

# GRADUATE STUDIES NEWSLETTER

BY THE OFFICE OF EDUCATION (GRADUATE STUDIES)

Issue 2 - February 2022

## INTERVIEW WITH ASSOCIATE PROFESSOR SOH GIM SONG

DIRECTOR OF EDUCATION

**In this issue, we are pleased to have Associate Professor Soh Gim Song, who is also the Director of Education to share with us more about his roles in SUTD, passion and what he enjoys doing outside his work and research.**



### **Share some experience as a pioneer faculty at SUTD**

It has been a very rewarding journey. The experiences include many “firsts” like working with campus builders, going through the Teach-the-Teachers program, participating in and developing demo prototypes for our first ever open house, developing curriculum, designing laboratory, working with like-minded faculty members to teach and shape SUTD DNA, starting my research, moving from Dover to Changi, and seeing our very first batch of students graduating.

One memorial experience I had was on the Teach-the-Teachers program at the Massachusetts Institute of Technology (MIT) where I experienced deep design immersion. I spent close to a year at MIT serving as a co-instructor in two of their signature classes “2.007 - Design and Manufacturing I” and “2.009 Product Design Processes”. We were also imparted the MIT DNA through our weekly meetings and discussions with Prof. Richard de Neufville, and gained teaching feedback through their Teaching + Learning Lab. I also coincidentally met my former Junior College teacher, who asked me for directions during her tour at MIT too!

### **What do you enjoy doing beyond your work and research?**

My pastime was not too different from a typical Singaporean. I enjoyed eating, traveling, and interacting with other cultures. Being in academia, I would say this is one of the perks we enjoy when traveling to international conferences to present our work. We not only get to interact with the very best minds but are also able to try out the local cuisine and understand the local culture better. However, this changed after my son (Jansen) arrived in Nov 2020. I enjoy spending whatever free time I have interacting with him. He was named after a Dutch kinetic artist; “Theo” Jansen.

### **Describe your role as an Associate Professor in the Engineering Product Development (EPD) Pillar and as the Director of Education**

As a faculty in SUTD, I have to work on 3 fronts – research, education, and service. So, my schedule is not fixed typically and varies from term to term. Activities from all 3 fronts keep me very busy throughout the week. For instance, I begin my last term Friday with two cohorts back-to-back from 8.30am to 1pm. This is followed either by service-related meetings (OEDU (Previously OGS), UCC, etc.) or research meetings with industry or student consultations and then back to an independent study class that I conduct for my graduate students before I end the day. Besides meetings, as part of my research work, I could be outfield performing robotics system tests with my group of researchers.

In EPD, I am part of the curriculum committee as the robotics-track lead, advising students on track-related matters and approval of their study plans. I teach “30.001 Structures and Materials” (a core course for all EPD students) and “30.105 Machine Element Design” (taken by more than half of EPD students), and work on robotics and additive manufacturing-related research projects.

Continue on the next page -->

In OEDU, the service role is even broader. Essentially together with Prof. Ashraf (Associate Provost for Office of Education), we oversee the administration and governance of undergraduate and graduate studies within SUTD. This includes but is not limited to overseeing funding related to graduate programs, engaging with Ministry of Education (MOE), government agencies (e.g. A\*Star, AISG), industry and academic partners, executing outreach activities, and supporting all graduate students well-being in all areas including facilitating professional development activities for them. I have also served as a member representative in a variety of committees (URB, PLG, UCC, etc.) as part of this role too.

**Tell us more about your passion in Robotics and what inspired you pursue research in this field?**

Since young, I always found machines that move very fascinating. I grew up watching Transformers and that has spurred my curiosity on how to make intelligent machines work. This curiosity had led me to pursue education in the science stream and subsequently graduate school in robotics. In graduate school, I was quite fortunate to meet my advisor, a very well-known and respected robotic kinematician in my field. He has shaped a lot of my perceptions regarding education and research. I am also part of Prof. Ferdinand Freudenstein's Doctoral Descendant, who was known as the Father of Modern Kinematics. Today this tree contains more than 750 people and 7 generations of PhDs descendants.

**Share with us your biggest satisfaction in your career thus far**

I would say there are two big satisfactions. One in education and one in research. On the education front, being able to see our students (in particular the risk-takers pioneer batches that put their faith in us) move on to be very successful in life. I am very proud of them for what they are capable of and have achieved. On research, it was to hear first-hand from the industry that we are very different from other Institutes of Higher Learning (IHLs). In one of my conversations during an event with one of my industry collaborators, he casually mentioned to me that SUTD has changed their perception of IHLs. It does make me feel appreciated for the hard work that the research team put forth and we do make an impact in solving their problem.

**How has COVID-19 changed the way you conduct your lessons and mentoring student's research?**






COVID-19 makes conducting lessons rather challenging. Students missed out on peer learning because of ZOOM, and educators end up putting in at least twice the time to deal with the constant changes on SMMs, meeting the students, and addressing the students' questions offline. The interaction is just so different when conducted through ZOOM. In physical classes, I would know rather easily if students were not getting certain concepts through their body language, it gives me valuable feedback if I need to re-explain or adjust my teaching pace. Also, it is rather easy for them to clarify questions face-to-face and understand concepts through my body language.

COVID-19 had forced me to constantly innovate and experiment on how to make students learn better (It is really challenging to pull off jokes in ZOOM without them seeing your body language, which I typically do to bring them back to attention). On lecture delivery, I would employ multiple projection means (a computer for PowerPoint and chat monitoring, a live camera for demonstration, an iPad for written explanation), and pause constantly for them to ask questions. During labs, I would have a "cyber" and "physical" crowd so that lab activity can still proceed even under the tightest SMMs of groups of 2. As my class size is rather large (>50), I have to run two lab cohorts at the expense of increased contact hours. However, I find it worthwhile as it helps the student to learn better through a physical class at the expense of my time. 🎓

# CONTENT

- Page | 03 Event Highlights
- Page | 04 Programme Highlights
- Page | 05 Student Achievement
- Page | 06 Alumni Sharing
- Page | 07 Society of Women Engineers (SWE)
- Page | 07 GSA Happenings
- Page | 08 PD Course Highlights

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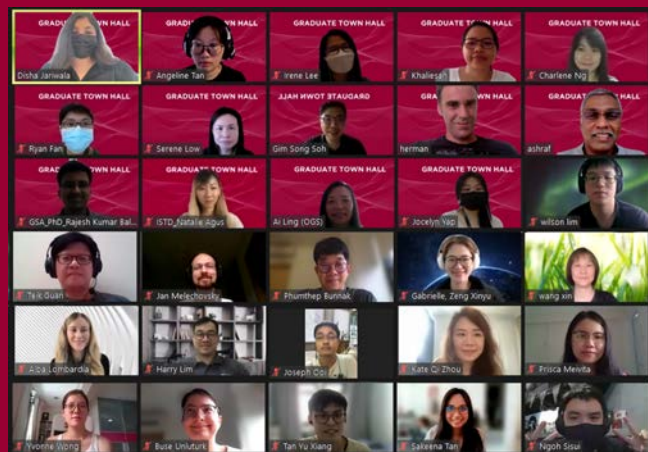
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# EVENT HIGHLIGHTS



## GRADUATE MATRICULATION - SEPTEMBER 2021 & JANUARY 2022

On 8th September 2021 and 19th January 2022, more than 180 students joining 7 different graduate programmes were successfully matriculated. The morning started with a welcome address by Associate Provost Prof. Ashraf Kassim, and was followed by briefings on important information related to student administration matters, student wellbeing & workplace safety as well as SUTD branding. In the evening, the newly matriculated graduate students were able to let their hair down to engage in a night of fun and exciting games with the SUTD graduate community at the online ‘Matriculation After-Party’ organised by the Graduate Student Association (GSA).



## GRADUATE TOWN HALL



At the November 2021 Graduate Town Hall, the latest updates and happenings of the SUTD graduate community including graduate student achievements and new initiatives were shared. PhD Graduate Alumni (Class of 2018), Dr. Natalie Agus, who completed the PhD degree in 3 years, was invited to share more about her journey as a SUTD PhD student. The Graduate Student Association (GSA) also shared about their past and upcoming events, providing much anticipation. The event concluded with an opportunity for participants to interact with Graduate Studies team & GSA to share their thoughts for new initiatives & etc.



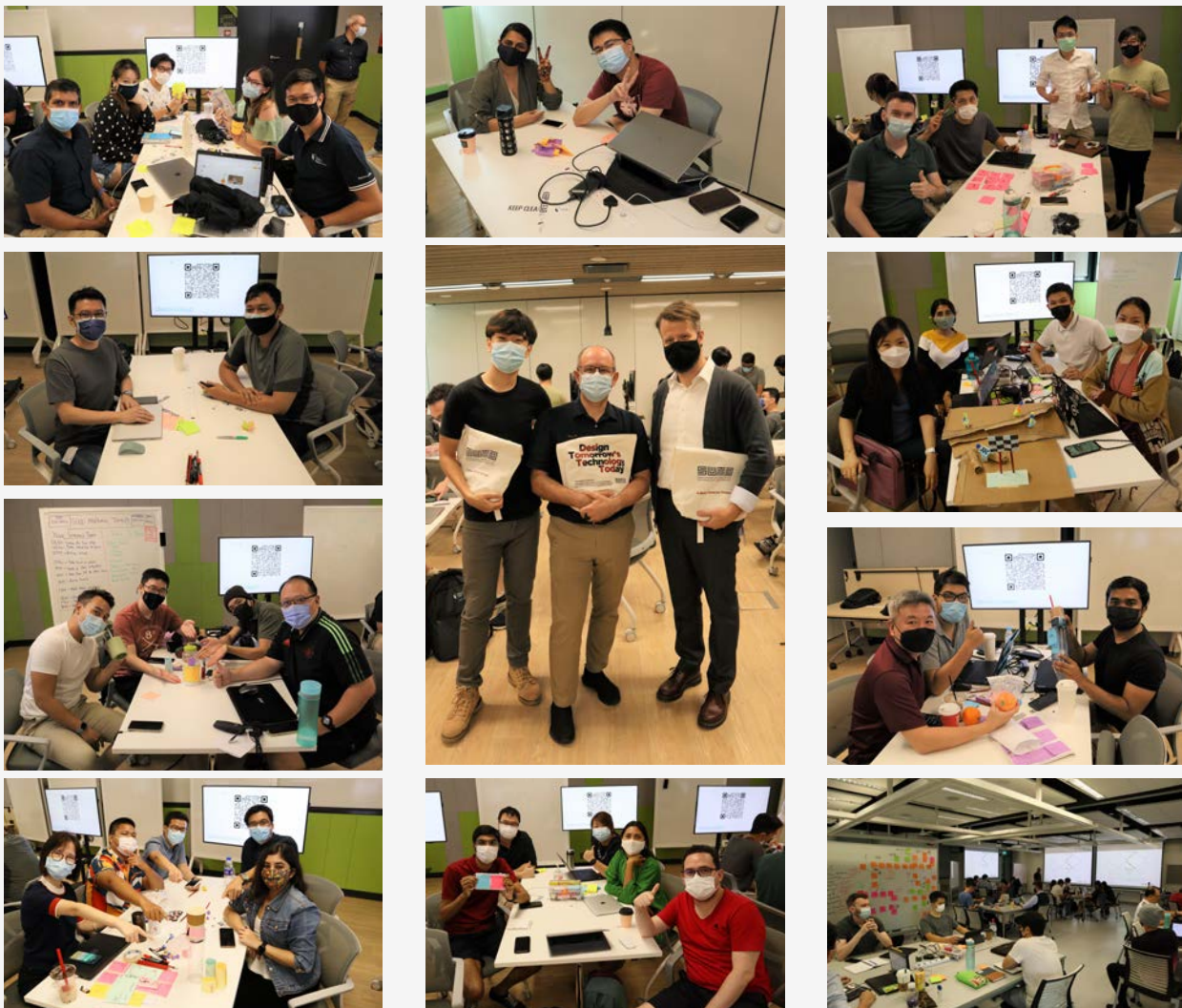
## Master of Innovation by Design (MIbD) "Overseas" Experience



As part of the MIbD Programme, MIbD students undergo a one-week Overseas Experience (OE) which aims to provide students with experiences in design, manufacturing, and marketing of new product, service and systems. Due to the travel restrictions arising from the COVID-19 Pandemic, the OE was repositioned as an 'out-of-class' experience which maintains the essence of these different experiences.

The OE held in August 2021 was organised with the Singapore Management University (SMU)'s Executive MBA (E-MBA) programme. MIbD students and students taking the SMU E-MBA "Design Thinking" module worked in mixed teams to design and prototype a solution for a real-world problem during the one-week immersion. The week was composed of in-class lectures and hands-on activities at SUTD and SMU, led by Prof. Arlindo Silva of SUTD and Prof. Tamas Makany of SMU. In addition, an out-of-class continuation of the student projects which comprised further prototyping and market surveys, was carried out.

The OE program was designed to enable each team to share knowledge and experiences. On average, students from SMU were more senior and hold managerial positions, while the younger SUTD students have strong technical understanding of product & service systems. This allows students to leverage on each other's strengths and approaches to design. Overall, the OE garnered positive feedback and the week was useful and rewarding to all those involved.



*\*The MIbD "Overseas" Experience was conducted in line with the Safe Management Measures (SMM) at that point in time.*



*In this issue, we catch up with Dr Ng Jia Yi, a PhD (ESD) Graduate, September 2020 who was granted the prestigious fellowship under the Peking University (PKU) - International Institute for Applied Systems Analysis (IIASA) Postdoctoral Program.*



**“ Please provide us a short introduction about yourself**

I am Jia Yi, a ESD PhD programme graduate in 2020. I was under the EDB-IPP scholarship during my time here and worked in Veolia City Modelling Centre while studying at SUTD. My research interests lie in water resources management, water-energy nexus and multi-objective optimization. I enjoy this line of research because I feel that environmental resources are precious to humankind and understanding and managing them is a challenging and purposeful thing to do.

**Share with us your thoughts and feelings being awarded with the PKU - IIASA Postdoctoral Fellowship and what do you hope to achieve there?**

I feel proud of myself that I took the step to apply for the fellowship and I am grateful that I am being awarded the fellowship.

I hope that I will be able to carry out cutting edge research regarding sustainability and water-energy systems, experience working in different research groups, and develop critical thinking skills necessary to become a good researcher.

**How has SUTD PhD Programme prepared you for your current role at work?**

The curriculum (modules in the first two years) provided a strong foundation in theoretical knowledge needed for research work. Writing classes and competition such as the 3-Minute Thesis challenge trained our science communication skills. Overseas conference and attachment exposed us to the wide range of research in our field. Interactions with fellow students and professors were stimulating and generated more research ideas and directions.

**How would you describe your SUTD experience?**

I did both my undergraduate and PhD at SUTD. I would say that the experience is really enjoyable (else, I would not have continued my PhD here). Due to the small population in SUTD, I felt that the community is very close-knit. The professors are approachable and there are also many bonding activities (before Covid) for the graduate students.

For my graduate journey at SUTD, I think a memorable experience would be during the qualifying exams period. ESD students have to take qualifying exams in linear optimization and stochastic models at the end of the first year. During this time, our ESD PhD batch (approximately 10 of us) studied together to help each other for the exams, I cherished the solidarity in our batch then.



**Any words of encouragement to SUTD graduate students?**

It is okay to feel uncertain, because right now even when I am featured here, I am still very uncertain of what is to come next. I think it is a common feeling to have when you are doing a postgrad degree while your same age friends are climbing the corporate ladder.

All the best, the world is your oyster! Nah, I don't really go for these cliches. Life probably will get tough (if it isn't already), so all the best and enjoy your oysters. 🎓”



*In this issue, we catch up with Dr Chuadhry Mujeeb Ahmed, a PhD (ISTD) Graduate, January 2020 who is currently a Lecturer at the University of Strathclyde (Glasgow, Scotland).*



### **“Please provide us a short introduction about yourself**

My name is Mujeeb and I graduated from SUTD PhD (ISTD) Programme in 2020. I hail from the suburb of Islamabad, the capital city of Pakistan. I come from a family of farmers with a background in education. I had a great value for my parent's interests and efforts in my education and have worked hard to be on the top not only in academic activities, as well as sports and debating. After completing my primary and high school education, I was fortunate to get admission for undergraduate studies in the then newly formed Institute of Space Technology in Pakistan. Upon graduation, I was awarded a full scholarship by the higher education commission of Pakistan to pursue master's studies at the Seoul National University, South Korea. After earning my master's, I went back to Pakistan and taught as a lecturer for a couple of years before moving to Singapore on the prestigious PGF fellowship to commence my PhD at SUTD. My hobbies include cooking, badminton, hiking, cycling and cricket.

### **Share with us your roles and responsibilities in your current employment**

I am currently a Lecturer/Assistant Professor (Computer and Information Sciences Department) at the University of Strathclyde, mainly involved in teaching, research and academic services. During my first year, I taught a Masters' course and co-supervised two PhD students. Recently, I had been awarded a well-known PETRAS grant as a Co-PI and designed a water distribution testbed which is currently being developed at the University of Strathclyde.

### **How has SUTD PhD Programme prepared you for your current role at work?**

I have always wanted to pursue a career in academia and SUTD played a huge role in helping me to achieve this dream. Being in a young university focusing on “growth”, students are motivated to grow as one. Having state-of-the-art facilities and testbeds such as those in iTrust, made SUTD the best place to conduct new research on cyber-physical systems security. The mentorship and guidance provided by the professors in ISTD, allowed me to achieve desired results while giving me freedom in my research work.

I was fortunate to be supervised by three Professors who are excellent in their field. The strong support from faculty and the administrative departments also made postgraduate life easier for students. The Teaching Assistantship (TA) programme, professional training and workshops organised for postgraduate students have prepared me for my current role.

### **How would you describe your SUTD experience?**

There were many memorable experiences in SUTD. The vast international opportunities such as sending students as delegates or inviting speakers from all over the world are another unique feature of SUTD. I was inspired when I had the chance to meet big names in the scientific community within and beyond my research field. These experiences provided immense exposure for Ph.D. students and set SUTD aside when compared to Ph.D. programmes elsewhere. In addition, receiving the best TA award and FIRST Industrial awards were also encouraging. Above all, I felt the most excitement and motivation during the meetings with Prof. Aditya Mathur and the rest of the supervisory team. Singapore is one of the best places to live and work in and being at SUTD was the happiest time of my career.

### **Any words of encouragement to SUTD graduate students?**

My advice might be helpful to those who plan to join academia in the future. In my opinion, exchange programmes and networking sessions are important avenues to establish good connections with people in relevant fields of work. It is perfectly fine to reach out to people whom you want to collaborate with and it is best to do it early. Taking part in academic services, such as reviewing papers and organizing conferences, will also provide you with more learning opportunities. At times, we could get stuck in our research project and may not yield the expected results. Depending on the field of work, especially experimentation-based, this could happen frequently. A tip to share would be to get inspiration for new ideas by reading outside your domain to borrow interesting frameworks and be persistent, not losing hope. Doing so, we could observe some interesting behaviours, eventually leading to new ideas. I hope my experience would resonate and help others. All the best! 🎓”

# SOCIETY OF WOMEN ENGINEERS (SWE)

SUTD is now an official affiliate of Society of Women Engineers (SWE), the world's largest advocate and catalyst for change for women in engineering and technology. SWE aims to empower women to achieve their full potential in careers as engineers and leaders, expand the image of engineering and technology professions, and demonstrate the value of diversity and inclusion.

All undergraduate and postgraduate students, researchers, alumni faculty and staff are welcomed to join the SWE@SUTD family. Those joining the SWE@SUTD family would get mentorship and guidance from faculty, researchers and graduate students. There will also be networking events with industry professionals and other SWE affiliates!

Do keep a lookout for SWE@SUTD events on Instagram or indicate your interest to join the SWE@SUTD family by scanning the QR Code.



@swe\_sutd

Scan to indicate your interest to join the SWE@SUTD



# GSA HAPPENINGS

## BUDDY PROGRAMME

The Buddy Programme 2021 was organised by SUTD Graduate Student Association to connect the new incoming September 2021 graduate students with the existing SUTD graduate students to forge friendships, share their experiences and tips to navigate in the new environment. We appreciate the contribution of 21 Buddy Volunteers and active participation of 131 new students to the buddy program. We hope this experience gave you wonderful memories and forged new friendships. - Contributed by GSA EXCO.



Stay tuned for exciting initiatives coming your way!

Contact Us:  
gsaexco@sutd.edu.sg

♡    👍

## Feedback from Buddies and Volunteers

“My Buddy experience was very useful and positive. Due to the COVID-19 border restrictions, I had to study online till the restrictions were relaxed. My buddy was really responsive and supportive through this phase of me studying online remotely. I was able to get a glimpse of the work culture and practices in SUTD through my buddy even though I had not arrived on campus back then.”

“It was a good experience to meet new people and improve my networking session with new persons. For graduate students, outreach with other people is an important skill to be developed. Surely, this program helped me to engage myself with the services and making new friends/colleagues/mentors.”

“Excellent program, and I was allocated an excellent Buddy who is very sincere, friendly, and helpful person.”

Scan to join the Buddy Programme as a Volunteer

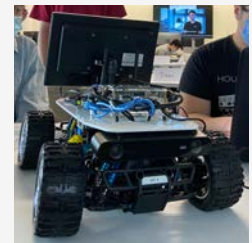


## Robotics for Professionals



“Led by Assistant Professor Malika Meghjani, this 24-hour hands-on Robotics for Professional course introduces students to the fundamentals of developing robotic systems which can sense, plan and operate autonomously in the world.

Graduate students from ISTD, EPD and SMT designed and implemented algorithms for the 1/10th size race cars to make autonomous. At the end of the course, each student team showcased their work with an obstacle course challenge using visual sensors to detect and avoid other race cars on the track.”



\*The Robotics for Professionals PD course was conducted in line with the Safe Management Measures (SMM) at that point in time.

## OUR GRADUATE PROGRAMMES

### MASTERS



DUAL MASTERS IN NANO ELECTRONIC ENGINEERING & DESIGN



MASTER OF ENGINEERING IN INNOVATION BY DESIGN



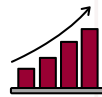
MASTER OF ENGINEERING (RESEARCH)



MASTER OF ARCHITECTURE



MASTER OF SCIENCE IN SECURITY BY DESIGN



MASTER OF SCIENCE IN URBAN SCIENCE, POLICY AND PLANNING

Application for the September 2022 intake is currently open

### Ph.D.



ENGINEERING DOCTORATE



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SUTD PhD



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