The SUTD undergraduate calendar has two 18-week long summer breaks. During these breaks, students can choose to go on an exchange or internship. Some may also opt to start research projects that impact the world or get involved in existing ones; or even participate in competitions. The summer of 2013 was an enriching and unforgettable one for the Class of 2015.
Every year, SUTD students have the opportunity to apply for a 10-week, fully funded exchange to the Massachusetts Institute of Technology (MIT). In the summer of June 2013, 28 selected students headed to MIT for the Global Leadership Programme (GLP).

“We were learning so much and having so much fun but our hearts still yearned for home. It was a great living and learning experience.”
**Our growth as friends:** bonding through experiences, collaborations and challenges. Despite the many, many competitions we faced, we never failed to help each other out and to seek opportunities for collaboration. I remember how every electric vehicle team willingly shared knowledge and resources. Despite it being framed as a “race”, it was a conducive environment to experiment in because we preferred to help each other out and learn together. For example, I have never done any circuit wiring prior to this project and met many difficulties with a faulty circuit but thanks to the guidance from those who have done it, I was able to wire the electric system by troubleshooting together. It is indeed rare to be part of such a diverse group that truly looks out for one another; better united than divided.

**Our growth as sketchers:** learning to draw without holding back. Thanks to plenty of encouragement from our instructor Sam Magee, many of us learned to draw more boldly and to use our hands to convey what we see – 3D to 2D. From pencil to charcoal to ink, from the dome exterior to the dome interior to the panoramic sketch of Charles River, we grew comfortable and confident in drawing.

It was a rare opportunity to have all the time to peacefully sketch without any stress. It felt therapeutic to enjoy the cool breeze of the morning while soaking in the serenity of the campus and studying every architectural detail through sketching. Besides drawing, Sam also brought us to the Museum of Fine Arts at Boston where we saw the many paintings from famed artists like Van Gogh.

**Entrepreneurship** was a recurring theme during our visits to companies such as WayRay, which developed a patented power system to charge devices wirelessly. Also, from speakers such as Robin Chase, founder of Zipcar who gave us great insight into how she started her business. The application of technology was also apparent in Tesla Motors, where electric vehicles were proven to be a viable mode of transportation. All these company visits and talks gave us an insightful look at the industries on a more global scale.

**Our growth in ceramics:** learning the delicate skills behind ceramics and some life skills. We had little experience and most of us have never worked with clay prior to this. Yet, we learned so much from the master potter Jay, who really is the best. His ever-so-graceful demos and sincere attention helped us improve dramatically. Ceramics taught us that it is about more than just techniques. We learnt patience from failures and how to take control gracefully when things get out of hand. We learnt to feel and not force things to go a certain way. By the end of the course, we were all proud of our “masterpieces”.

**Our growth as game designers:** discovering the design process behind game design and user experience while understanding and applying game mechanics and dynamics. We were tasked to create a game in any format. Sounds easy – but it wasn’t. We thought fun games were easy to make. Yet, what we thought was fun may not end up being fun when others play it.

Players are usually so accustomed to playing games that we sometimes fail to notice the thought process behind conceptualising the game. A simple gesture of placing the menu button at the corner of the screen for quick access could make a game so much more user-friendly. Or, to make blinking icons easier to get rid of could make the game less annoying to play. Through trial testing each other’s games and doing many reiterations of our games, we came up with a variety of tabletop games. We certainly learned much from them and from our instructor, Philip Tan, who is the Creative Director at MIT Game Lab.

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During the weekends, we did not just stay in Boston. We stayed at Professor Slocum’s farm where his family was very hospitable and we did things like patch up a stone wall, trim trees and feed the sheep. These were all experiences that would be hard to come by in urban Singapore. Also, some of us made a trip to New York where we experienced for ourselves the bustling city that “never sleeps”. We saw the vibrantly lit advertisements at Times Square, the view from the top of the Empire State Building, the enormous Natural History Museum, Wall Street, Broadway shows, the Statue of Liberty – places we have definitely heard of before coming to the States.

There were so many things that happened during the GLP experience and I cannot completely recount all my experiences here, but the freedom to learn and explore really allowed us to achieve a balance between work and play. Just like how we poured our creativity and hard work into building the electric vehicles not for any grades, but simply for the fun and sense of fulfillment from building something. I believe such motivation is what drew many of us to SUTD in the first place.
Although we knew that the Electric Vehicle would be the primary focus of the Global Leadership Programme in MIT, the fact that we would design and construct, from scratch, a vehicle that we would ride in two months’ time only dawned on us during our very first lesson.

While many of us studied and understood the physics behind motion, power and torque, it was a world away from using that knowledge to build an actual vehicle. To me, the thought of physically building such a device myself was truly intimidating. Still, we began by designing our vehicles on paper. We sketched multiple designs and discussed them at length. In the end, my team decided we wanted to use the chance to try something unorthodox, and thus conceived ‘Celeris’, a bike with caster wheels. Then began the designing process in earnest.

While this design on paper looked simple, it was mostly conceptual - not much thought had been put into how the components would work together, or how they would be attached. This was the phase where the work really began to set in – we had to take our concept from paper and transform it into a physical object. Thus began the joys of CAD-ing (Computer-Aided Design).

The first step was to construct our vehicle as a computer model. We learned ways to attach sheets of metal to one another or to bars using screws and nuts. Now, we had to think through how each part fit in with the whole. We had to know the exact dimensions of the holes or joints so the connections were secure (keep in mind this was not a theoretical exercise, but a vehicle we would be entrusting with our lives).

At the same time, we had to begin thinking about the electrical systems. We learned about motors and controllers, gears and belts, and had to decide on the right motor, controller and wheels for our design. This was where the physics we had learned in our first year came in. Yet, this was not a simple problem with a single solution. What was the objective of the problem? The motor that provided the highest power? The most efficient motor? The setup with the highest acceleration? Or, given a US$500 budget for the entire project, the best bang for our buck? We had to decide on the goals and the parameters of the problem ourselves, and then solve it.

In the meantime, the mechanical side of the project moved into prototyping. Before we committed to cutting our parts out of aluminum (which was extremely expensive), we built them with wood to expose any possible defects early on. This proved to be a crucial lesson, as we will shortly see.

In our early designs, the footrest was to be a simple plate hanging from the side of the vehicle. However, when we rested our feet on it, the moment created was enough to split the wood plate. Although this might not be a problem with aluminum, it did expose the vulnerability in that design. To avoid the destructive effects of this moment, we then constructed a single footrest bar.

When we were satisfied with our wood prototype, we began construction of the final vehicle in earnest. The instructors used the waterjet to cut our pieces from the aluminum sheets, while we used machines like the lathe to shape other pieces of metal to specification. Finally, our vehicle revealed its final form to us. The moment that we took a step back to look at our vehicle - a vehicle that we had conceived and then built with our own hands - filled us with jubilation and a sense of accomplishment would never be forgotten.

Yet on race day, our vehicle revealed to us a flaw not in our execution, but our original concept. Due to the caster wheels, the vehicle could travel rapidly and be stable while driving straight, but it could not steer effectively. This was something our lead instructor from MIT, Charles Guan, foresaw the moment we proposed the idea. Yet, he neither mentioned it, nor attempted to dissuade us from our design. He allowed us to fail.

Yes, he could have explained the issues to us at the beginning and we might have avoided it completely. Yet, by experiencing failure, we now truly began to understand what did not work and why. We didn’t hear a teacher’s opinion about what wouldn’t work – we experienced the laws of physics in action. And in so doing, we remembered our original objective – to try something unorthodox, push the limits of the unknown and see what we could learn.

That’s right, we learned through failure. And we loved every bit of it.
OUR VERY OWN CLIFFHANGER

PHOTOS & TEXT BY ANISSA TAN

What did SUTD students do during the weekends?

How about… randomly join a hiking and climbing trip to Groton, New Hampshire, organised by the MIT Outing Club (MITOC)?

And sure enough, that’s what 22 of us did!

We left on Friday night and took different cars to reach Camelot, a cabin in the forests of New Hampshire which was owned by MITOC. Upon reaching, the more experienced hikers and climbers in the group came together to plan “trips” for the next day. Afterward, commoners like us would choose the trips that we would like to join – these ranged from moderate to strenuous hikes, to full-day climbing trips.

Come Saturday morning, all of us were up early and raring to go for our respective hiking and climbing trips. Three of us joined one of the climbing trips. We went to some cliffs where we got to try out natural rock and crack climbing for the first time!

Although I used to be a climber back in Junior College, this was my first time climbing natural rocks. What was exciting was that the footholds and handholds were entirely up to you to find and choose. While climbing, don’t be surprised to encounter ants, spiders and mooses as you reach into the rocks. Also, as it was crack climbing, we had to use lots more hand, fist, feet and toe jamming moves. Basically this means that you jam these body parts into the cracks, to use as leverage to get closer to our goal of getting to the top!

As some of our hiking and camping trips ended earlier in the day, we decided to do more exploring. One of the MIT students familiar with the area brought us to a really scenic part of the river where there were cascades, and where we could go for a swim!

Some of us actually brought soap and shampoo and intended to take a bath in the river, but we eventually decided against it, as that would pollute the river. What’s more, going two days without a bath was not so bad!

1. GREYHOUND DOWN TO NEW YORK CITY
   Don’t worry if you get there late. Times Square doesn’t close till past 2am.

2. MAKE YOUR WAY TO WRENTHAM VILLAGE PREMIER OUTLETS
   You’re going to save a whole lot of money with all the crazy sales! That’s right, but you’ll probably spend more than what you’ll save.

3. SKYDIVE WITH MIT SKYDIVING CLUB
   Some got a taste of heaven; some got a taste of their vomit. Every experience is different.

4. HIKE THE WHITE MOUNTAINS WITH MITOC*
   Do the challenging route, it’ll be a hell of an experience, but hey, no pain no gain. *MITOC – MIT Outing Club

5. VISIT SLOCUM’S FARM
   Slocum is actually an MIT professor, not a company or tourist spot. An eye-opening experience living with a family that is self-sustainable. Well almost.

6. RIDE SIX FLAGS
   The fastest legal way to get HIGH and low. The thrill is six Escape Theme Parks and two USS packed in one day. Not for the faint-hearted.

7. SHOP ONLINE
   You’ll be surprised how addictive this can be with free shipping, promo codes, free gifts, summer sale… The satisfying part is when you receive your package at the front desk – feels like Christmas all-year-round.

8. KAYAK THE CHARLES RIVER
   This actually only takes a morning, you can spend the rest of the weekend at CambridgeSide Galleria, Neptune Oyster, Muddy Charles, Museum of Science…

9. SELF-HACKATHON
   Coop yourself up in your dorm and hack away the weekend. You might just create your own startup in 54 hours.

10. SLEEP
    It’s been a rough week.
TO DESIGN, IS TO TELL A STORY, STARTING FROM THE LIFE OF THE USER AND ENDING WITH HOW THE PRODUCT CHANGES HIS LIFE.

Associate Professor Ying Fangtian, Deputy Director, International Design Institute, Zhejiang University.
In our first lesson, Professor Cai from ZJU shared China's history with us, detailing the various dynasties. We learnt how China's cultural influences evolved with time; different periods had their own distinct character. The differences were a reflection of the circumstances surrounding each period and greatly influenced the design of objects and architecture.

For instance, in the Ming Dynasty the design of chairs were unexpectedly modern. We were taken aback the first time we saw them. There are even some similarities to Le Corbusier chairs. Apparently, Hongwu Emperor came from a humble background and thus had simpler preferences. This helped us understand the influences behind the design principles of the Ming Dynasty.

IMMERSION IN THE CHINESE CULTURE

PHOTOS & TEXT BY GOH YI QIAN

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PHOTOS & TEXT BY AMANDA MAK

We have been having a great experience learning about the Chinese culture through plenty of museum trips (in and out of Hangzhou) and through little weekly assignments. However, something was missing. All of us were craving for that special something on top of all these that we have been going through, and that is the opportunity to learn from the masters of traditional crafts (aka 大师).

We knew that our wishes would soon be realised when we made our way to Hangzhou Arts & Crafts Museum. When we were first told that the museum is where (most of) our masters work at on a regular basis, all of our faces glowed with anticipation – we could not wait to see their great works.

This museum trip felt slightly different from all the rest that we had so far. It could have been due to the clearer explanations given during the guided tour, or because we are more familiar with traditional Chinese culture, that we are better able to appreciate most of the works on display. At the end of the guided tour, we were given the opportunity to stop by several masters’ workstations to catch a glimpse of their extraordinary skills. Some of us even had the opportunity to try out embroidery before we bade farewell.

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10 ALP THEMES

INNOVATION AND RE-DESIGN OF TRADITIONAL HOUSEHOLD PRODUCTS

Students from three ALP themes develop innovative and revolutionary designs for three categories of household products – Essentials (iron and fan), Lifestyle (coffee machine) and Home Automation (home automation system). They are not only novel, but also add a new level of functionality and user-friendliness to the products.

TRADITIONAL CRAFTS AND ARTIFACTS DESIGN

Under the tutelage of Chinese masters, students learn about traditional Chinese design concepts, incorporating these concepts into modern day products. The resulting products not only imbue the essence of traditional Chinese craftsmanship, but also incorporate modernity in them.

PRODUCT DESIGN

This project incorporates new technological developments to come up with novel and innovative solutions for personal transportation as well as a neurological rehabilitation system.

SUSTAINABLE ARCHITECTURE AND DESIGN

This project aims to discover the essence of Chinese culture through architectural means while finding the balance between the built and natural environment.

USER INTERFACE DESIGN

Design of a new interface for Alibaba’s consumer retail platform so as to deliver an improved user experience and commercial service.

DIGITAL MEDIA AND GAME DESIGN

This project explores the world of digital media by using Western animation techniques to create a short animation based on a Chinese traditional story.

PLANT FACTORY

This project covers the design of a wholly self-contained plant growing system that urban consumers can use to grow their own food. Consumers not only get to enjoy organic and pesticide-free vegetables, they also get to enjoy the satisfaction of seeing their plants grow and being self-sufficient.

INDUSTRIAL DESIGN

Students undertake a variety of actual, real world industrial design projects for Chinese companies.
15 weeks in China. For most of us, this is the first time going abroad for such a long time, and of all places, China. Due to the media portrayal, we often associate China with its humongous population, oily food and bad manners, just to name a few. Yet we were undeterred, for this is also a rare opportunity for us to fully immerse ourselves and experience the Chinese culture firsthand.

Our time in China soon proved us wrong. Our hosts from Zhejiang University were very helpful and were equally excited about the lineup of programmes ahead. To better prepare us for our industry internship to Alibaba, our mentors had organised a comprehensive range of workshops to introduce us to various concepts and software used in the field of user experience design (UED). The workshops were short yet intense, serving as a crash course to equip us with the relevant knowledge and skill sets which might come in handy subsequently. We visited local incubators and enterprises which actively promote entrepreneurship, interacting with the locals who have been there, done that.

As an international site, AliExpress has to cater to the demands and preferences of an international audience, based on the demographics of each country. We were split into two groups - Brazil and Russia, and conducted in depth research for each country, thereafter suggesting improvements to the website layout with the purpose of increasing market penetration and sales volumes. To validate our findings, we also conducted in-person interviews with Brazilians and Russians, visiting them at their university hostels in our bid to locate more ‘targets.’ 

Bet you did not know that Brazilians have the practice of paying EVERYTHING by instalments, as long as the shops allow, which is actually quite frequent...

Our time in Alibaba passed by in a blur. We presented our ideas and progress to our company mentors regularly, and are honoured to have their advice and guidance throughout the journey. The company culture is open yet inclusive, allowing us to seamlessly integrate into the company culture. Having visited the Google headquarters in Silicon Valley previously, the Alibaba facilities and amenities did not pale in comparison, and China is indeed the up and coming powerhouse. To showcase our ideas, we made a working digital prototype and had a presentation to the UED department at the end, sharing our learning and insights from this experience.

“When in China, behave like a local.” And indeed, that was what we did. The fast and hectic roads, haggling, shouting “fu wu yuan” (service staff) at the top of our voices, shao kao (barbeque), karaoke, you name it, we experienced it. The whole ALP journey has been very enriching and eye-opening. The memories and friendships forged throughout this time will only reaffirm our time spent in Hangzhou, a meaningful summer, a lifetime experience.

ADVENTURES IN CHINA WITH ALIBABA

PHOTOS BY YIP JING XIN
TEXT BY NOON TEO

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At the start of ALP, we were told to brace ourselves for possible hardships as we will be working in a farm environment. Some of us were worried as we did not know what to expect. However, the moment we set foot in the research institute located at Chang Xing, our impressions changed. It is new and massive, with a majority of the land area used for farming.

We were to design self-contained plant growing systems that urban consumers can use to grow their own food. At Chang Xing, we learnt a lot about agriculture from the staff and professors who work there. Their expertise helped us evaluate the feasibility of our designs. We were also given the opportunity to grow our own vegetables in the fields. Although the weather was hot and work was tiring, it was a rewarding experience when we harvested and ate the fruits of our labour. A number of leaders from the other themes also visited Chang Xing to teach us their specialisation, such as sketching, rendering and drafting business models.

We started off by growing plants in our little experimental boxes. The purpose of these experiments was to investigate how certain factors will affect the growth of the plants. Besides understanding how plants grow, we did surveys and in depth interviews with our potential customers to determine how we should build our plant factory. Some people we interviewed welcomed us to their homes with open arms and provided valuable information for us to shape and mould our concepts, to better suit the needs of families with different backgrounds.

The relationship between humans and plants is not necessarily one of predator and prey. Plants can make good pets, our best companions. One of our designs centred on emotional engagement. Naming it La Vida Verde, it gives you the convenience of monitoring your pet plant’s growth and happiness indicator, control its watering frequencies and other functions, all through a single mobile application.

Another concept revolves around providing everyone with fresh and organic vegetables. We focused on families with lower household incomes and possibly, living in poverty. They would not be able to pay for any technologically advanced electrical appliances, but they too hope to eat fresh vegetables every day. Regular vegetables, for example lettuce, need at least a month before it is ready to be harvested. Normally, a very large plant factory would be needed to provide a family with a sustainable supply of vegetables. However, our design provides the same result by utilising fast growing plants instead, namely sprouts and mushrooms, therefore making it very suitable for these households.

All work and no play makes Jack a dull boy! For us at Chang Xing, we believe in working hard and also playing just as hard, therefore we work all day and allocate the time after dinner for leisure activities. The most common pastime would be playing table tennis against each other and our mentors. We spent many a night honing our skills and pitting ourselves against formidable foes (our mentors, of course!).

On one blistering summer afternoon, we decided to beat the heat and endless drones of cicadas with a brilliant plan - catching clams and river snails for dinner! Together with our mentors, we jumped into the nearby freshwater stream and started digging in the mud with rocks and our bare hands for the tiny, fingernail-sized snails and the elusive large clams. A friendly competition ensued and ended with a whole lot of laughter, damp clothes and a feast of spicy river snails and clams!
With over 150 companies pledging internships, it is a vote of confidence that the SUTD education will meet industry challenges and is what the world needs right now.
EMBRAER

BY KEN CHUA

This “summer”, I had the unique opportunity of doing my internship in Brazil, working on a project for Embraer – the world’s third largest aircraft manufacturer. As Brazil is located in the southern hemisphere, essentially had my “summer” internship in the country’s cool winter season.

Together with my schoolmate Hu Yuan, we were given the interesting and challenging task of designing the interior of a future commercial jet cabin. This includes the overhead baggage compartment, passenger seats and in-flight entertainment. As such, this internship was more a practical one, instead of academic.

Our ideas had to be realistic and implementable as they would be considered for retrofitting planes in the future. Everyone in the workplace regarded us as equals, teaching us how to design with Federal Aviation Administration (FAA) constraints in mind, inculcating Embraer’s design language, and more. It was interesting as even experienced designers and engineers were open to our suggestions; and our involvement in solving the problems that they were working on. I believe the Brazilian perspective of Design and Engineering is very different from that of Singapore. Even the working style is different, as coffee breaks are valued and used to unwind and brainstorm new ideas for the company. Despite their enjoyable (and enviable) way of working, they still produce work of tremendous quality, which shows you can have fun and results at the same time!

As part of this internship, I got to interact with a group of 56 very talented Master students, who were handpicked by Embraer from thousands of applicants from all over Brazil. I managed to contribute to their 4 month-long project to craft an aircraft from scratch based on market and benchmarking analysis, as well as Political, Economical, Social, Technological, Legal and Environmental considerations.

Outside of work, I visited many design and engineering institutions in Brazil like the Institute of European Design, as well as the Automation Lab in Instituto Tecnológico de Aeronáutica. All of which were arranged by my pleasant and enthusiastic administrative supervisor, Paulo Lourencão.

Also, the Brazilians took great pride in showing me their love for their country. Going for barbeques, soccer games, Brazilian parties, concerts, and the beach were just the tip of the iceberg. In general, Brazilians are really friendly and approachable, contrary to my initial belief of the country being very dangerous. I would recommend this internship to Embraer in Brazil for anyone who wants an enriching and realistic work experience in design and engineering, as well as anyone who is looking to experience an entirely different culture.

I had such a great time that I am considering going back in 2014 for the World Cup, and to visit Embraer again.

Inforneon Technologies Asia Pacific

BY ALEX SOONG

Infineon Technologies Asia Pacific is a huge semiconductor company based in Germany. It was actually under Siemens, and spun off on 1 April 1999. An April Fools’ Day joke? Yeah, that’s what the staff there told me as well; they initially thought that it was a joke. Fast forward 14 years it is now a leader in semiconductor technology, and there are still staff at Infineon from the Siemens days. Something special must be keeping them there. In my four months at Infineon, I experienced what that magic was – Infineon’s work culture.

So what’s so special about it? The first thing is definitely the activities available for interns. Infineon has a specific programme for interns and a department handling interns-related activities. There were bi-weekly intern lunches that were more like activity time for interns to interact with each other. Networking was the aim of those luncheons that included ice breaking games, pizza parties, watching comedies, card games and more. Intern lunch hosting “rights” were given to four randomly chosen interns of the bi-week. They have free reign to decide on what they feel best allows fun and cool intern interaction.

There was a Management Meet Interns Session, where interns got to do a catwalk introduction. We were introduced to the management team and shared the projects we were working on. Meixuan, a fellow SUTD intern and I got to speak personally to the Managing Director about our internship experience at Infineon, and how SUTD is a special place.

There was a big event to commemorate innovation at Infineon, called the Innovation Week, which allowed staff to show their most innovative work, and also for us interns to showcase our projects through posters and presentations. There was a Candy Crush themed event to promote Human Resource Innovation at Infineon, a gladiator battle between staff, even a mechanical bull riding game. The interns performed a flash mob which served as the closing of the event (that truly ended with karaoke sessions and a sumptuous buffet).
After getting my internship with OCBC’s Group Customer Experience Department, I was excited yet a part of me wondered if it will be a good experience because of what I have heard about internships. I was honestly expecting myself to be the office boy doing tasks such as making coffee or shredding paper. This perception changed on the very first day of my job. My reporting supervisor was Jin Zwicky. She was a really good boss who believed in design simplicity and ensured that we were given a good balance between independence and guidance throughout our internship journey. The first major project we worked on was to re-design FRANK by OCBC. This seemed like a very broad project with a broad objective and in actual fact, it really was. Jin ensured it was this way so that our boundaries were limitless when brainstorming various ideas that ranged from feasible to whacky. We touched on various aspects of the FRANK brand and thought through different avenues on how we can enhance its brand among youths like us (FRANK was launched to cater to youths).

Our first task was to experience FRANK by going down to a FRANK store, experiencing the store and the overall gains from FRANK. We eventually signed down to a FRANK store, experiencing the store and align each other’s progress towards the main objective. We also had weekly meetings with different departments that were also working on FRANK to update and align each other’s progress.

Over the internship, we were introduced to many new projects that broadened our learning experience. They included optimising overall flow of financial products like the Blue Chip Investment Plan and Unit Trust Investment, simplifying customer interaction through various services like Financial Needs Analysis for Investment and Insurance Products and re-designing and optimising spatial arrangement to maximise space, improve customer satisfaction in the new OCBC Orchard Gateway and Shanghai branches. We also worked on a video production for promoting FRANK’s specific benefits and tutorial videos for creating and mass-sending mails to customers and creating a new and simplified investment Book for FRANK customers to learn about investing in the simplest way.

The experience I have gained in OCBC has been enriching. I believe that the skills I have acquired will better equip me both in school and in the workplace. I have learnt to view and understand problems be it in a bank or in other industries and projects, from a holistic point of view and have also learnt that design simplicity is essential in improving the overall experience of customers. I am definitely looking forward to doing another internship next summer.

We documented all our experiences in a form of a diary, listing both our pain-pointers and delighters. This greatly helped us in brainstorming better ideas that were more aligned with the problems that we experienced. We also had weekly meetings with different departments that were also working on FRANK to update and align each other’s progress towards the main objective.

3 REASONS WHY I LOVE INTERNSING AT A STARTUP

Startups have been getting a bad reputation nowadays for underpaying, overworking and mistreating their interns. However, my four-month internship experience at Tinkerbox Studios was quite the opposite. In fact, I absolutely loved my experience.

1. THE LEARNING WAS INCREDIBLE.

Tinkerbox does agile and full-stack web application development for businesses. This meant that I had to pick up and develop skills in a range of front-end and back-end programming languages simultaneously, which included Ruby on Rails, HTML, CSS5 and Javascript. I also had to master how to use Github, an online service that helps share code between people.

The learning curve was definitely steep, but I had so much fun. I went through 13 online courses to learn the basics of the programming languages to be used for development work at Tinkerbox. I understand this to be a privilege that few companies offer to interns.

For the remaining twelve weeks of my internship, I worked on four different client projects, all of which came with its own set of exciting challenges. Whenever I ran into any problems, I could easily approach any senior developers for advice. People in the company are very willing to teach, and questions are very encouraged. In fact, it is through these conversations with experienced developers where I find myself learning the most.

Working at a startup, which also does business with other startups gave me the chance to interact with people from different backgrounds. I have met passionate developers who have previous jobs you may never have guessed at – such as being a MediaCorp producer or a restaurant manager. I have met entrepreneurs who are fearlessly pursuing their dreams - whether it is to promote local music through building a publicity site, or to build an online social network for volunteers and non-profit organisations. All of these people had rather uncommon yet inspiring perspectives on things, and it was very humbling to have met and learnt from all of them.

2. THE COMPANY CULTURE IS PRETTY AWESOME.

One thing that stands out immediately about Tinkerbox is that the environment is so relaxed and flexible - it was a culture shock adjusting to it at first! To begin with, both the dress code and working hours were very flexible. A good amount of freedom was given to us to manage our own work. The company was also always very open to new ideas. For example, along the way, it was possible to help propose and establish new collaborations (e.g. Tinkerbox giving a programming workshop to SUTD students) between Tinkerbox and SUTD, both of which share a similar philosophy of design and innovation.

As an intern, I was given opportunities to attend external events, such as RedDot Ruby Conference 2013 and Singapore Geek Girls, on the company’s time. Playing pranks on one another was also quite the norm. Pranks can even get sophisticated - a colleague coded a nyan cat to run endlessly on another colleague’s laptop while she was not looking. Only programmers can pull off such things!

3. IT LED ME TO QUESTION PRE-CONEIVED NOTIONS ABOUT WORKING LIFE.

I have learnt that it is thoroughly possible to enjoy working in a startup. At this point, I am still not sure what job I would pursue after graduation. However, interning at Tinkerbox has been nothing short of a right decision. Not only did my technical skills develop greatly, my view of the world has also expanded. The new perspectives that I have gained are helping me to think through my future career options in a more informed manner, and I could not have asked for a better outcome from an internship experience.
In SUTD, every student has the opportunity to participate in an internship. I was privileged to have interned at Thales Solutions Asia, a French company that specialises in different industries such as transportation, defence, aerospace and more. If I were to use one word to sum up the four months in Thales, it would be ‘unexpected’.

My internship has provided me with an extremely enriching experience from which, I re-discovered and identified my strengths and weaknesses. I was involved in a research project in Thales that reviews the concept of Power Line Communication (PLC). To put it simply, this enables data signals to be modulated on power signals and thus, only require power lines in a network system. Long data lines are no longer needed and this brings about savings in areas such as weight, cost and also in maintenance time.

This research encompasses areas of understanding Ethernet protocols, signal transmission, circuit analysis and more. I had minimal knowledge in those areas and was worried that I would not be able to contribute to the project. I was also challenged to write a scientific report and I recalled having a really tough time on it. However, under the guidance of my mentors and doing some research on my own, I learnt something new every day!

From the exchanges with them, I progressively understood my project and different technologies better. However, the topics discussed are not entirely all about work too! Surprisingly, my mentors shared about their life experiences and valuable advice on studies and career too. I picked up new knowledge and skills (especially in communication skills) from my internship at Thales that are useful and applicable for future projects. It started off as a challenge to understand a new concept and having minimal understanding of it. However, this became the greatest motivation for me. I learnt that it is important to be receptive to new ideas and to embrace the unknown. The internship experience has also provided me with a better understanding of the working culture of the technology industry.

This would not be possible without my mentors, and it is with them being tolerant and attentive to my doubts and queries that made my experience at Thales an ‘unexpected’ learning journey.

For my internship, I had the opportunity to be in RSP’s architecture and master planning team. The team is led by Dr Liu Thai Ker who is a prominent planner and architect both locally and overseas, with numerous projects distributed worldwide.

I was involved in four projects during my stint in RSP – the China Cultural Centre (CCC) in Singapore, a resort hotel in Batam, Indonesia, urban design for a historical street in Xiangyang, China and master planning and urban design in Zhu Hai, China.

It was a rare opportunity as an intern to be involved in part of CCC’s design. I was tasked to take on the way-finding signage design where I learnt about the materials used for signage and their various effects. I also learnt about the different production and mounting techniques.

I was further involved in producing the 3D Sketchup models for the CCC lift interior which exposed me to the various components of a lift, from the selection of materials right down to the design of the lift buttons. This process made me more aware of these details every time I enter a lift. I also realised this is what I like about an architect’s job. You learn to see details; things that you usually will not take a second look at.

As the weeks went by, whenever possible, my mentor brought me to the site meetings at CCC. I was further involved in producing the 3D Sketchup models for the resort hotel in Batam, Indonesia, urban design for a historical street in Xiangyang, China and master planning and urban design in Zhu Hai, China.

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The Batam resort was at concept design stage and it was a great opportunity to be involved in producing the 3D Sketchup models for the resort hotel in Batam, Indonesia, urban design for a historical street in Xiangyang, China and master planning and urban design in Zhu Hai, China.

One challenge I faced during my internship was fear of mediocre work. Knowing that I have not started any formal architecture studies, I knew I had to learn fast on the job to be able to contribute work of a good standard. Though initially afraid of the technical challenges, I was excited to experience work in a large architectural firm. I later realised that my fear was actually part of a learning process and I am really grateful for the great mentorship at RSP.
OTHERS

Be it putting their design ideas to the test or working on projects that can help improve the world, summer break is a chance for SUTD students to create some unique memories.
In May 2013, as part of an ongoing Undergraduate Research Opportunities Programme (UROP) with the SUTD Opportunity Lab, a team of students visited Bacolod, Philippines. The purpose of the trip was to meet with the NGO International Care Ministries and three communities they work with to explore how the team could work with residents to improve community infrastructure. Through making house visits and conducting workshops in each community, the team found that the challenges faced by residents go far beyond basic infrastructure.

In an attempt to tackle these complex social challenges, the team is now developing a Community Infrastructure Design Programme to collaboratively solve a common community infrastructure problem with the community.

By doing this, the team seeks to improve infrastructure while building the capacity of communities to overcome future challenges.

Since 1990, MIT and Tokyo Institute of Technology have been organising the International Design Contest (IDC) Robocon. University students from all parts of the world gather for this annual contest that takes place at a different host country each year. Coming from different cultures and backgrounds, students gather for two weeks to share ideas and knowledge on robotics and develop a winning robot design. This year’s IDC Robocon was held in University of Sao Paulo, Brazil, from 8 to 20 July 2013.

Four SUTD winners of the SUTD Technology and Design Challenge 2013 received an all-expense paid trip to take part in it. The annual SUTD Technology and Design Challenge is also open to non-SUTD students and NSFs aged 17 to 21.

During the summer break, a group of SUTD students chose to head to the ‘Synchronised movements, digital techniques applied to earth construction’ workshop at Lyon held by the Architectural Association School of Architecture.

Earth. Age-old building techniques. Digital design. New machinery. The question: how do we combine TRADITION & TECHNOLOGY?

IDC ROBOCON 2013

COMBINING TRADITION AND TECHNOLOGY

DESIGN AND SOCIAL CHANGE