a personalised masterpiece!
LAUNCH OF THE LKCMEDICINE ALUMNI LOUNGE

Some 60 Lee Kong Chian School of Medicine (LKCMedicine) alumni and guests witnessed the official opening of the LKCMedicine Alumni Lounge by Professor Alan Chan, NTU Vice President (Alumni & Advancement), on 15 February 2019, at NTU’s Novena campus. The 101-square-metre lounge supports meetings for up to ten people, and is fully furnished with desktop computers, 24/7 Wi-Fi access, couches and a pantry.

NETWORKING OVER LUNCH

Close to 50 alumni participated in the ‘Alumni Lunchtime Interaction’ on 15 February 2019 held at the Alumni House at Marina Square. Organised by the NTU Alumni Affairs Office (AAO), the lunch session was a great opportunity for alumni from various industries to network and establish new connections.

APPRÉCIATING PONGAL CULTURE

It was a rewarding day for over 50 NTU Tamil Literary Society Alumni Association (TLS) members, NTU students and children from underprivileged families who participated in the Pongal Local Community Involvement Programme and Cultural Night on 12 January 2019 at the Indian Heritage Centre.

Event participants were treated to a range of activities, including mini Pongal pots colouring, kolam drawing, a storytelling session and a tour around the Indian Heritage Centre.

NTU TLS members had a great time interacting with children at the Pongal Local Community Involvement Programme.
CRACKING THE WEALTH CODE

Some 50 College of Science (CoS) alumni, faculty, guests, and students gathered for a post-Lunar New Year dinner with a ‘Cracking the Wealth Code of 2019’ talk on 22 February 2019 delivered by Mr Joe Boey, Chinese Metaphysics Consultant from Joey Yap Consulting Group.

Mr Joe Boey giving an engaging talk on Chinese metaphysics.

CAREER OPPORTUNITIES ABOUND

The School of Physical and Mathematical Sciences (SPMS) career seminar, ‘Trends, opportunities and jobs in data analytics and cybersecurity’, drew some 180 SPMS alumni and students on 12 February 2019.

Later, on 20 February 2019, more than 500 SPMS students attended the SPMS Job and Internship Fair 2019. A total of 57 employers were present for students to discover full-time employment and internship opportunities.
Founded in early 2016 by Ms Toh Yanling and NTU alumnus Dr James Lim (MSE/2008), NephTech is a medical technology startup dedicated to providing patients and dialysis centres with an evidence-based approach to vascular access surveillance and management. Vascular access is the lifeline of an end-stage kidney failure patient as it allows body waste to be removed through haemodialysis. Essentially, the vascular access point needs to be kept unobstructed for the process to be effective.

Hence, Ms Toh and Dr Lim invented a device that can detect blockages or complications in vascular access points before they occur. The first-of-its-kind, non-invasive technology took three years to develop and could help reduce hospitalisation and associated costs to dialysis patients.

Now a ten-person team, NephTech counts NTU alumnus Mr Wang Shengxiao (EEE/2014), as one of its key members. Mr Wang oversees product development, which requires him to manage suppliers. He also conducts clinical studies regionally where he engages with NephTech’s key clinical partners—patients, nurses and doctors.

“I find the learning curve here steep—I’ve learnt more in my first six months here in NephTech than the two years I spent at my former workplace! I’ve come to realise that by doing something you’re passionate about, you’ll never get tired, and the experience is very rewarding. Knowing we’re working on something that addresses real needs and problems is indeed exciting,” he shared.

NTUitive has been part of the NephTech journey since day one, providing the team with mentorship and guidance, introducing them to investors and granting them access to events and new markets. The co-founders sought advice from NTUitive CEO Dr Lim Jui who helped assess their idea and advised them on funding applications.

In 2016, the team received the Multidisciplinary Team Projects (MDT) grant of S$10,000 through NTUitive, which helped them get started on prototyping and allowed them to build their case for private investments and public government grants. NTUitive then awarded NephTech a six-figure Strategic Research Innovation Fund (SRIF) investment in December 2017. The NephTech team is now part of the NTU-NUS JUMPstart programme—a joint university medical technologies accelerator programme—benefitting from a good supportive structure of mentorship from experts and veterans in the medical space from all disciplines. NephTech also received six-figure funding from JUMPstart.

For the next few months, the NephTech device will be going through quality and safety validations as part of the commercialisation process. By year-end, the team is targeting to achieve CE marking—certifying their device as having met high safety, health and environmental protection requirements. Thereafter, the device can be sold in the European Economic Area before the team launches its Series A fundraising round.

The NephTech team has also been actively conducting clinical studies in Singapore, Malaysia, Vietnam and Taiwan. Once their product is ready, it will be launched in these markets, as well as in Australia and China.

The team is currently looking to expand on the manpower front, seeking to get artificial intelligence enthusiasts onboard.

For more information on NTUitive and its complete suite of incubation services, please contact:

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Email: ntuitiveinfo@ntuitive.sg
Website: www.ntuitive.sg
**KIMBERLY WONG SOOK FOON**  
(SOH/2018)

I am incredibly grateful that I was given the opportunity to read linguistics and psychology at NTU. While the lessons were sometimes tough, it was immensely fulfilling as you peel back the layers and rules that govern language and understand how and why language works.

Also, the academic rigour certainly helped! My essay writing skills come in very handy as I now have to write up National Arts Council (NAC) reports for Pangdemonium Theatre Company where I work at. Our next production is *This is What Happens to Pretty Girls*. Centred around the #metoo movement, the play explores sexual misconduct and blurred lines or boundaries. It is an uncomfortable but necessary discussion to be had.

**SHAWN MICHAEL STEWART**  
(MAE/2016)

My days in NTU were filled with fun, friendship, hardship, tears of joy and, most importantly, education. There were two major events that I was heavily involved in—NTU Swimfest 2015 and MAE Graduation Night 2016. Through these, I challenged myself to step up and do my very best to ensure the success of these events.

As a MAE student, my favourite moment was spending hours at the Air Traffic Management Research Institute on my final year project. The hands-on opportunity widened my perspective on the aviation industry, and I really appreciate the support from my professors and peers.

I joined the Civil Aviation Authority of Singapore as an air traffic control officer about two years back. Three words sum up my current career—challenging but fulfilling.
WONG SHU YUN
(WKWSCI/2009)

My days in NTU were fun, adventurous and experimental. Journalism school gave me the freedom to explore the world, tackle subjects of my interest, meet people, ask them many questions (much to their annoyance) and create beautiful stories out of all that.

What I value most were the opportunities to acquire skills from practitioners who have kept honing their craft in the real world. Theory and textbooks offer knowledge. Industry experiences from practitioners offer wisdom.

I have since set up an editorial studio, Sunda Press, with a business partner. She is 12 years older than me, and she was actually from the first batch of WKWSCI graduates!
EXCITING DEALS WITH THE NTU ALUMNI CARD

Curatelier LLP
https://www.curatelier.com/

Curatelier is a local brand offering unique leather goods handcrafted by indie leather artisans and designers from around the world.

Our vision is to redefine the concept of luxury goods by making quality leather products affordable and accessible to the masses.

Only premium leathers and hardware from reputable tanneries and factories are used to ensure that our products are of the highest quality.

In 2018, we launched /greis/, a new line of personalised jewellery and small accessories that can be engraved with a personal message. Every element used in our designs bears a symbolic meaning and carries a message of hope and encouragement.

Canvas Avenue
https://canvasavenue.com/

Canvas Avenue creates cute, fun gifts and decorative items, handcrafted right here in sunny Singapore.

Visit our website to find cute wooden earrings, glitter cupcake toppers, cute baby shoes and other unique offerings. Free eco-friendly gift packaging is included with every order. For last-minute orders, simply opt to self-collect your items directly from our office located in Queenstown.

Also, don’t forget to follow Canvas Avenue on Instagram and Facebook @canvasavenue to get gift ideas and inspiration for your celebrations!

OFFER

10% off regular-priced items
(Apply promo code: NTUALUMNI10)

Valid till 31 Dec 2019
**Windflower Florist Pte Ltd**  
https://www.windflowerflorist.com/

Windflower Florist started out in 1997 as a small, quaint family-owned florist located in the heartlands.

Thrust into the 21st century, the business has sprung anew with a fresh approach to floral design, while still retaining our core ideal of bringing joy to every life we touch. Flowers and love are at the heart of everything we do—we celebrate with love and bring forth style through flowers. Besides crafting everyday bouquets, we also work with luxury and homegrown brands to create exceptional sensory experiences through floral displays.

**OFFER**

10% off bouquets  
(Apply promo code: NTUXWF10)

Valid till 31 Dec 2019

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**Rough Beauty**  
https://rough-beauty.com/

Rough Beauty features handcrafted bath and body products made with simplicity and sustainability in mind. We source for quality natural ingredients, using only plant essential oils, herbs and spices for scents and colours.

Our brand name was inspired by a quiet journey into the majestic Himalayan mountains—the rugged terrain, with its haunting beauty, left a deep impression and continues to inspire and remind of us of our philosophy of finding value in simple and sustainable things.

**OFFER**

15% off with minimum spend of S$30  
(Apply promo code: RB15NTUALUMNI)

Valid till 31 Dec 2019
**Villa Finder**
https://www.villa-finder.com/

Villa Finder is in the business of villa rental service and we guarantee the best customer experience when booking and staying in a villa. We work with the best 1,500 Villas in these five areas: Bali, Koh Samui, Phuket, Sri Lanka and Mauritius. Simply let us know what you need, and our friendly concierge team will arrange it for you. Whether you’re looking for a romantic trip with your loved one, a breathtaking place to say "I do", or a comfortable, budget-friendly holiday home, we have a villa for you!

**OFFER**

**5% off booking for villa stay**
Quote ‘NTU Alumni Programme’ in the additional request box at the booking page or in your email booking to enjoy this promotion.

Valid till 31 Dec 2019

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**Hertz**

Hertz, one of the world’s largest general use car rental brand, offers quality cars and a wide range of services at competitive prices across more than 10,000 locations in 150 countries worldwide.

Our products and services include Hertz Gold Plus Rewards®, NeverLost® customized onboard navigation and SIRIUS Satellite Radio. We also offer a range of unique cars and SUVs through our Prestige, Fun and Green Collections.

Get your free Hertz Gold Plus Rewards® membership and enjoy exceptional benefits, including a free additional driver package, counter bypass, instant car return and more! Also, earn points to redeem free rentals!

**OFFER**

**10% off base rates for Hertz rentals worldwide**
(Quote ‘Corporate Discount Programme CDP#1856656’ at the time of enquiry/reservation to enjoy this promotion.)

Valid till 31 Dec 2019
Accunov
https://accunov.com/
Accunov Group’s overarching objective is to help business owners save time, reduce costs and increase profits with practical professional advice and cost-efficient cloud-based technology solutions. Our team is made up of experienced Chartered Accountants, and our firm is a recognised corporate service provider by local authorities.
We have helped many fledgling companies resolve their business challenges and optimise their business processes. Start your business venture for free or grow your existing business with reliable support from professionals—with a 100% money-back guarantee—today.

OFFER
Complimentary set-up of a new business (Including Private Limited Company) in Singapore (Limited to first 30 sign-ups for each month)
20% off professional services (Including accounting, corporate secretary services, tax advisory, valuation, human resource management, etc.)
Quote ‘NTU Alumni’ at the time of enquiry to enjoy this promotion.
Valid till 31 Dec 2019

Download the “NTU Alumni” mobile app now to receive your NTU Alumni Card instantaneously. For more information, visit www.ntu.edu.sg/Alumni/AlumniCard. Terms and conditions apply for each offer.

Bariuma Japanese Ramen Restaurant
https://www.facebook.com/BariumaRamen/
Bariuma Japanese Ramen Restaurant—the most well-known Ramen restaurant in Hiroshima, Japan—is now in Singapore! Serving rich tonkotsu broth ramen with fresh noodle made at the store, we also regularly offer seasonal items such as tantanmen and soft shell crab ramen. NTU alumni cardholders can enjoy 15% discount at our Tanglin and Novena outlets. Simply show your NTU alumni card/E-card at the cashier!

OFFER
15% off total bill
Valid till 31 Dec 2019

Picotin Express
https://www.picotin.com.sg/
There are plenty of family-friendly restaurants across Singapore, but it’s not always easy to find one that has ample space for a dedicated kids play area, a fully-equipped sound system for private events, and uber-delicious grub.
With its spacious venues in Bukit Timah and the East Coast, Picotin Express is the perfect place to drop by after work for a well-deserved pint, or to turn up in shorts for a laidback brunch with the kids and family on a Saturday. Our bistro also offers a variety of seating arrangements for different crowds, and our restaurant—fully furnished with a sound system and projector—can host up to 280 guests.

OFFER
S$25 Picotin Loyalty Card membership fee (Usual Price: S$50)
Valid till 31 Dec 2019
We deeply treasure the relationship we have with our alumni. Do provide the NTU Alumni Affairs Office with your latest contact details so that we can continue to stay connected.

<table>
<thead>
<tr>
<th>Full Name as in NRIC (Mr/Ms/Dr/Prof/Others)</th>
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<tbody>
<tr>
<td>NRIC/FIN/Passport No.                 DOB (dd/mm/yy)</td>
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<tr>
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<tr>
<td>Year of Graduation                   School / Department</td>
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<td>LinkedIn User Name                  Company Name</td>
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<td>Company Address</td>
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<td>Postal Code                         Industry</td>
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<td>Office No.                          Fax No.</td>
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</table>
AAO is committed to keeping all alumni’s personal information private, safe and secure. To view AAO’s personal data protection policy, please visit www.ntu.edu.sg/Pages/Privacy.aspx.

I hereby authorise, agree and consent to allow Nanyang Technological University (NTU) and its employees and agents (collectively “NTU”) and NTU’s third party service providers to:

a. collect, use, disclose and/or process personal data about me that I had previously provided NTU, that I now provide NTU, that I may in future provide NTU with and/or that NTU possesses about me including but not limited to my name, my identification number, my telephone numbers, my address, for the following purposes:
   - To maintain a lifelong relationship with its alumni;
   - To create awareness and promote alumni relations;
   - To understand and study the profile of its alumni community for NTU’s policy making and planning;
   - To involve alumni in NTU’s continual development and progress through the engagement of voluntary services and giving back to their alma mater;
   - To assist ministries and government agencies in the development of national policies and guidelines through the sharing of necessary data.

b. send me such alumni-related marketing, advertising and promotional information through the following modes of communication:
   i. postal mail and/or electronic transmission to my email address; and
   ii. to my following telephone number(s) : ____________________ by way of:
(1) [ ] Voice call / Phone call
(2) [ ] SMS/MMS (text messages)
(3) [ ] Fax

Please indicate that you agree to NTU and its employees, agents and third party service providers using that mode of communication by inserting a √ in the box.

I hereby represent and warrant that I am the user and/or subscriber of the telephone number(s) provided by me above, and that I have read and understood the above provisions.

Signature/Date

Note: Regardless that you do not sign or complete this form, please note that the NTU reserves its right to send a specified fax message (as defined in the Personal Data Protection (Exemption from Section 43) Order 2013) (the "Exemption Order") and/or a specified text message (as defined in the Exemption Order) (i.e. a marketing fax message or marketing text message) to your Singapore telephone number, if there is an ongoing relationship between the NTU and you and the purpose of the message is related to the subject of the ongoing relationship, pursuant to the requirements and conditions of the Exemption Order.
**EVENTS CALENDAR**

### JULY 2019

<table>
<thead>
<tr>
<th>Date</th>
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<tr>
<td>6</td>
<td>Combined Alumni Associations (Henan, Shaanxi, Shandong &amp; Shanxi) Forum/Alumni Gathering</td>
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<tr>
<td>13</td>
<td>NTU Alumni Sports Fiesta</td>
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<td>13</td>
<td>Class of 1994 25th Anniversary Reunion</td>
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<tr>
<td>20</td>
<td>Class of 1989 30th Anniversary Reunion</td>
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<tr>
<td>20</td>
<td>Class of 1999 20th Anniversary Reunion</td>
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<tr>
<td>27-28</td>
<td>NTU Alumni 2D1N Networking Tour to Malacca</td>
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### AUGUST 2019

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<th>Date</th>
<th>Event</th>
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<tr>
<td>3</td>
<td>Welcome Class 2019 Alumni Party</td>
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<tr>
<td>20</td>
<td>Investment Talk Collaboration with IP Global—Discover Europe’s Top 3 Performing Property Investment Locations</td>
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<tr>
<td>TBC</td>
<td>Combined Alumni Associations (Anhui, Hubei, Hunan &amp; Jiangxi) Forum/Alumni Gathering</td>
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</table>

In order not to miss out on any upcoming events organised by the NTU Alumni Affairs Office, do remember to update your contact details with us.

Information is correct at press time. Events and dates may be subject to change. For an updated list of upcoming local and overseas events organised by AAO, the Schools or the Alumni Associations, please visit [www.ntu.edu.sg/alumni/alumnievents](http://www.ntu.edu.sg/alumni/alumnievents). If you wish to enquire about any of the events, or update us on your contact details, please write to us at alumniaffairs@ntu.edu.sg.
Ain’t No Mountain High Enough

Harsh conditions, bad weather and even a traffic jam near the summit could not keep Mr Jeremy Tong (NIE/2016) from conquering Mount Everest. Even with 15 years of climbing experience under his belt, the journey to the peak was still daunting, but Mr Tong held his nerve and made it there and back. Kudos to him!
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NTU HALL OF RESIDENCE EIGHT AA

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jiangtang8008@163.com
ALUMNI CIRCLES (AC) LISTING

In countries which do not have the sufficient number of NTU alumni to form Alumni Associations, Alumni Circles are formed instead. A coordinator from the city or country is appointed for the respective Alumni Circle.
EXPRESS SET LUNCH

Soup of the Day
Main Course
Dessert

$13.50/set

Add on $5 for Caesar Salad!

Terms & Conditions
Dish is subject to change at Management’s discretion • Promotion is not valid during weekends and public holidays • Promotion cannot be used in conjunction with other promotions, offers, privileges, discounts, vouchers, loyalty programs or privilege cards • The Management reserves the right to vary or amend terms and conditions without prior notice.

Live Music

@ Revel Bistro & Bar
Join us at The Revel Bar on Thursdays and Fridays to enjoy English & Mandopop music.

Thursdays @ 7.30 pm • Fridays @ 8 pm

NTU Alumni House, Marina Square 6 Raffles Blvd, 02-27/28, Singapore 039594
For reservations: 6265 5660 or enquiry@revelbistrobar.sg