

SUMMER TIMES

STUDENTS' RECOLLECTIONS OF AN SUTD SUMMER 2016



SINGAPORE UNIVERSITY OF
TECHNOLOGY AND DESIGN

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ISSUE 4



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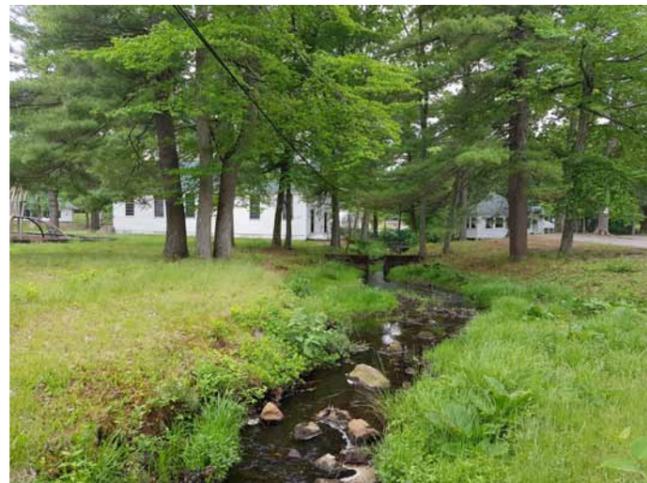


GLOBAL LEADERSHIP PROGRAMME

Every summer, our students have the opportunity to apply for an exchange to the Massachusetts Institute of Technology (MIT), Stanford University and the University of California, Berkeley under the Global Leadership Programme (GLP).

ME AND THE WORLD

by Zanette Cheng



EXPOSURE TO DIFFERENT PEOPLE

For this year's Global Leadership Programme (GLP), we had 11 MIT students joining 34 of us from SUTD. In Pi Beta Phi, our dorm for the summer, we had at least five nationalities living together. It was a crazy exchange of cultures, different lifestyles and yummy food! Despite our differences, we had a blast bonding with the MIT students.

BE A LEADER

During our first week at GLP, we went through Leadershape which taught us numerous lessons on leadership. There were family clusters - small groups we could open up to. There were games that tested our skills to lead, think and communicate. We went through real world problems, like being trapped during an earthquake, to test our teamwork skills.

GREEN CITIES

Boston and Cambridge have put in place environmentally friendly measures. Plastic bag usage is reduced by implementing charges. There are bicycle tracks on the roads and a well-utilised bicycle sharing system. State laws are established to give way to pedestrians at all times and drivers respect cyclists on the road. It has never been better without a car in USA!

EMBRACE THE ARTS

GLP allowed some of us to have an opportunity to experience something we had never experienced before - the arts. We attended architecture drawing and ceramics classes and took a Humanities, Arts and Social Sciences module on globalisation. Our architecture drawing class brought us around the MIT campus, ceramics class allowed us to have a greater understanding of pottery, while the evolution of globalisation opened our eyes to the history of the world.

BOAT BUILDING

We went through a week of lessons on CAD, boat theories and machining. We thought that we were ready to make a boat but man, we were wrong. Throughout the process, we realised that we needed to expand our skill set as we went wild with our designs - amphibian, fish-shaped and more!

After all the blood, sweat and tears, all our boats floated and sped on race day.

BACK TO THE WILD

We had the opportunity to experience a 4-day wilderness camp. It was a much needed break from our intense boat building and planning. Our campsite was away from the mainland. Having surrendered our phones, we were on our own, disconnected from the world. Kayaking was our only mode of transportation.

We had to solve engineering challenges and manage our limited resources. Our camp instructors also taught us how to read the tides, identify tidal pool creatures and to 'leave nothing behind'. Yes, we even had to bring back our waste!

ADVENTURES

Beyond boat building, we went on road trips. Each place that we visited had distinct cultures and people. We went to places like Salem (witches and spooky) and Rockport (a beach town full of joy and happiness). Road trips were definitely eye-openers - nothing beats being there in person.

GLP is all about discovering yourself, making friends and learning new skills. Accept feedback and work on self-improvement. Let imagination be your only limit to designing. Don't stay in your comfort bubble - be daring, be adventurous, be a leader of tomorrow.

That was what I learnt from GLP. I would like to end this with what Bostonians would say about good things - wicked good!



COUGAR X: THE FASTEST BOAT

by Parekh Shalv Amit

For the second year, participants of GLP designed and fabricated electric boats. This year, our designs were more robust and daring. We didn't let time constrain our creativity and came up with eight unique boat designs that were raced in the Charles River.



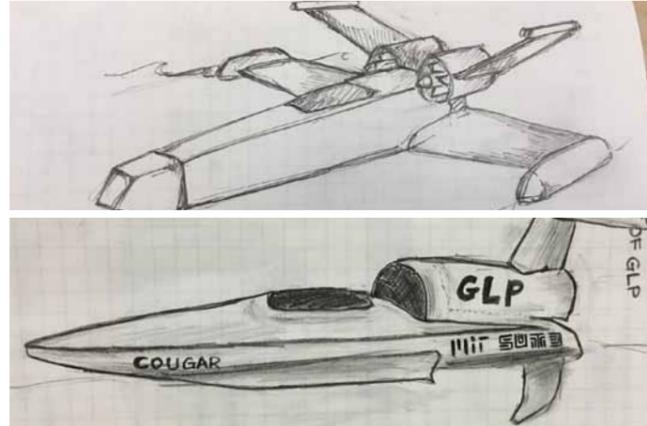
MY TEAM

After dividing into teams, the brainstorming process began. Extensive research had to be done to understand the physics behind the boats. Theory doesn't always translate well to practical work. We may not have any idea about building a boat but getting our boats ship-shape and ready on the Charles was our top priority.



CAD AND PROTOTYPING

The conceptual drawings had to be modelled into Solidworks and Rhino for further calculations and analysis. After finishing and finalising the CAD, we started to construct a scaled down prototype with cardboard and foam.



SKETCHING

After much sketching, discussion and sleepless nights, we came together as a group to share our ideas. Our group's mission statement was to build the fastest boat that would be stable as well as making sure that the driver will be kept dry. In the end, my team decided that we wanted a kayak-shaped X-wing design.



FABRICATING

When we were satisfied with our prototype model, we began the arduous process of fabrication. First, we had to cut all the wood pieces for the main hull. We drilled holes to fasten the zip ties to secure its shape. We used a wooden jig to ensure that we obtain our desired shape, then applied three layers of fiberglass and epoxy to strengthen our hull.



TESTING

We had been scheduled for several tests throughout our design process to ensure a consistent progress. We were also scheduled for a float test to ensure that our boat could remain stable. Taking into account the weight of our drivetrain, batteries and driver, we tested the boat on a 15-degree incline, in both roll and pitch.

Much to our joy, practical tests of our boat in the water matched with our theoretical calculations.



RACE DAY

Our boat started to take shape when the integration phase began. We had to deal with many unforeseen circumstances as we began to assemble components onto the hull. Once ready, CougarX was fully furnished and ready to roar on the Charles. The challenges included a tight slalom course, followed by a 100m sprint to the finish. Our streamlined design allowed the CougarX to cross the finishing line in a record 1 minute 57 seconds, securing us the first place.



Unlike our previous design experiences, the GLP boat building experience had a steep learning curve. My teammates contributed wholeheartedly to this project, and had many late nights at the SUTD-MIT International Design Centre. The success of my team could be credited to our team dynamics. We divided the workload and specialised in different areas while keeping each other updated on the work progress. With open discussions and constructive feedback sessions, we managed to help one another improve our design. We were confident of our boat design and it made us proud by emerging as champion. A splendid journey indeed!

DISCOVERING ARCHITECTURE @ MIT

by Jonathan Ng

MIT is well known for all its innovative technologies. But did you know that its campus ground is also home to dozens of highly exciting architectural landmarks? I took the opportunity to explore the campus and was inspired by the various landmarks before my upcoming Architecture and Sustainable Design pillar term. **These are some of my favourites:**



MIT CHAPEL BY EERO SAARINEN

The reflections from the water surrounding the MIT chapel's exterior bounce up and into its interior through hidden windows, casting beautiful light and shadow on its inner walls – a perfect hideout for quiet reflection and solitude.



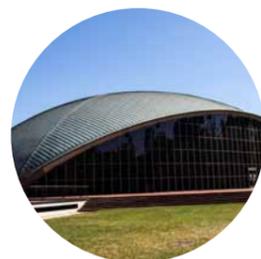
RAY AND MARIA STATA CENTER BY FRANK GEHRY

The Ray and Maria Stata Center's unique slanting walls and bright, shiny material claddings give it an air of dynamism and serve as a symbol of the daring and inspiring research that happens within it.



SIMMONS HALL BY STEVEN HOLL

Holl designed the Simmons Hall to behave like a sponge, punctuating the dorm with a multitude of holes to allow for light and air to pass through the students' living quarters, providing an excellent environment for all residents to work, play and mingle.



KRESGE AUDITORIUM BY EERO SAARINEN

The Auditorium's roof is a thin shell structure made of reinforced concrete, and one of the first of its kind in the United States. The roof was considered extremely innovative for its time (1955), and highly befitting of MIT's focus on technology and innovation.



BAKER HOUSE BY ALVAR AALTO

Lined along the Charles River, the Baker House by Alvar Aalto has an undulating curved shape to maximise the number of rooms with an unblocked view of Boston's famous Charles River.

“ Seeing these buildings in person and experiencing the beautiful qualities of the space was not only an amazing and inspiring experience but a reminder that there can be great architecture all around, even within a school's campus. Always stay curious and be on the lookout for good architecture that can ultimately influence your future designs. ”

SENSING CREATIVITY

by Marcus Quek

Marcus Quek
12 July 2016
MIT Sailing Pavilion

“FEELS ABOUT RIGHT”

The studio door was wide open; it greeted me as if I was already an expert. I've barely touched clay, let alone throw it. I was doubtful I could make something in four lessons when it took others one full semester. But Jay Pastorello believed in us.

“If there was ever a disaster and the future generation might find your pottery”,

he flashed a smile,

“who knows, they'll look at the signature and your name will go down in history.”

Throwing clay on the wheel is like training a dog. Handle it for too long, it loses its patience and turns against you; handle it too short and it's an untrained, floppy poodle. But with diligent practice, it becomes second nature to know when to stop. Obsessing over details and pumping extra oomph can sometimes turn the project away from the original goal. The journey to expertise entails not just the passion to move forward, but the rationality of knowing when to stop, pause and reflect. I did not have an end product in mind, but instead, wanted to try and learn different things. The beauty of this approach is the freedom to experiment with new ideas. I placed my work on the bisque shelf, and grinned at the unnecessary but fun details I have added. Jay turned to me,

“Looks like we've got some keepers!”

Marcus Quek
19 July 2016
Stata, MIT

“TELL YOUR STORY”

The blank newsprint on my lap taunted me. I would have thought my forte in drawing would help, but the Stata - a series of buildings with bizarre shapes and forms - was too convoluted to translate into paper. Two of the buildings were practically mirrors that dispersed light into random places. Whoever thought it was possible to sketch the Stata must be out of their mind! Yet, Nathan Wilson thought it was a wonderful subject.

The instructor explained the merits of capturing impressions, or the 'energy' of the picture with quick and loose strokes (without compromising perspective). With that understanding, the Stata I drew radiated a certain energy - each curve, corner and out-of-place edge felt personal, familiar and real. It dawned upon me that I should not just replicate what already exists, but draw it with a style I believe in. Technical mastery is not enough. It should be supplemented with a personal flair and target what people really care about, in order to design something truly extraordinary. Right off the bat, the drawings that received the most praises were those that captivated the audience with a story. These stories ranged from adventure chronicles at the Charles River, to the pleasant, casual slice-of-life at Massachusetts Avenue. Even negative spaces that conveyed skylines made people wonder what was so nostalgic about those forms. Art is not a mystery; it is a way for one to express themselves through stories.

So, what is your story?

TOP 5 HIDDEN DELICACIES WORTH HUNTING FOR IN AMERICA

by Jayne Lim

Here lies the secrets beyond the conventional burgers and fries. See what is in line for a unique GLP gastronomic experience!

1 NEW YORK CITY (NYC)

Situated at Lower Manhattan in NYC is Eileen's Special Cheesecake. Voted #1 in NYC in 2015, this humble bakery serves palm-sized delicate cheesecakes of numerous flavours. Their signature salted caramel and chocolate cheesecakes are a must to try!



2 BOSTON: LITTLE ITALY

The best Italian food in Boston! Right smack in Boston's North End's Little Italy, it has the longest queue, comparable to Mike's Pastry. Giacomo's Ristorante has an impeccable selection of seafood and unconventional pasta sauces which leaves you spoilt for choice. The rustic charm is definitely worth your wait and money!



3 BOSTON LOBSTER

Freshest lobster around! If you've never seen a lobster larger than 10-inch, James Hook & Co's the place! A mouth-watering delight; the sweetness lingers in your mouth after each bite. If you are a seafood fanatic, you can opt for their freshly caught Halibut, Haddock fish and crab as well.



4 ASIAN DELIGHTS

Having sudden cravings for Asian food? The closest ramen place you should visit is Hokkaido Ramen Santouka which is just a short walk away from the Harvard Bridge. Walk further down to Chinatown and you'll spot the famous Pho Pasteur which serves XL sized beef noodle soup and its authenticity is guaranteed.



5 PROVINCE TOWN: CAPE COD

On your day trip to Provincetown, you'll come across a restaurant named, Surf Club. It serves seafood at a wide range of prices so you do not have to spend excessively to enjoy luxurious seafood. The Cape Cod Reuben (Haddock), Hot Lobster Roll and Lobster Bisque are one of the few well-liked dishes.



A MEMORABLE EXCHANGE IN BERKELEY

by Amos Ho

LOOKING BACK

The summer programme offers over 600 interesting courses for me to choose from. Some of the interesting courses pertain to urban planning, astronomy, music and political science. This exchange programme has allowed me to engage in a variety of cross-disciplinary subjects. In addition, I am really grateful to my Residential Advisors for organising weekly events which made our stay more exciting. Just imagine the number of people I have met in just eight weeks!

CULTURE

I felt that Berkeley has a diversity of cultures and it was useful to be exposed to different walks of life. Students in this programme have a wonderful opportunity to experience a great variety of cultures by engaging with students of different nationalities and values.

MOST VIVID MEMORIES

My most vivid memories of Berkeley have to do with spending time with my non-Singaporean groupmates. Besides doing work, we shared a lot about ourselves and eventually ended up going out together. It has been interesting to hear their stories and how they live their lives.

BERKELEY AND SUTD

There are two concepts that I would like to highlight. One of which is the student to instructor ratio. It is very similar to that at SUTD. The small ratio allowed me to interact more with the instructors and they were willing to help the students with whatever problems they encountered. The other concept was group projects, which requires us to work, fail, try and eventually develop a successful solution together. These concepts affirmed my learning experience at SUTD.



HELPING WITH MY GOALS

One of the courses that I took, Zero Energy Building, would help me get closer to achieving my goal. As an engineer, I hope to achieve a more efficient use of resources and reduce the impact of harmful waste produced by buildings on the environment.

TIPS!

- Familiarise yourself with the syllabus and prerequisites before joining the classes. This will allow you to have an understanding of the course content and what to expect from it. You will also find out if you've already fulfilled the prerequisites to take the course that you want.
- Be more outspoken during class. This would definitely make the class more enjoyable.
- Remember 'Berkeley time' - classes start 10 minutes after the actual starting time. It's a brilliant way to ensure that students get to their classes on time! Surprisingly, all the classes always end on time.
- Choose a class that includes field trips as part of the programme. It would create more opportunities to interact with classmates and understand more about the American culture.
- Exercise emotional balance. It will be really hard for you to part on the last day of your exchange!
- Finally, plan the weekend trips in the US before leaving Singapore. It would help in saving lots of time and money. There are plenty of exciting things to do in the United States!



MY S.T.A.N.F.O.R.D REEL

Stanford. Tough Choices. Anxieties. Not the same. Friends. Out exploring. Reflecting. 'Dos', when you go. by Clarissa Leong

STANFORD

It's a wonderland located in Silicon Valley, equipped with many facilities and has Instagram-able scenery.

TOUGH CHOICES

I had a hard time choosing my courses from the many offered. After much thought and consultations with professors, I chose two Computer Science modules. One module was an extension of SUTD's Digital World module, the other focused on website development and design. I wanted to study something new, and satisfy my hunger after taking the Digital World module.

ANXIETIES

My mind was wild with possibilities of terrorist attacks, aviation disasters, homesickness, etc. What I chose to do was to accept their existence and take a leap of faith with precautions. On hindsight, none of those worries came true, so I made the most out of this opportunity with no regrets!

NOT THE SAME

Taken exams with no invigilator? That was how much emphasis they placed on the Honour Code in Stanford. Interactive grading was really useful too. Your section leader (an overqualified teaching assistant who can conduct tutorials) would review your submitted codes with you, and show you what you did well and could improve on. This helped me produce better quality codes with each submission, especially in terms of the style and efficiency of the code.



FRIENDS

There were many international students visiting over the summer. We interacted through meals, classes and hall activities. We made new friends, and learnt more about their cultures. One night, a few of us discovered a great spot to watch meteors, and caught sight of two!

OUT EXPLORING

I studied hard on weekdays and spent my weekends exploring California to maximise my time there. I've visited Yosemite, Alcatraz and San Francisco for sightseeing and shopping and appreciated their rich history. Service at restaurants and cafes was also an experience not to be missed.

REFLECTING

I had a great summer learning, both in and out of class. I've learnt more about myself, better time management and being independent. I gained a better appreciation for design through my visits to museums and companies, and built upon what I learnt in Digital World. Saying goodbye was really tough, but I have memories that will last a lifetime.

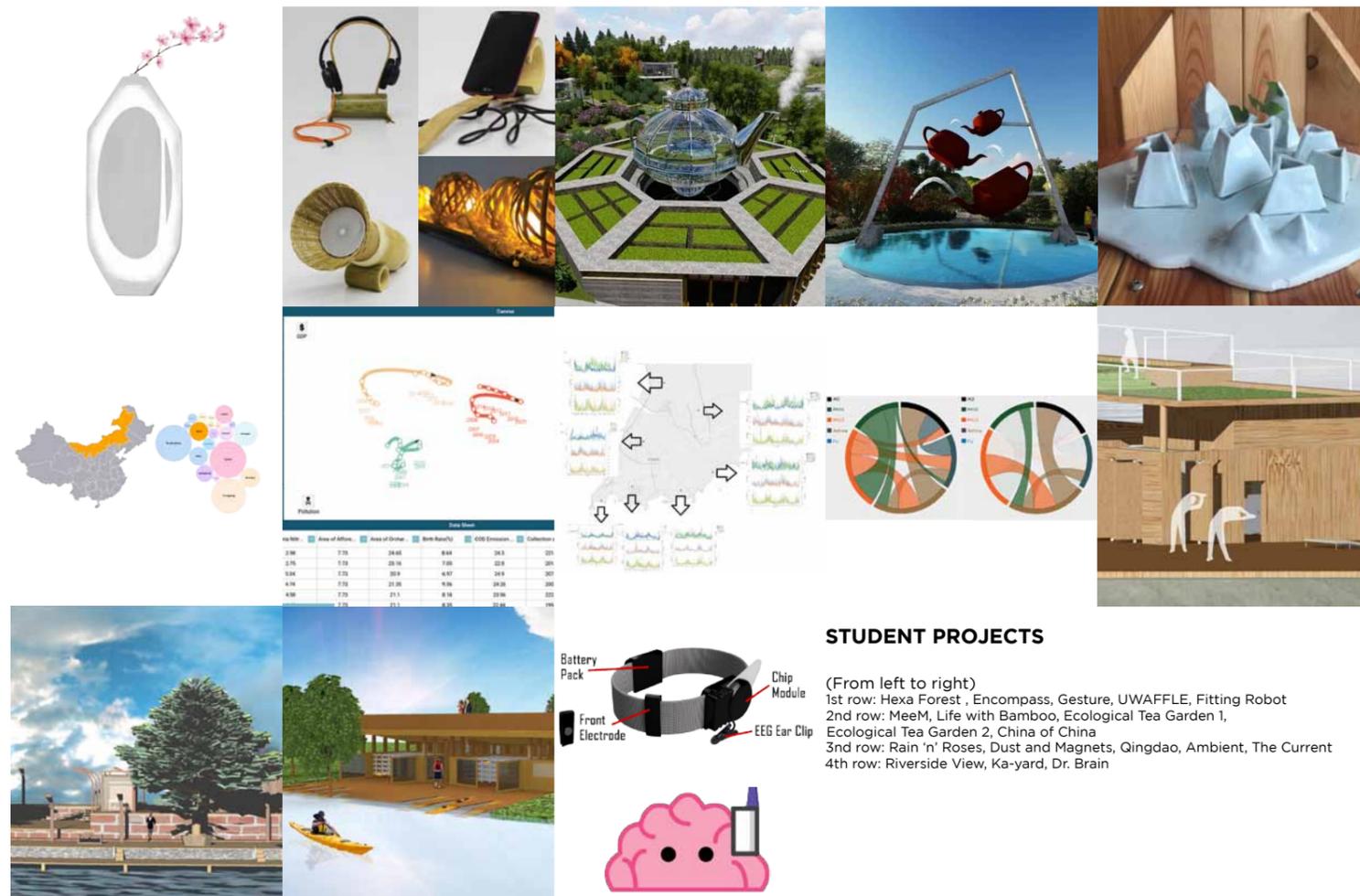
'DOS', WHEN YOU GO

Learn to manage your time well, be open to learning, and be friendly to all you meet. Work hard, play hard. Think the best of others. Ask questions, be curious, wonder and wander.



ASIAN LEADERSHIP PROGRAMME

SUTD's collaboration with Zhejiang University (ZJU) includes a 13-week summer exchange where students work on hands-on projects revolving around a number of design themes, with interaction and engagement activities in Hangzhou. Students will also have a chance to interact with companies. Every year, our students have the opportunity to apply for this fully funded programme. In May 2016, 93 selected students headed to ZJU for the Asian Leadership Programme (ALP).



STUDENT PROJECTS
 (From left to right)
 1st row: Hexa Forest, Encompass, Gesture, UWAFFLE, Fitting Robot
 2nd row: MeeM, Life with Bamboo, Ecological Tea Garden 1, Ecological Tea Garden 2, China of China
 3rd row: Rain 'n' Roses, Dust and Magnets, Qingdao, Ambient, The Current
 4th row: Riverside View, Ka-yard, Dr. Brain

11 ALP THEMES

A NEW HOME AWAY FROM HOME

by Natasha Yeo

I would like to describe my ALP experience as the biggest adventure of my life. As sweeping as it sounds, being away from everything that my life revolved around (family, home, and friends) and being in an environment that is unfamiliar to me in every way has helped me broaden my mind to be exposed to conditions and cultures different from Singapore. Unlike normal overseas vacations, one really great advantage of this exchange is that there was sufficient time to learn, understand and appreciate a totally new culture. Overall, this trip has given me an opportunity to find warmth in a foreign place, in the most unexpected ways (for example, the comfort of street food and friendliness of the locals).

试衣机器人 Fitting Robot

The creation of a robotic mannequin that is able to morph into various body shapes and sizes, allowing users to 'try' on outfits without being physically present.

中国瓷器 China of China

Combining traditional craft with modern design, students designed unique ceramic products that aimed to provide better understanding and appreciation of ceramics and its traditional making process.

办公森林 Office Forest

Office Forest aims to create an enjoyable office experience by encouraging employees to grow plants and implementing non-office related games that improve workplace environment and relationships.

摆脱冬季抑郁 Recover from SAD

A theme specifically focused on patients with winter "Seasonal Affective Disorder" (SAD) and sought to improve their recovery process with the use of better designed treatment lamps.

环境数据可视化 Visualisation of Environmental Data

Students analysed large environmental data from Alibaba and official sources. Thereafter, they developed web-based visualisation systems or applications that display data analysis results relating to pollutants and environmental issues in a friendlier way.

屏幕之外 Screens and Beyond

This theme focused on developing an application/software that allows users to physically interact with their electronic devices. Students explored the possibilities of utilising the compass in phones and tablets for file sharing.

杉竹 Life with Bamboo

Intrigued by China's rich culture and history, students designed a range of exquisite bamboo-related lifestyle products to spread the awareness of bamboo culture, promote bamboo trade, and engineer a sustainable future for it.

中国城市与建筑环境 Chinese Urban and Architectural Environment

Students worked on redesigning the current Zhejiang University Water Sports Centre to incorporate a wider and more holistic range of facilities to better users' experience. They were also tasked to develop green and sustainable solutions for the newly designed centre.

音乐情感 Music Emotion

Music Emotion connects people through music by designing products or applications that let users create music together and learn more about the music culture of the places they are travelling to.

生态茶园 Ecological Tea Garden

Students were tasked to design an Ecological Tea Garden that integrated natural and cultural landscapes. The Garden seeks to immerse people living in the city with the charm of traditional Chinese tea culture.

脑机接口 Brain Machine Interface

Devised for primary school teachers and students, "Dr. Brain" is a student-attention monitoring system that utilises Electroencephalography (EEG) technology to collect and use data to evaluate teaching methods.

SUMMER IN NATURE

One thing I did not expect myself to enjoy was being surrounded by nature. Everywhere we travelled around China, there were mountains and greenery. Even in cities like Hangzhou where we were for ALP, there were water bodies flowing throughout the city. This is indeed a very different but pleasant change of environment, seeing willow trees swaying over streams while doing work on campus. Apart from that, it was really an experience seeing different landscapes such as tea and rice plantations, climbing mountains and visiting various places of interest. The most memorable moments for me were chasing sunsets, sunrises and stars on the outskirts of Hangzhou.

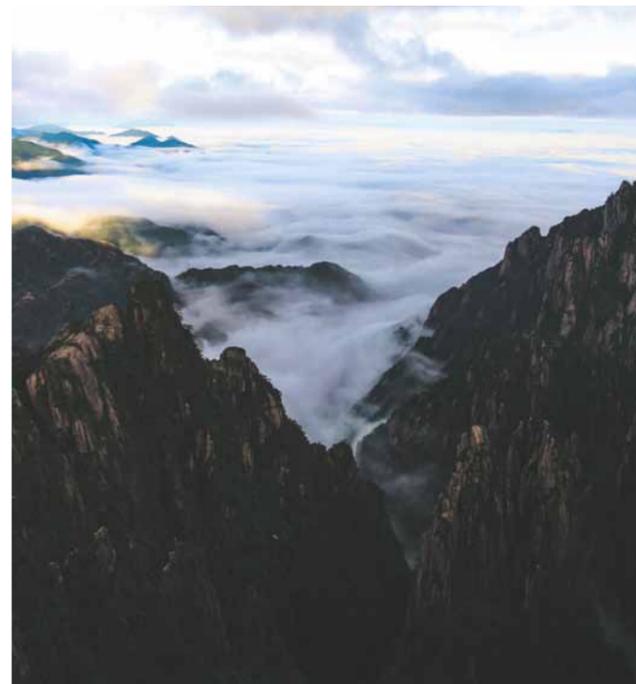
It was a really good experience trekking and seeing all the beautiful scenery that you would not find in Singapore. Unlike Singapore where "what should we do today?" mostly result in going to town or café hopping, our weekends in China were filled with travelling out to hike or explore the landscapes. I considered this to be one of the best takeaways from this trip as it was a really new and exciting hobby to have.





BECOMING INDEPENDENT

Being away from home for so long was something new for me as well as everyone on this trip. Homesickness kicked in periodically and this reminded me to be thankful for the times I took for granted when my family would be there to support me during tough times in school. I also had to learn how to manage my expenditure. Planning for trips within China was difficult as I am not very good with the Chinese terms and names of places. ALP was a platform where you start to pick up more life skills through such experiences.



ECOLOGICAL TEA GARDEN

by Seah Wen Zhen

Tea has almost five thousand years of history in China. Throughout history, tea culture has been a significant part of China's identity. Aside from its culture, tea drinking has become an essential part of daily life, in China and worldwide. However, the increasing popularity of bottled tea has undermined the rich tradition of tea.

TASK ASSIGNED

As Hangzhou is famous for its Long Jing green tea, we were tasked to virtually design a tea garden that promotes sustainable development of tea production and culture in China. Our tea garden aims to affirm tea culture and its importance to China's society while integrating its rich culture with the natural landscape.



A TEA GARDEN IN 90 DAYS

The sun rises in Hangzhou at about five am. We would know because we would still be up designing our tea garden. Having little to no experience in landscape architecture, we had a lot to learn. We visited parks to gain inspiration and to learn about landscaping. We also had to learn many software such as SketchUp, AutoCAD, Adobe Photoshop and Lumion within 90 days. Did you know you could 'Taobao' SketchUp models for one yuan?

The toughest part for me was definitely using Lumion. Within our group of 12, only two of our laptops could handle the Lumion software. Fortunately, our mentor and teaching assistant lent us their computers that had a good enough graphics card. That said, with tight deadlines and needing to plant tree by tree in Lumion, sharing a computer with two others was hard. To make things worse, rendering a 30-second video of our tea garden could take up to three hours. This was also the reason why some of us had to be awake during the wee



hours to catch the sunrise.

Our final design incorporated infrastructure and tea-related activities to give visitors a full experience of drinking and preparing tea. This educates visitors on the importance of tea. Additionally, installations within our garden provide a serene atmosphere, allowing visitors to enjoy the landscape.

KEY TAKEAWAYS

Besides the cheap and good food in Hangzhou, another key takeaway would definitely be using Lumion. It was absolutely amazing how realistic the final renders were and it is as if you are in the garden itself. This project has provided me with the necessary thinking skills on how to merge man-made structures with the natural environment. It has not only taught me that landscape architecture is more than just beautification, but also about creating a public space while preserving the environment. If you ask any of the 93 of us whether we enjoyed ALP, I am highly confident that the answer will be 'Yes.'

A DEEP DIVE INTO DIRTY DATA

by Basil Yap

INTRODUCTION TO MISSION IMPOSSIBLE

Visualisation of Environmental Data sounded straightforward a few weeks prior to arriving in China, but little did we know the full extent of our task. Unlike the conventional “learn-and-make” exchange programme, our course structure centred around participation in a data visualisation competition hosted by the Alibaba Group, in collaboration with China’s Public Meteorological Service Centre. The competition consisted of over 6000 groups from all over China, from undergraduates to researchers, from well-reputed universities to independents.

ROCKY MONTAGE OF DATA VISUALISATION

As the deadline for our competition entry coincided with the end of ALP, our classes were intensive and condensed for accelerated learning. For the first month, we had one to two full-day classes every week. The classes focused on the fundamentals, design thinking and good design practices in professional data visualisation.

In our own time, we focused on reinforcing what we learnt in class with our own technical abilities. Most of us learnt various programming languages to apply the theory we gained in class. This was done purely of our own volition, as many of us anticipated that programming would play a big role in our competition entry (we were right!). I myself took a number of online courses on R (a programming language that specialises in data manipulation and statistical analysis) during my free time.

LEARNING ON THE DEEP END

After the first month, we shifted gears from a classroom setting to a full blown competition. The class was split into four teams and we no longer had weekly classes. In its place, we were given weekly assignments and consultation hours to assess our progress.

Our assignments consisted of environmental datasets from the competition and a single instruction, visualise the data however you wish. With only a month of training to guide us, the first few attempts at the assignments proved to be slow and difficult. But with constant attempts, failure proved to be the mother of success and by interacting directly with the data, we were able to learn faster than any class could have taught us. Our consultation was primarily done with a teaching assistant, Summer. Her critiques were objective and uncompromising. With her help, we were able to iterate our application rapidly.

ACHIEVING OUR GOLD

For the competition, our group focused on creating an interactive web application for researchers and the general public. Our application was able to pull real-time data from weather stations, track rainfall, wind data and various water pollution levels in both the atmosphere and rivers spanning the whole of China. We were able to utilise statistical models to simplify trends and provide potential correlations between rainfall and water pollution (which was the hypothesis of our competition entry).

Our competition entry, dubbed “Rain n’ Roses” (because of our use of rain data and rose charts in our application), was well received and

A NEW PERSPECTIVE TO THE WAY WE SEE BUILDINGS

by Ng Jin Xi



we were invited to a 3-day data visualisation seminar conducted by Alibaba. The seminar included a day out in Alibaba Group's main headquarters, as well as a meal treat and an on-site critique of our projects. Alibaba's headquarters was more like a school campus than a workplace, the place was informal and had many amenities for its employees, I could only describe it as the "Google of China". In addition to the seminar, our group was able to get into the semi-finals. Since we were no longer in China at this point, we continued our project in Singapore and kept in contact with our advisors over the internet. (Hopefully, we will get gold!)

FAMILY IN A FACULTY

As our theme mentor (Professor Chen Wei) is the head of a department, we interacted quite closely with many researchers that work under him. The State Key Lab of CAD&CG had about 20 members and all of whom were very welcoming and knowledgeable in the field of data analysis and data visualisation. Every Friday, we would meet in the lab and end work early to have dinner together. They even joined us in a few excursions and showed us around Hangzhou.



Before heading for ALP, I was given my theme of choice - Chinese Urban and Architectural Environment. As its name suggests, it is an architecture-based course aimed at giving us new insights on different architectural spaces in China. We had weekly site visits to a wide variety of places in and around Hangzhou, including villages, art schools as well as the Central Business District. Besides that, my theme of 11 students were also split into three groups and given the task of designing ZJU's very own water sports centre.

Within the given eight weeks, we went through the entire design process, from the initial site visit, conceptualisation, to finally building a model of our designs. Since most of us were new to architecture, we had the task of picking up new software alongside designing the actual building. An interesting point about the site visit was that we were given the opportunity to gain first-hand experience on how the current space is used by students during their classes.

This allowed us to identify key features to include in our design. In fact, this was also a rare experience for us to explore ZJU from a different perspective - through its grand canal. Our professor, 吴老师 who brought us through the different phases of architectural design, gave us constructive criticism that not only challenged our design of the water sports centre, but also the way we look at architecture and buildings - its components, practicality and user interaction.

Witnessing some of the buildings our professor designed in real life was really inspiring. They were a reflection of the amount of thought behind things that we normally overlook, but were variations that curate our experiences in spaces - height of each wall, angle of slant, materials used, etc. To end off, ALP was definitely an eye-opening experience that shed new light on how I view architectural spaces around us.

SUMMER IN TOKYO

by Ng Xing Ling

“Ceaselessly the river flows, and yet the water is never the same, while in the still pools the shifting foam gathers and is gone, never staying for a moment. Even so is man and his habitation.”

- Hōjōki by Kamo no Chōmei, 1212 (translated by A.L. Sadler, 1928 in The Ten Foot Square Hut)



Travelling alone for the first time, I felt rather lonely and frightened at first, but now that I'm writing this, I know it will be a painful goodbye when I leave. I am grateful for the opportunity to work at junya. ishigami+associates this summer even though it was physically and mentally challenging. Working an average of 12 hours a day, six days a week, with countless overnights in the office, the welfare was definitely not the best as compared to other firms back in Singapore. However, these tough times made the best memories. The interns in the company came from many parts of the world such as China, U.S.A, Hong Kong, Thailand, Australia, Canada, Russia, Spain and India. We were assigned to different projects based on our skills and countries. For the first half of my internship, I was conversing in Mandarin most of the time as I was working with interns from China and Hong Kong. Also, most of the staff speak English so I had no major issue in communication despite my inability to speak Japanese. I had the chance to be involved in many small to large scale projects ranging from commissions to competitions. My work involved physical model-making, 3D model-making using Rhinoceros and graphics representation using Photoshop.

In my opinion, the main difference between an architecture firm in Japan and in Singapore would be the use and representation of physical models. When one steps into Ishigami-san's office, he would be greeted by the sight of many hand-cut white models sprawled all over the makeshift tables. These models, even the intermediate study models, are to be carefully handled (no models are allowed to be thrown away!). Physical models are often made by hand, contrary to the heavy reliance on machinery back in school. Models are used to start discussions or to re-evaluate ideas, which I found to be particularly useful as it is much easier to imagine the space with a physical model right in front of you.



Surviving in busy, stressful Tokyo would be really tough if I had not made some really great friends in the office. Some Sundays were spent together, going for exhibitions and hunting down buildings done by famous architects. After all, Tokyo is full of interesting buildings and one can never get tired of Japanese architecture.

The fast-paced crowd; the muted conversations; the white suits; the black ties; the solemn faces; the transparent umbrellas; the red shrines; the colourful kimonos; the soft laughter; the courteous bows - I am certain a part of me will be left in Tokyo.



INTERNSHIPS

With over 600 industry partners pledging internships, it is a vote of confidence that the SUTD education meets industry challenges and is what the world needs right now. These local and overseas internship opportunities equip our students with the knowledge and hands-on skills required to prepare and help them make informed decisions about their future.



INTERNING AT MONDELÉZ INTERNATIONAL

by Patrick Khoo

This summer, I had the great opportunity to intern at Mondelez International. One of the biggest Fast Moving Consumer Goods (FMCG) companies in the world, Mondelez International is a global snacking powerhouse and the world's second largest confectionery maker. In my 16 weeks at the company, I was attached to the Research, Development & Quality (RDQ) function where I was assigned to the packaging team for Mondelez International's Gum and Candy products. The team that I was in consisted of mainly packaging technologists that covered the Asia Pacific portfolio for Mondelez International's Gum and Candy range.



PACKAGING MYTHS - WHAT GOES ON BEHIND THE SCENES

Entering the internship as a student with no prior work experience in the FMCG industry, my understanding of packaging was completely uninformed. Most of us think that packaging is just a film or protective layer that covers the products. I started the internship thinking the same, but I was sorely mistaken. I was introduced to many technical aspects of packaging. One of the more interesting things I learned was how laminating different film materials together can affect a product's shelf life. I was also involved in the selection and testing of these materials.

LEARNING THE ROLE OF A PACK TECH

One of the greatest lessons I learnt this summer was the experience of working in a large international company like Mondelez International with many heritage brands. The diversity among employees at Mondelez International allowed me to gain an understanding of the different ways people work, and that some roles have more than one discipline. For instance, packaging technologists do not only work with the product

developers to test the shelf life of the snacks. Since the packaging affects the consumers, other functions come into play: Marketing, Legal, Procurement, Finance, Business Development, Supply Chain, Manufacturing, and so on.



THE MONDELÉZ INTERNATIONAL CULTURE

The culture at Mondelez International is like no other. The moment I commenced my internship, I felt at home and at ease. Everyone helps each other with no questions asked. It has a culture of learning and growing together. People acknowledge that not everyone is perfect and everyone strives to make life easier for each other. I have thoroughly enjoyed my summer at Mondelez International. They certainly did not treat me as an intern but as part of their team, getting me involved with their projects when they needed my opinion. That culture has allowed me to grow and develop a different perspective of working life and an understanding that by collaborating and listening to each other, we can create a meaningful work experience.

DISCOVERING BANKING THROUGH ANALYTICS

by Cedric Yau

DBS is a leading financial services group in Asia, with over 280 branches across 18 markets. As a Singaporean, DBS is a household name that we are all familiar with and I was given a great opportunity to participate in their Management Internship programme this summer. A 12-week programme, interns are immersed in the fast-paced environment of Asian banking and exposed to unparalleled learning opportunities.



INTENSE BUT ENRICHING EXPERIENCE

During my 12-week stint in DBS, I was attached to Group Finance where I was tasked to develop a derivatives analytics engine, to help with pricing and construction of derivative structures. This project seemed to be a daunting one since I had no prior education in finance or business. However, my manager and team were always there to provide me with tremendous amount of guidance and resources so that I could overcome the different obstacles that came with the project. Aside from this project, I also had the opportunity to participate in different training and networking sessions. These sessions opened my eyes to the different facets of banking as I got to interact with the senior managers and management associates from different departments.

E IS FOR EVERYTHING FUN!

"Everything Fun!", which is part of the PRIDE! values DBS is trying to embed in its business, was felt through the various events organised for the staff. I was fortunate to be involved in the preparation and participation of events such as "Fiesta Friday" and "Fruits Fiesta" which were organised for every employee in Group Finance. These events helped to build camaraderie between employees as they kick back and relax over food and drinks.



DBS, THE WORLD'S BEST DIGITAL BANK

DBS was awarded the World's Best Digital Bank Award by Euromoney. The other management interns and I had the opportunity to experience the inner workings of DBS digibank through the DBS digital bank challenge. DBS digibank, first launched in India this April, is a mobile-only bank which leverages a combination of groundbreaking technology such as biometrics and artificial intelligence to revolutionise the overall customer experience.

For the challenge, we were exposed to real problems that were faced by digibank and had to come up with innovative solutions for those problems. I was presented the chance to observe the design and thought processes behind some of the solutions implementation. The open and friendly culture enabled me to discuss ideas with senior managers and get insights on what they think the future of banking holds for us. Despite the short duration of the challenge, the active involvement of problem solving and interactions with managers helped me gain a deeper appreciation for the way technology is changing the way we conduct business.

GRATEFUL FOR THE EXPERIENCE

I would like to extend my gratitude to DBS for the opportunity to experience the finance industry and to get to work on projects that can improve day-to-day operations and have real-life impact.

TERA-EVERYTHING

by Ong Teck Wu

TERALYTICS

Signal to Information to Value

I chose to intern at Teralytics because I wanted to understand how business is conducted in the data science industry as well as the technologies and pipelines used in data science projects. I was very fortunate to be exposed to both the business and technology sides of Teralytics, and I have learnt a whole lot from my fantastic, super talented colleagues.

FASCINATING ROUTES

I worked on a variety of mini projects spanning different components of a project's pipeline. At the beginning, I had to learn Scala from scratch as the data engineering team is migrating from a Python-based stack to a Scala one. The data science team operates in Python as it was better for rapid prototyping and has an extensive, well-maintained cornucopia of statistical and machine learning libraries available. After having a taste of functional programming in Scala, I was given data analysis hypotheses to work on, with the results of the hypotheses determining whether to pursue further research. As I was working on large data sets, I had to learn new technologies and techniques to make more computations faster. I learnt about Spark to do MapReduce operations, and I was exposed to technologies like Parquet, Postgres, SBT and many more. I also worked on creating utility tools for my colleagues, using Pandas and Jupyter to analyse routes data, and it was useful to learn the technologies the team was using to better understand them, and internalise the entire stack of our operations.

DATA, TECH AND ME

Teralytics stretched my perception of both the data science industry and the technology scene. It seems like what you would expect in a Silicon Valley start-up: a relatively small, compact team with a flat hierarchy and a super talented bunch. I also found myself feeling more confident of my own abilities and having a clear sight of what lies ahead. It is a one-of-a-kind opportunity and I am blessed to have made the most out of it.

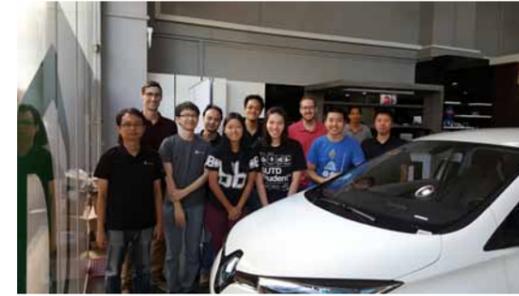
QUALITY INSIGHTS

The most important takeaway from the internship is that it is not only important to understand everyone's role in the company, but also to know the technologies they work with, the components of the projects they are working on, and what problems they are facing and have faced. Having knowledge of your colleagues' work helps incredibly with idea bouncing, idea sharing, bug finding, code and performance reviews. Ultimately, it helps by ensuring everyone is up-to-date with each other's work and on track.



MY DAYS IN nuTonomy

by May Quek



MY INTERNSHIP IN A NUTSHELL

At nuTonomy, I worked on three major projects, namely website development, app development and the design of a graphic user interface for a new software feature.

CULTURE

nuTonomy has a warm, flexible and motivating environment. During my interview, they asked for my interests and career plans, taking into consideration my expectations to ensure I got the most out of my experience.

The project tasks given are of my interest and there are minimal restrictions as to how I approach them. This freedom is a form of respect that allowed my creativity to flow, and it kept me continuously motivated. This environment is what I would seek for in a job, and I'm fortunate to have experienced it at nuTonomy.

MY MENTOR

My mentor is a friendly and dedicated software engineer. From him, I learnt the meaning of "Doing what you like is Freedom but liking what you do is Happiness". His dedication to the job inspires me to focus and learn to appreciate what I am doing.

LESSONS

This internship was an eye-opener as I stepped out into the real world. I was surprised at how fast-paced this start-up company is. Changes happen in the blink of an eye and people have to adapt and react promptly. This prepares me for the real world and allows me to hone the skills necessary for my future career.



KNOWLEDGE AND SKILLS GAINED

I learnt to use platforms such as AngularJS and GitHub, as well as project management methods such as SCRUM and coding conventions, which I can continue to apply in my future projects.

INTERNSHIP PREPARATION

SUTD provided me with the foundation required to pick up new skills efficiently. I may not have learnt some software and skillsets prior to my internship, but I was able to understand and pick them up swiftly with my SUTD education. With my internship and the new perspectives and knowledge gained, I feel more prepared for my studies.

VIVID MEMORIES

I will always remember when I first tried out the self-driving car, when we celebrated with dinner and ice cream after a successful demo, and when we squeezed in front of a camera trying to take a photo of the ever-growing team. I am glad that it was not a long and dreadful internship but one filled with a harvest of knowledge and fond memories.

A SUMMER WORTH REMEMBERING

Whether it is to pursue a passion in design and technology, giving back to the community or competing in an international robotics contest, our students made sure their summer break is one they would never forget.



A DIARY FROM ASPIRING ENTREPRENEURS

by Adya Sadanand, Khairuldanial Bin Ismail, Sabareesh Nair, Chiu Po Heng, Michael Lee, Ong Zi Chong

European Innovation Academy's (EIA) Entrepreneurship & Innovation Summer Programme (Italy) aims to develop a new venture to the market within 15 days. Participants go through the milestones and real-life experiences of creating a start-up – from ideation to product launch. This summer, six of us participated in this programme.

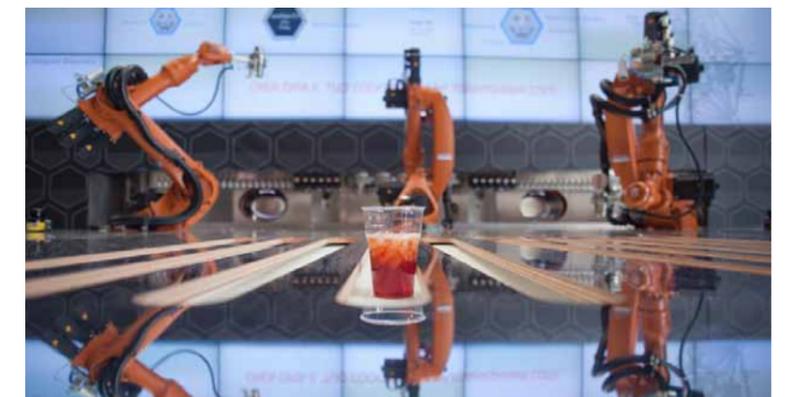
THE NEXT 15 DAYS

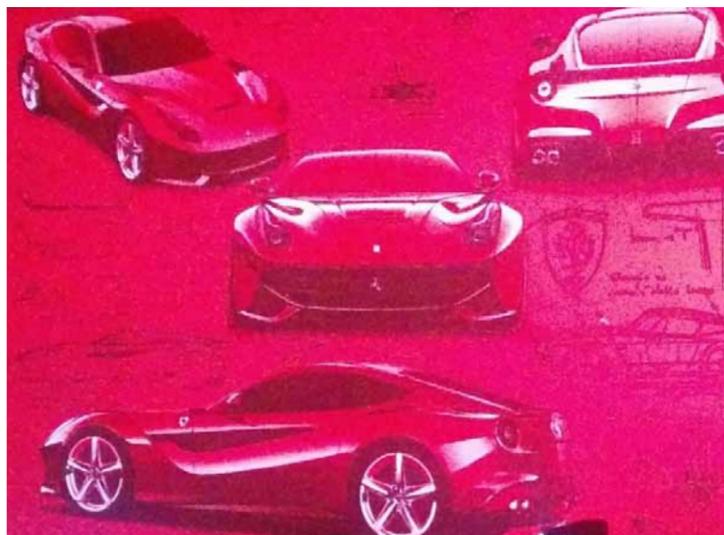
We travelled to Turin for the programme. Many great start-ups emerged from here and an experience like this is a total godsend opportunity for us to explore the global platform.

On the first day, 200 international students came together and split into groups. Things started to get exciting when people come pitching ideas to you.

The programme was a structured 3-week accelerated start-up hackathon. The first half of each day was dedicated to lectures and talks from prominent industry leaders and experienced entrepreneurs. These lectures were conducted in a cinema! Can you imagine that?

The President of EIA presented interesting know-hows for entrepreneurs to build the next 100M business; a lecture on design and innovation shared several impressive innovations (e.g. Makr Shkr, a robotic bar system that creates and mixes customised drinks.); and a guest lecture from Google showed how we could validate the feasibility of our ideas with some awesome Google services. Thomas Howard, a master of all trades, came and shared his product concepts and prototyping knowledge with us! There was also a lecture by Flavio Manzoni, the design director of Ferrari. Yes, Ferrari! Until then, we never knew cars could have a metalanguage or a way of communicating.





THE INTERNATIONAL DESIGN CONTEST (IDC) ROBOCON 2016

by Lai Jun Kang

The IDC Robocon is a global robotics competition held annually. This year, the 27th IDC Robocon was held in Chulalongkorn University, Bangkok, Thailand from 8 to 20 August. This year's competition saw 48 participants from top universities around the world. With a shared passion for robotics, we were split into 10 teams and given two weeks to design and build robots to be pitted against one another.

THE TASK

The theme for this year's challenge is Caregiving, which focuses on the elderly and the challenges they face even in the simplest of tasks. We were to build robots to first collect and retrieve different 'pills' from the 'shelf', thereafter, to place these 'pills' into the 'pillboxes'.

Several important lessons on customer validation, market research, revenue models and idea validation were extremely valuable! We spent the remaining hours of our day breaking into groups and started brainstorming ideas for our start-ups.

It was an eye-opening experience as we interacted with potential users and validate our ideas. They were very supportive and even discussed the issues they had with our ideas.

At the halfway mark of the programme, we focused on marketing our products. Teams rushed to deliver a complete solution for the mock-up and actual pitching. The short timeline and pressure helped to push us further and unleash our potential. It felt like a typical day in SUTD (hinting at the lack of sleep ^^). On the actual pitching day, we presented our solutions for a chance to be shortlisted as the final 10 teams to pitch to the whole EIA. Thereafter, our marketing efforts continued.

Life was not just about work. We explored beautiful Turin too. A bunch of us visited "Parco della Pederina", a beautiful park with a medieval castle on a lovely evening. We even rewarded ourselves with a skydiving session. The entire 'start-up' journey was really tiring but rewarding, allowing us to take a step closer to succeed as entrepreneurs.



CHALLENGES

The immediate challenge that we faced on the first day was communication as for most of the participants, English was not their first language. Initially, we had difficulties understanding each other and communicating our ideas. In the end, we managed to find a way - google translate. Drawing also proved to be useful as it is a common language for most of us who are engineering students.

Through the one and a half weeks of preparation, I have learnt to work with people of different nationalities and observe their different perspectives. I have also learnt different fabrication methods through building, observing other teams and consulting the mentors available. It was amazing and satisfying to learn to work within our own resources using our own creativity and ingenuity - we managed to build our own wheel from scratch!



FORGED FRIENDSHIPS

More importantly, throughout the preparation period, all of us became closer. We worked together in our teams and helped each other; we had meals and fun together. At the end of the preparation period, we had to compete. It was a friendly competition and we wished each other well. This friendship that we have forged through these two weeks was what made this IDC Robocon experience an invaluable one.

Although my team did not receive any prize for the contest, the experience, expertise and most importantly, the friendships that I have gained through this competition are more than what I can ask for.

18TH ASEAN UNIVERSITY GAMES SINGAPORE 2016

by Radyamansyah Bin Jamaluddin

The ASEAN University Games (AUG) is a biennial sporting event, where student athletes from the member countries of ASEAN and Timor Leste compete for top honours. It aims to promote ASEAN solidarity in our youths through sports and provide opportunities for university athletes to benchmark their sporting talents in the ASEAN region. This year, Singapore hosted the 18th AUG from 7 to 19 July. About 1,300 athletes competed in 16 sports and the success of the Games would not have been possible without the support of the 1,200 volunteers!



'MY LITTLE STINT AT A MAJOR GAMES'

At this year's ASEAN University Games, I was fortunate to be given the opportunity to contribute by being the Assistant Team Manager for the Singapore Universities Combined Petanque Team. I was tasked to ensure that the athletes have the training resources they needed and to watch over their overall well-being.

The games were held at various venues in Singapore, with the Athletes Village located at NTU. After checking in at the Village, we were provided with accommodation, transport and meals, just like the other ASEAN athletes.

It was the first time that I was exposed to the sport of Petanque. Though relatively unknown in Singapore, it is regarded as one of the more popular sports among nations like Thailand, Malaysia and Cambodia, whose representatives bagged the most number of medals in Petanque World Championships.

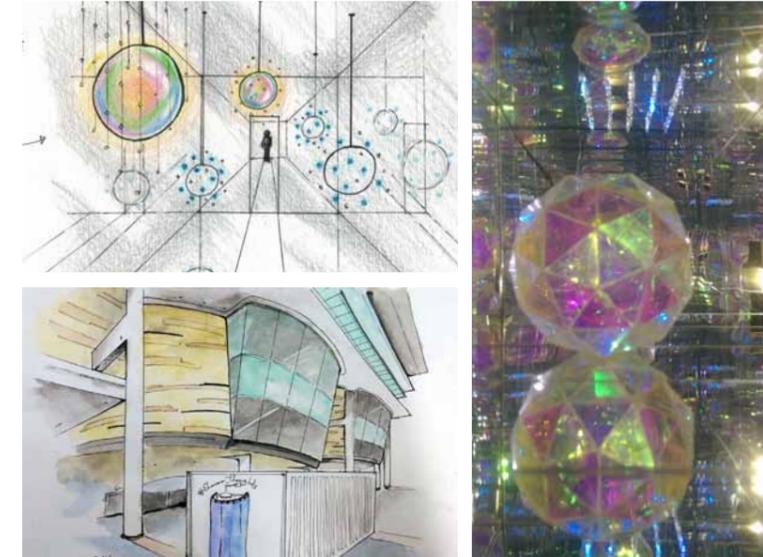


Hence, our players were up against tough odds, with some of them only picking up the game months prior to the competition. Despite the disparity in skill levels and experiences, the team put up a good fight. In the spirit of the Games, they were gracious in defeat and never failed to put on a smile. I felt that this was a familiar setting because as an SUTD athlete, I am well aware that SUTD teams are often the underdogs at the Inter-University Games. However, this did not stop our athletes from giving their best. Most importantly, they had fun and enjoyed the rewarding experience just like the Singapore Petanque Team.

WELCOME TO THE LIGHT LIFE

by LiteWerkz (Chin Joo Ern, Daniel Yong, Kerine Kua, Muhammad Syahid Bin Mustapa, Lai Jun Kang, Ong Ying Ying, Patrick Khoo, Tan Wan Ting and Yap Zi Qi)

Our involvement in the Singapore Night Festival 2016 began when the SUTD's arts and craft club (named SUTD10) announced that the National Heritage Board launched an open call for proposals for the event. A group of my classmates immediately formed a small team of nine to develop a proposal for the ultimate light art installation.



LITEWERKZ'S BRAINCHILD: #SHOWERTHOUGHTS

Due to the large number of people in our group, there were some difficulties and conflict of ideas in the early stages. However, the diversity of our group eventually became a major advantage as interesting ideas and solutions from different perspectives were often generated.

Our concept was a light installation involving a portable toilet portal which leads to an infinity room of iridescent bubbles and bright lights. This symbolised the limitless potential of the mind regardless of the limited space it is in. Soon after, we were invited to the National Museum of Singapore for an interview session. The committee was in favour of our idea, and we were awarded the contract and a sum of money to embark on the production.

A good project name is a must and we decided to name our project '#showerthoughts' and called the team 'LiteWerkz'.

With the state-of-the-art facilities available on campus, we proceeded to create prototypes, testing the effects and feasibility of our idea.



LIGHTWEIGHTS IN A HEAVY WORLD

The knowledge and skill sets we attained during our Freshmore year enabled us to have a smooth production of the prototypes. The most challenging obstacle we faced during the entire experience was dealing with the different requirements set by different stakeholders. However, this was an excellent learning opportunity. We were also very fortunate and thankful to our mentor, Assistant Professor Alstan Jakubiec. He guided us through some immense difficulties we faced along the way and provided insightful advice on how to execute our installation.

THE BIG BANG'16

by Tan Jia Hao

Through interaction with my fellow clan mates during the dinner, I got to know more people living within the same hostel block, and also gained insights of the clan system, which fosters collaboration with our peers.

- Victor Toh Wei Jie, Freshmore (Class of 2019)



THE BIG BANG'16 is an inaugural dinner event organised by the House Guardians for the Freshmores to officially welcome them into the SUTD Residence. The dinner event was graced by SUTD President, Professor Thomas Magnanti ('Tom').

The event marks the freshmen's transit from the four Houses during their Orientation into the 5-Clan Identity (namely Theta, Iota, Zeta, Eta, Delta) through a simple ceremonial rite where the freshmen drank a cup of ice cream soda dyed with the colour of their respective clans.

