



FUSION

THE POTENTIAL OF
TECHNOLOGY AND DESIGN



SINGAPORE UNIVERSITY OF
TECHNOLOGY AND DESIGN

ISSUE 16 / 2020

THE MOMENTARY MONUMENT PORTRAYS TWO FIGURES STANDING BACK TO BACK, ONE LOOKING BACK AT THE PAST, AND THE OTHER FORWARD TO THE FUTURE. THE WORDS "NEVER FEAR" ARE EMBEDDED IN THE SCULPTURE

SUTD CHANGES START OF ACADEMIC YEAR TO SEPTEMBER 2020

Given the uncertainty of the restrictions to on-campus activities and lessons in light of the evolving COVID-19 pandemic, SUTD decided to push back the start of its academic year (AY) for the incoming AY2020 cohort from May to September this year. This change in the term start will be a permanent one and will extend to subsequent intakes of students. For students joining SUTD this year, the AY will start on 14 September instead of 18 May.

The plan to change the start of academic year has been in the works over the past year and was meant to take effect in 2022. However, it was brought forward to this year to ensure a higher possibility of students experiencing SUTD's signature hands-on design-centric curriculum, and to preserve its unique cohort-based first-year educational experience. Students will still take the required eight terms of undergraduate coursework and graduate in May 2024 instead of September 2023. SUTD also extended its admissions exercise this year and reopened its applications portal from 4 to 17 May 2020. So, students

who previously considered applying to SUTD but missed the earlier application window or prospective Singaporean undergraduates who were planning to study overseas, but now prefer to study locally, would have had another opportunity to apply. This academic calendar change, which will align with the other Autonomous Universities' academic calendars, will also enable SUTD to better cater to the Operationally Ready Date (ORD) schedules of polytechnic graduates.

Existing students from the AY2019 intake and earlier will continue with their original academic calendar to minimise disruption to their studies.

With the later start of term for the AY2020 cohort, SUTD has offered students who matriculate before September the opportunity to take up the Special Summer Programme (SSP) before they start school. The SSP, which comprises e-learning classes, bridging programmes and research activities, comes at no additional cost.

SUTD COMMUNITY GRANT & OTHER FINANCIAL SCHEMES FOR STUDENTS



Starting in academic year 2020, SUTD students who are not on scholarship or financial aid will receive the SUTD Community Grant to help defray the cost of education. This is part of SUTD's efforts to ensure that no deserving Singaporean student will be denied access to our programmes due to financial reasons.

The Community Grant, a fixed amount of \$1,500 per term or \$3,000 per year, will be given to all existing and incoming Singaporean undergraduates who are not already receiving

some form of financial aid or scholarship. The grant is tenable for up to eight academic terms, provided the student continues to meet the eligibility criteria. It is estimated that more than 800 students will benefit from this grant each year.

Other financial schemes SUTD has, include the SUTD Education Opportunity Grant (SEOG), which provides financial support to students from lower and middle income families. Taken together with the enhanced Higher Education Community Bursary from the Government, these students can receive a financial package that will cover 100% of their tuition fees, including their hostel fees during the Freshmore (first-year) terms.

SUTD President, Professor Chong Tow Chong said: "SUTD has introduced various financial schemes that are in line with the Government's efforts to enable every Singaporean student to have the opportunity to receive a good education regardless of family circumstances. The SUTD Community Grant and SEOG help ensure all eligible students who want to pursue an education in technology and design will not miss out on an SUTD education because of financial difficulties."

WHAT ARE SOME OF OUR CLASS OF 2019 STUDENTS DOING AFTER GRADUATING?

SUTD graduates have always been an eclectic bunch, with many going on various paths after graduating. We asked a few alumni from the Class of 2019 to share what they took away from the SUTD education experience and how it has given them an extra edge in the marketplace.



Dion Tan

Bachelor of Engineering in Engineering Product Development

Dion joined the Changi Airport Group (CAG) upon graduation and is working on projects related to robotics and automation in the airside for the upcoming Changi Airport Terminal 5 (T5).

As T5 will be comparatively as big as the size of today's airport, it will require extensive manpower to run its operations. Due to limited manpower, Dion's role is to look at utilising automation to ease or make certain processes less labour intensive and more operationally efficient. This would not only potentially ease thousands of workers' work processes but could also improve millions of passengers' travel experience. His position also gives him the opportunity to be creative and innovative since the entire terminal will be built from a blank slate.

As Dion graduated from the Engineering Product Development (EPD) robotics track, the broad knowledge in robotics, machine learning and artificial intelligence helped him understand the projects he is managing. Furthermore, SUTD's strong design culture and curriculum benefited him greatly in his job as the design phases and methodologies are very similar and relevant to his field of work and he has been applying it regularly to understand the constraints of today's operations.



Cindy Ong

Bachelor of Engineering in Information Systems Technology and Design

Cindy joined Mastercard after graduating from SUTD. She is currently in the company's graduate programme and is working as a Programme Manager as part of her current rotation.

Cindy has always been interested in using technology to improve quality of life. She also felt that since the payment sector was something that is present in people's everyday lives, it would be beneficial to understand how technology and design thinking can be used to improve the experience of consumers.

Her job requires technical knowledge in order to understand the payment ecosystem, such as how a payment operates in the back end for a consumer. At SUTD, Cindy learnt the basics of cryptography, which was key in helping her understand how payment technology companies like Mastercard ensures security for its customers. With this background knowledge, she is able to quickly learn on the job and relate to different stakeholders.

The Fifth Row activities Cindy participated in, specifically the SUTD Welfare Club: Minions, also taught her valuable skills and insights into stakeholder engagement and management. These skills are highly essential in her current role. She feels that it is not easy to engage with stakeholders and is glad to have had multiple opportunities to do so during her time in SUTD.



Nur Farizah Bint Muhammad Segar
Bachelor of Engineering in Engineering Product Development

Farizah joined ST Engineering as an engineer after she graduated. She had previously interned at ST Engineering during her second year at SUTD and even initiated her Capstone (final year) project with them.

At ST Engineering, Farizah designs new products for the marine sector and fabricates several mechanical components. Farizah will usually go through the ideation process, reviews and analysis before fabrication, which mirrors the same approach when undertaking projects in SUTD. The main difference is the scale of these projects, where more factors must be considered before producing an ideal solution.

Like her Capstone group which comprised classmates with different expertise, Farizah's job also involves working with electrical and software engineers. Overall, she feels the SUTD curriculum had been beneficial in helping her ease into the transition from school to the industry as she had the opportunity to engage with people from various backgrounds while working on multiple design projects.

During her time in SUTD, Farizah was active in the Volleyball and Rotaract clubs. She was the Team Leader for Project Radiate 360 2019 Overseas Community Involvement Programme (OCIP) where she and her team went on a two-week project at the Tra-Vinch province of South Vietnam. For Farizah, leading a team of 24 members on the OCIP trip was indeed a challenge. As the leader, her communication skills strengthened as she had to liaise with the partnering organisation overseas to understand their needs. Interacting with members from various backgrounds and personalities during the trip also developed her people skills and she felt that it contributed to her feeling more comfortable with conversing and working with her colleagues at the workplace now. Farizah's key takeaway from the OCIP project was not to be afraid to take risks, because mistakes are valuable learning opportunities that help one grow as individuals.

While in ST Engineering, Farizah continues to expand her sphere of knowledge even as she undertakes more projects, and she hopes to be able to create more products for the advancement of the world.



Vivian Lai
Bachelor of Engineering in Engineering Systems and Design

Vivian is currently working as a product planner in Motorola Solutions Pte Ltd. She was attracted to joining this company due to its mission statement, "Helping People Be Their Best In The Moments That Matter", making her feel that she is a part of an organisation that creates products to impact lives.

Vivian's daily work involves liaising with various stakeholders, overseeing and strategising on a macro level, and making decisions to enable successful launches of products into the Asia-Pacific market. SUTD had equipped Vivian with both hard (data analytics) and soft (communication and leadership) skills which enable her to analyse and make informed decisions as well as build good relationships with her colleagues. The ample project management opportunities in SUTD also served as good educational experiences for her as she learnt to work with many different types of people, a useful skill for her current role. Furthermore, SUTD also taught her to be resourceful in searching for her own answers, especially during the circuit breaker period, when she had to work from home.

Going forward, Vivian hopes to have the opportunity to work overseas and she feels that working in a multi-national company like Motorola could possibly make this wish come true.



Christopher Michael Wicks
Master of Architecture

Christopher currently works as an Architectural Associate in the Aviation department at Surbana Jurong. His main projects are designing buildings related to Changi Airport Terminal 5.

Graduating from the Architecture and Sustainable Design pillar has equipped Christopher with the know-how to use design software that help him with his architecture-related work. He also picked up PhotoShop as an undergraduate, and apart from using it for diagrams and renders required for his school work, he felt it has been a crucial skill in enabling his side hobby, meme making, too. SUTD's strong emphasis on "maker culture" also left a deep impact on him as he felt he could produce any prototype he could think of in the Fabrication Lab while on campus. Hence, he decided to purchase his own 3D printer and laser engraving machine after he started work.

This "maker culture" and design skills would prove useful, along with his 3D printer during the COVID-19 period. His parents and friends had sent him a web link of someone 3D printing ear guards for healthcare workers overseas. Since he had the right tools, Christopher decided to volunteer to 3D print a few ear guards as well. He tested and adjusted the ear guard design for a better fit and started giving out these ear guards.

Working with his fellow batch-mate, SUTD alumnus Kendrick Tay, the two set up a Facebook group "SG Makers Against COVID-19" to gather people who were keen to help healthcare workers during the pandemic. The group is currently helping to print these ear guards for several local hospitals and healthcare organisations.

Going forward, Christopher aspires to improve the architecture industry as a whole. He wants to be part of the incoming wave of new young leaders who strive to improve the industry. He feels that technology can benefit the industry and hopes to instil more of it in the architecture community. Christopher also believes that if everyone is able to learn a new skill and embrace change for the better, people will benefit from the ground up. "Everyone works more efficiently, everyone is happier, and ultimately able to have more time for themselves, which I find is a very underrated aspect in today's modern life. At the end of the day, we all want a good night's sleep".

SUTD START-UP FEATURE: NOVOCALL



Novocall's co-founders, front row from left, Jionghan Ng, Amos Choo and Huang Jing Jie

Three alumni from SUTD's Class of 2017, Huang Jing Jie, Jionghan Ng and Amos Choo, came together to found the start-up Novocall in January 2018 a few months after they graduated. Their product is a conversational sales automation software that helps companies improve lead response time, increase website conversions, and provide actionable analytics for marketing teams.

The idea came from Amos when he was interning at one of the telecom companies in Singapore. He realised that the experience most customers faced was one that would frustrate even the most patient caller – long wait times and technology that was dated, impersonal and inefficient. Amos reached out to his schoolmates and together they built a sales automation software in four months.

"With the digital transformation of work and communications well underway, Novocall presents the vision of reinvented call solutions of tomorrow, today," Huang Jing Jie, co-founder and CEO said. Today, Novocall is used across 42 countries globally, by over 2,000 businesses (including 50 in Singapore and Malaysia) in high-touch industries such as financial services, travel, real estate, and insurance.

Novocall is supported by SMU BIG and the SUTD's Entrepreneurship Centre. They have also gone through an acceleration programme with UOB-Finlab. In March this year, Novocall also announced it raised a seed investment round totalling S\$700,000. The investment will go towards the company's expansion plans to accelerate its product and customer development. While the company currently has clients in Singapore and Malaysia, there are plans to expand in the region, particularly in Indonesia and Thailand.

THE MOMENTARY MONUMENT

The Momentary Monument was unveiled on 16 February this year. Its design was led by both of us from SUTD and we spent more than half a year working on it.

Located at the foot of Blk 313 Sembawang Drive, The Momentary Monument serves as a marker to commemorate Mr Lee Kuan Yew's historic "From Mudflats to Metropolis" speech at the original site of Sree Narayana Mission on 12 September 1965. This project was awarded to our team as part of a design competition held during Singapore's Bicentennial Year 2019.



The marker portrays two figures standing back to back, one looking back at the past, and the other forward to the future.

***"Over 100 years ago, this was a mud-flat, swamp.
Today, this is a modern city. 10 years from now,
this will be a metropolis! Never fear."
- Lee Kuan Yew***

Mr Lee's speech spoke about the hard work and efforts of our forefathers who came before us and their contributions in shaping the success of Singapore today. This quote from the speech stood out to us and inspired us to translate the essence of this message into our design. The theme that most resonated with us was how each generation has a pivotal role to play in inspiring the generations that come after.

BY GOH EE YAN EION AND SIM I-EN GRACE



The marker was officially unveiled by Sembawang GRC MPs Khaw Boon Wan, Ong Ye Kung, Amrin Amin, Vikram Nair and Lim Wee Kiak.

Our marker depicts two back-to-back figures. One signifies looking to the past, and the other, to the future. The human figures, vertically dissected into parallel stainless-steel metal plates, were designed to be visually interactive, offering a 'disappearing' visual tease, depending on the observer's viewpoint. Our design scope extended to the landscape, lights, benches and walking paths around the marker. Our team has embedded the message "Never Fear" that is to be discovered only when one sits on the bench and completes the quote



Our team members are Eion Goh and Grace Sim from SUTD, Gabrielle Wong and Ahmad Nazaruddin from NUS and Matz Goh from SP.

Besides SUTD, the team consisted of friends from National University of Singapore and the Singapore Polytechnic. We came together to participate in the competition because of our mutual appreciation for the meaning behind this project and shared interest in exploring sculpture art. Through this project, we forged stronger friendships and bonds with people from different schools possessing different skill sets and learning from one another. The most memorable part of this project was in overcoming the challenges we faced while communicating with different stakeholders on our design intent and seeing the marker evolve from a concept to reality.

Images courtesy of Sembawang Town Council.

THE FOUR HORSEMEN OF THE COVID-19 PANDEMIC

It is clear that we must prioritise identifying and alleviating the conditions that made the COVID-19 pandemic possible. Even as it rages, scientists are already asking if it is more than just a virus, but rather a symptom emerging from something much deeper, a nonlinear dynamical system of coupled pathologies underlying a veneer of “progress” in an increasingly fragile, volatile, hyperconnected world.

A new article ‘Introducing the 21st Century’s New Four Horsemen of the Coronapocalypse’ by Kang Hao Cheong and Michael C. Jones published in *BioEssays* describes the convergence of four broad, but easily identifiable systemic, pathologically networked conditions, or “Four Horsemen”, that are hurtling civilisation towards potential self-destruction in which a pandemic is only one of many possible triggers. The “Four Horsemen” of overpopulation, globalisation, hyperconnectivity and increasingly limited and centralised supply chains are the broad parameters underlying the probability space of catastrophe.

“The COVID-19 pandemic has exposed critical pathologies lurking within the dynamical global system of commerce, governance, and public health,” said Assistant Professor Cheong from SUTD.

From this heuristic framework, a pandemic can metastasise into other vital domains, such as economic and geopolitical stability and other 2nd and 3rd order, multiplicative effects that could snowball into unprecedented catastrophe.

“Even if COVID-19 is not the proximal cause of global catastrophe this time, like the rogue iceberg that slashed the Titanic, it is a blow sufficiently unsettling to awaken us to the fact that we are sailing into a dangerous sea that is increasingly crowded with icebergs,” said Jones, a co-author of the article.



SUTD RESEARCH SHOWS EVIDENCE THAT BILINGUALISM DELAYS THE BRAIN'S AGEING PROCESS



The next time you have the urge to lapse into English while conversing in your other language, try not to and your brain will thank you for it.

SUTD researchers examined and found that active bilingualism – the regular balanced use of two languages and language switching – will offer protection against the brain's ageing process. The paper was published in the *Journals of Gerontology: Psychological Sciences*.

Existing literature on the effects of bilingualism on the adult brain were inconsistent and lacking in clear trends. So, the researchers from SUTD set out to explore the executive control mechanisms and context under which bilingualism can be a protective source against cognitive decline in the normal ageing process.

Executive functions are complex, higher order processes that the brain performs. These functions mainly allow people to maintain their attention by focusing on relevant information and ignoring distractors, maintain information until execution as well as motor planning.

In the study conducted in Singapore, cognitively healthy seniors aged between 60 and 84 years old who were bilingual in Chinese and English, were tasked to complete an array of computerised executive control tasks.

It was found that active usage of two languages with less frequent language switching predicted better performance in the goal maintenance and conflict monitoring aspects of executive control. This suggests that bilingualism can be a protective source against cognitive decline. More importantly, active bilingualism can be seen as a lifestyle factor that could buffer against cognitive declines associated with normal ageing.

“The effort involved in not switching between languages and ‘staying’ in the target language is more cognitively demanding than switching between languages while actively using both languages. Our study shows that the seniors developed more efficient neural organisation at brain regions related to language control, which also overlap with areas involved in executive control,” explained principal investigator Associate Professor Yow Wei Quin from SUTD.



FUSION - THE POTENTIAL OF TECHNOLOGY AND DESIGN

Office of Marketing & Communications, SUTD
8 Somapah Road, #06-301
Building 3 Level 6, Singapore 487372
T: +65 6303 6600
W: www.sutd.edu.sg/newsletter

  SUTDsingapore

  SUTDsg

