SUPERBUG SLAYER
Hussen Tareq

COUNSELLOR OF YOUNG MINDS
Oindrila Dutta

THE SMARTEST GRID
Ashok Krishnan

POWERWOMAN
Xin Pei

SELF REGULATED RESEARCHER
Quan Zhou

NTU SOCIETY OF YOUNG RESEARCHERS TURNS ONE!

BOOK EXPLORER
Karryl Sagun

Shahrouz Amini

EXPRESSING NATURE
The objectives of the Council include:

1. Representing the interests of graduate students and raising their issues to the university administration with the purpose of seeking ways to resolve them;

2. Organizing orientation programs for new graduate students;

3. Improving the graduate student life on campus by planning and organizing social, recreational, sporting, cultural, educational, and career related activities;

4. Fostering a strong and meaningful relationship between the graduate and the undergraduate student population, faculty, staff, and administrators.

Look forward to events such as:

- Orientation program
- GradFest
- 3 Minute Thesis
- TEDxNTU
- Talks organized by NTU Society of Young Researchers
- Sports Week
- Career and Entrepreneurship related programs
- Recreational activities and parties within and outside NTU.

It’s about YOU. It’s about US.
4 foreword

Foreword by editor-in-chief
Iuna Tsyrulneva

4 ideas

Why graduate students gravitate towards SYR

5 starring PhD

Society of Young Researchers to fill the bill of academic interaction among graduate students

6 featuring

Counsellor of young minds
Oindrila Dutta

8 Superbug slayer
Hussen Tareq

10 Self regulated researcher
Quan Zhou

12 The smartest grid
Ashok Krishnan

14 Book explorer
Karryl Sagun

16 Shahrouz Amini expressing nature

18 POWERwoman
Xin Pei
**foreword**

Having an opportunity to pursue studies at one of the world top-ranked universities and to communicate to outstanding young minds, endowed me, and in return, I have the wish to disclose brilliant personalities that are behind dry names in papers and reports and that belong to my mates. Let’s know more about our peers before they win Nobel or McArthur Fellowship! By this, let me introduce to you the first edition of the PhD Magazine dedicated to the first anniversary of NTU Society of Young Researchers. The main object of both magazine and society is a young researcher, with his life, project, hobbies and dreams.

In this edition we are going to immerse into the world of smart electricity, communication among migrant women, pathways of drug synthesis, comics in the Philippines and interior arrangement of shells, claws and mantis shrimp. We are going to acquire new skills in using YouTube and Facebook for enhancing our learning abilities and to learn about the effect of art on grievance. And of course, we will pay attention to the opinion of our guests because without their valuable thoughts we would not develop.

*Iuna Tsyrulneva, editor-in-chief*

---

**ideas**

**Zhaolong Hu**

In the beginning, SYR was kind of like the regular seminars in MSE where normally invited professors give talk about their research. However, the topics are more lively and interesting instead of pure scientific subjects. For example, the first SYR talk was still like it happened yesterday. The presenter [Danylo Lysevich – ed.note] was a PhD student who has about 8 years of being a captain on the sea. He told us about some of his previous jobs and most importantly, his experience in the marine industry. To me, that’s something I’ve never learnt before, and it’s not really available in regular school seminars. It broadened my horizon. Besides, SYR has provided a platform for better discussion with the speaker and networking with new people. The effect of SYR is more indirect and changes the way of thinking in my research. It might also be a good idea to re-invite previous speakers to the seminar. As to topics, it would be great to have more about different industries. We don’t have to limit it to academia.

**Raman Palikarpau**

I had a pleasure to witness the growth of the NTU Society of Young Researchers since it was just an idea floating in the air during a lunchtime talk. And I am amazed by the fact how fast it has grown in a year. People are voluntarily coming to talk about research, and, incredibly enough, they have fun while doing it! Informal atmosphere, enthusiastic speakers, plenty of food and beverages – all of that helps me to enjoy those events. The task of explaining the complicated research matters in a language simple enough to be understood by a diverse crowd takes some skill, and that is the skill I’d want to pick up. All the talks given by the SYR speakers inspire me to strive for my own improvement as those events keep delivering high-quality presentations. I’d only wish for more scientific/talk talks, as the humanities and social sciences seem to be prevailing in the session schedule recently.
Graduate students and young researchers as target audience

Revealing frailties and current problems in the field.

Improving students’ skills in presenting their works without having fear to be criticized by their supervisor.

Promoting horizontal sharing of results and ideas which can lead to the development of collaboration between schools.

Revealing frailties and current problems in the field.

Explaining research projects or scientific topics where the speakers possess profound knowledge in simple words.
You have worked with young people on mental health related topics before you started your PhD studies in the Division of Psychology, School of Social Sciences. How did it predetermine your choice of a research project?

Prior to starting my PhD, I worked as a trainee counsellor at NIE Wellness Centre in Singapore. The people that I worked with were primarily university students who struggled with everyday life concerns. This is totally different from my present research direction. However, I learned some very important skills during my Masters, and without this, I wouldn’t have been able to understand the depth of my current project, or do justice to it. I learned about my present supervisor’s research area during the second year of my Masters. After I spoke to him, I was extremely fascinated by his work, and so I applied for a PhD under his guidance.

You have chosen to work with people who encountered death of their beloved as your research area. An uneasy topic. What pushed you to opt for it among others? What was your source of inspiration?

Research has shown that human beings have a great capacity for resilience and growth after they have gone through a traumatic experience. I want to tap on this ability of human beings, by specifically exploring how parents who have undergone the traumatic experience of losing their child can learn to find hope and meaning in life. Rather than looking at mental illness and its causes, symptoms and prognosis, I want to take on a growth-oriented approach to mental health. I thought this is something that is important for the community as a whole, but there was hardly any work being done in this area, especially within the Asian context. Also adding on to what I mentioned earlier, with my background in counselling, the idea that I could integrate these skills and work within my professor’s broad area of interest and the large gap in findings suitable to the local population, it seemed like the research project I had vaguely conceptualised (it was still very vague at that time) was meeting all the criteria. So I took that as a positive sign and sent in my application.

Tell more about your research. What impact for humankind you believe the results of your research would have?

My research explores the grief experienced by parents whose young children have died due to a terminal illness. Previous studies indicate that there is a high incidence of divorce, breakdown of family relationships and mental health issues among such parents. I want to investigate the grief experienced by bereaved parents within the context of Singapore and eventually develop a counselling strategy that can be effectively applied to such individuals to reduce the intensity of their suffering.

Parents who lost their child is a particularly difficult subject to investigate. I guess that they don’t tend to communicate with other people and to describe their grievances which complicates your studies. The psychologist must be extremely accurate touching this fragile topic. How do you deal with this?

Yes, you are right that there is very little social support available for such parents. They often don't have the opportunity to share their experience with others. However, research has shown that in most cases, such parents appreciate talking to others about the trauma that they have experienced and participating in activities that can improve the lives of others who might be in the same boat as them. Therefore, it is important to broach the topic in a sensitive manner, be comfortable in broaching subjects that are not easy to discuss and give
OF YOUNG MINDS

give the person time and space to share as much as they feel safe to talk to you about. But from my limited experience in working with dying people or their family members who look after them, I can say that most of them are quite willing to talk. They seldom get the chance to bring up such topics during conversations because of the general taboo associated with the concept of death, so they value that their voices and stories are being heard.

Are there many research groups working on the same problem?
I am still at a very very infant stage of this project. It's my second semester. However, my professor has a research team comprising people who work in similar research areas. I think I have learned a lot from them and I sometimes take their help when I'm stuck with something that is beyond my ability.

How do you draw inspiration for your research?
There is a considerable dearth of research in this area, which means there is always so much that can be done and needs to be done. I am fortunate to have a professor who is extremely passionate about his work. I also hope that the findings obtained will be used to inform policy makers and mental health practitioners who work with such individuals directly on the field.

You are involved in a bunch of activities organised by NTU Graduate Students Council. What is your role there and how else do you relax outside office hours?
I like being active and involved in a variety of activities. Within NTU, I am an active member of the NTU Graduate Student Council. Although my current role description involves mainly welfare activities, I also work closely with some of my colleagues to streamline some of the daily functioning of NTUGSC and smoothen our working relationship with the university management. This year, NTUGSC also took up the initiative to redevelop Yunnan Corner as a recreational space for graduate students. I am part of that team as well. I am also an enthusiastic member of Nanyang Scholars Toastmasters Club. I enjoy the monthly meetings because of the friendly and affirming environment, and I try my best not to miss them as far as possible. Besides, I enjoy swimming, jogging, watching movies/ TV shows, travelling and keeping in touch with those that I care about.

Why did you want to share your own expertise in the field with other students within the scope of your talk at NTU Society of Young Researchers?
I think the research that I do is quite different from my that of my peers, not only those from other disciplines but even from most students in my own school. This is because I focus on qualitative methodology and study themes that tend to go unobserved by the traditional statistical models. Those unacquainted with this methodology often find it to be lacking in rigour. Hence, I thought it would be interesting to bring this up during my talk and discuss it with my peers. Further, I study death, dying and bereavement- an area that most people tend to find morbid or scary or pessimistic. But in fact, I don’t believe that’s true. I think it is an important research field which needs much work, more so within the Asian context where there is a lot of stigmas to even discuss this topic openly let alone pursue it as a career. This is another reason that motivated me to share my research area with my peers. Unless the general public is encouraged to move out of their comfort zone, talk about death and perceive it from the point of a mental health need, there is little hope for the community as a whole to accept it as a natural progression of life itself.

What were your expectations when you were asked to join the Society of Young Researchers?
I attended some of my peers’ talks at SYR before you invited me to speak. What I enjoy about SYR is that we get to talk about the passion which is the reason why we are in NTU in the first place. I know many of the SYR speakers personally, but I only have a sketchy picture of the work that they do. SYR is a platform for us to tell our peers about what drives us to be here, and because the setting is very friendly and easy-going, it’s not like other seminars where there’s a lot of technical jargon which people from outside the field don’t understand. In some ways, I find SYR is like a more detailed and non-competitive version of the famous 3 Minute Thesis... wherein we talk about the most complex and abstract things that we do in a manner that a layperson can understand it and be interested in it.

We are grateful for your courage to work on a project that involves such an uncomfortable topic for most people, and at the same time for your enthusiasm about improving the wellbeing of students at NTU. Thank you for the time that you found to share your opinions with us!

Op – Ed
To watch: Rabbit Hole
by John Cameron Mitchell
Drug resistant bacteria is a hot issue right now. Hundreds of deaths due to superbugs are reported every day. And some prompt measures need to be taken with the aim to control this. What was your reason to join this research?

It is one of the biggest emerging threats for global healthcare, affecting developing and developed countries simultaneously. The scope of the problem and the need to solve this issue motivated me to work on this problem. Infections are one of the most common cause for a visit to a doctor: you can easily think of someone in our families must have visited a doctor for this reason. Doctors use antimicrobial agents to treat those infections. But, right now we are slowly moving toward the dark age where antibiotics are losing their ability to kill bacteria. Meaning thereby, a simple infection acquired from a scratch can be lethal, and available antibiotics will be useless to cure even simple infections.

Doesn’t sound very optimistic… All research conducted in this area should be rapid with the aim to stop the fast spreading of superbugs. What are the ways to fight drug-resistant bacteria that you develop during your research?

From the business perspective, pharmaceutical companies invest on those drug development projects, which have higher profit returns. Patients with diabetes, obesity and blood pressure offer higher profits on drug sales. On the contrary, antibiotic drug development projects earn lower profits. As bacteria poses a threat of drug resistance and it requires extra resources on expedient drug research to counter the drug-resistant problem. It makes the project costly, and pharmaceutical companies avoid such investments. Fighting bacterial drug resistance needs a global effort on multiple fronts. WHO recently developed GLASS (global antimicrobial resistance surveillance system) as an initiative to curb this problem. To fight drug resistant, we have to look into three major areas: the use of antibiotics in agriculture and farming industry; the malpractices and overuse of antibiotics in the healthcare system; and new avenues of drug research to find the solution of drug-resistant bacteria. My work on PhD focused on exploring new avenues of drug research to find potent compounds to combat drug-resistant bacteria. I tried to address this issue by developing peptide-based antimicrobial agents. These peptides mimic natural peptides in the body and selectively kill drug-resistant bacteria. I also used another approach, where existing antibiotics like vancomycin were slightly modified to become more effective. I developed potent analogues of vancomycin, and they possess an additional mechanism of action with enhanced activity against microbes. To explore new avenues which can address antimicrobial drug resistance, I synthesised analogues of a recently discovered novel and highly potent antibiotic, Teixobactin. It has the ability to resist bacterial drug resistance. Hopefully, I will have a contribution in the field of antimicrobial drug resistance, which can assist fellow researchers to bring something even better.

To the best of my knowledge, you also led several scientific directions before commencing PhD studies at NTU. Did it affect your current research?

I worked at different setting in the healthcare industry, including production facility of a pharmaceutical factory, retail setup of pharmacy, pathology laboratory and research institute. All these experiences made me...
cognizant of our extreme dependence on drugs, and besides, gave me a chance to interact with patients with terminal disease who are in final stages of their life waiting for death as existing healthcare system limitations cannot cure their conditions. I realised a great need for the researcher to do more, to give patients and their loved ones real hope. I started working on research projects during my Pharm.D program in Pakistan. Since then, I was affiliated with projects related to infectious diseases and had an opportunity to work on projects involving medicinal plants. I was the first student from my institute who co-authored two publications during my Pharm.D. Besides, I was a team leader of the study on patients about the prevalence of infections caused by contaminated water supplies.

You actively participate in a plethora of academic events, by organising conferences and holding the position of a secretary of American Society for Microbiology. What are your responsibilities?

The aim of American Society for Microbiology is to bring researchers passionate about microbiology at a common platform. I am the secretary of the student chapter of American Society for Microbiology in Singapore. My role is to organise, facilitate and promote the knowledge sharing events between the researchers who have an interest in the field of microbiology.

You seem to be so engaged to a world of science! But what inspires you in your research?

The passion for creating something which will cure patients and give a hope to families and patients. In the light of recent development in the areas of drug-resistant bacteria, many are losing hope because soon our arsenal to fight bacteria will be useless. Other fellow researchers in this domain and I are working to make sure it doesn’t happen.

The work that you do with the aim to make an impact on the world of science impresses! Do you find time to relax after work? What kind of activities refresh you and affect your wish to do more in your research?

I love to be part of the community and to help others. Usually, life during PhD studies doesn’t allow other activities to be pursued simultaneously. But, I was also part of various social and volunteering activities. I was associated with GSC for first two years. I was a part of the team which brought GSC to its mature state that exists today. Besides, I have been a volunteer in National Kidney Foundation activities on weekends.

In addition, you delivered a talk for NTU Society of Young Researchers which brought together students from different schools, with various backgrounds. Your expertise raised elevated interest not only among students but also from senior university members. Why did you decide to share your ideas?

I wanted to share my work with other fellow researchers to bring forth awareness about the issue of drug resistance and its consequences. Some of us are guilty of not using antibiotics regimen properly which leads to a problem of drug resistance. Most importantly, when research work is shared with other researchers, one can get a dynamic insight or innovative feedback about his work from fellow researchers.

And the last question – what turned you to choose NTU for pursuing your PhD studies?

When I got PhD enrolment offer from NTU, I had another offer of the Fulbright scholarship for few prestigious universities in the United States. But in NTU, I have the honour to be the part of the research group, whose members worked under Nobel laureate, Prof. Robert Bruce Merrifield. Another reason for me choosing NTU is the campus, scholarship and general campus lifestyle.

It is a great pleasure to listen to a person so dedicated to looking for the cures of humankind diseases. Many thanks, Hussen, for your willingness to participate at NTU Society of Young Researchers, for your openness towards sharing research ideas and your impact on searching the ways to solve worldwide health problems.

Op – ed:
To read: Missing Microbes: How the Overuse of Antibiotics Is Fueling Our Modern Plagues by Martin J. Blaser
Nowadays when technologies are deeply integrated into the learning process, including learning management systems, massive open online courses and social media, the concept of learning has drastically changed. A spurt of learning technologies requires studies with the aim to control their impact and to direct students to self-learning. What captivated you in this area?

In general, my research area is about human being’s learning behaviour with information and communication technologies. In this research area, I investigate how technologies have changed the way people engage in acquiring knowledge and self-development. I chose this research area because I did personally benefit a lot from technologies for my learning. I also believe that technologies can help bridge the education divide in terms of time, space, and finance. My earlier academic training before PhD was mainly technology-oriented, so my research interest used to focus on how technology could be designed and developed to be more efficient and effective. However, I gradually realised that, even with the accessibility and availability of helpful technologies around, how technologies can be better utilised is more dependent on how human use them. Therefore, I started in the research area of human behaviour with technologies, and now I am working with my supervisors in WKWSCI, Dr Lee Chei Sian and Dr Joanna Sin, who also have the same research interest.

A certain portion of people is sceptic about technologies in the learning process and claims their distractive nature. Teachers may even suppress the wish of students to utilise technologies. Will your study cause a shift in mindsets?

For my research, in particular, I am mainly focusing on the use of public social media, such as Facebook and YouTube, in the formal learning context. While most research has focused on the side of technology and teacher, such as how technology can be best designed and used to facilitate teaching and learning, my research interest lies in the learner’s side. That is, I wonder if individuals can perform well with these technologies. Thus, I am more interested in understanding the actual behaviour and performance of the learner in a technology-mediated learning environment. The research project I am now working on is about self-regulated learning (SRL), which describes an effective learning process that people manage their learning to achieve desirable learning goals. Self-regulated learners will use strategies, such as goal setting, environment structuring, time management, and self-evaluation, which have been found to be effective in achieving better learning outcomes. However, individuals differ in their usage of these self-regulated learning strategies to manage their learning, especially in the context of using social media to support their learning. These differences may explain why some students are more likely to benefit from using social media for learning while some are not. Therefore, my research attempts to uncover the factors underlying such differences, as well as to understand whether the variances in using SRL strategies can affect their learning satisfaction in social media. The findings of my research will provide implications for both teachers in school and self-directed learners to achieve better outcomes by taking good use of social media for learning purposes.

I believe the results of your study will be highly appraised in academic environment, mainly for the reason.
that all of us are learners.

So far, what feedback has your research work already gained?
In one of my earlier studies, I conducted a study that investigates why people learn on YouTube. My research reveals that people who like to use the social features of YouTube, who have a favourable attitude towards using YouTube for learning, who expect to gain learning-related outcomes, and who have the experience of learning on YouTube, are more likely to learn on YouTube. This research was presented to ICA (i.e., international communication association), the top conference in communication research, and is now submitted to a journal for review. The other study I am now working on student’s voluntary use of social media for formal learning. This research reveals that there are some factors associated with students’ use of SRL strategies when they voluntarily use social media for a course in school. These factors can be divided into two sets, which are personal factors related to learning, and personal factors related to social media. Personal factors related to learning include the self-efficacy, intrinsic goal orientation, and task value regarding what you learn with social media, while personal factors related to social media use include the self-efficacy, outcome expectations, and attitudes towards using social media for learning. This research also finds that people who use SRL strategies are more satisfied with their learning experience in social media. This research will be presented in this year’s ICA.

Your enthusiasm and big volume of conducted work astound! What is your motivation to persist in research and to work efficiently?
I think my past research experience and also personal experience inspired me a lot. As I mentioned earlier in my first question, my past academic experience mostly focused on the technology side. However, I gradually realised that it is the human that determines the usefulness of a technology and utilises it. Technology is just a facilitator.

Continuing working with objects of your research at home after you left office can be an excessive surplus for many PhD students. But am I right to assume that you do not imagine your life without learning tools and technologies in everyday life?
I am a member of the WeChat group in NTU GSC. WeChat is the most popular mobile social media tool in China, and GSC just established this group to help publicise information in Chinese to Chinese students and alumni. We started from scratch, and now, after a few months operation, we have more than 3000 followers. I am really proud that I am part of the team and I enjoy the process of editing and disseminating information that people want to read and share.

NTU Society of Young Researchers actually provides the platform for learning where students tell about their research projects, share experience and discuss the topics that are beyond their research. They are encouraged to gain new information while talking to their peers in an informal environment. What attracted you to the idea of delivering your talk to students with various backgrounds?
I think it is very meaningful to have an opportunity to gather people with different backgrounds to share insights and exchange ideas. Regarding this, NTU Society of Young Researchers has provided a really great learning platform. Through attending talks and engaging in discussions, I have learned a lot from many research students in NTU who are generous to share their own experience and perspectives. While I am a beneficiary as a participant, I am grateful that I can also have the opportunity to deliver a talk about my research. Hopefully, it can exert positive impact to someone.

How did NTU contribute to your PhD studies and what guided you upon selection of PhD program?
There are mainly three reasons why I chose NTU to do my PhD. First, academically, I found my current supervisors have similar backgrounds with me. Their current research focus fits well with my research interest. Second, financially, NTU provides very good financial support, which is very important because PhD students can focus on doing research, rather than sparing extra time and effort on doing other things to earn money for living expenses. Last, personally, I am a family person, so I chose Singapore, which has a good academic environment and also not that far away from China (5-hour flight to my hometown). I don’t need to worry about time differences when communicating with my parents, on which Singapore is better than other places such as the US and Europe.

Your valuable opinions and eagerness in pursuing your research are remarkable, Zhou Quan! Not everyone can use results of his research in everyday practice but you do, and you benefit from it. It was a pure delight to talk to you and to discuss your passion. Thank you for willingness to share your thoughts with students’ community!

Op – Ed
To learn: from Coursera.org
A lot of hype has been observed around the term of smart grids during recent years. We encounter more and more world economics turning to grids modernization through the development of smart appliances, renewable energy and efficiency energy resources. What made you choose to work on this topic?

I had developed an interest in this area during my undergraduate studies in India and also while working in industry. Through my academic and industry experience, I could see the potential offered by renewable sources to transform lives and also the challenges associated with it. The ecosystem in my native country, India, was also becoming more conducive to the introduction of ICT (information and communication technology) in the electricity sector. All these factors motivated me to learn more about smart grids and renewable energy.

What kind of challenges do you mean when talking about renewable sources? Are there any blank spaces that need to be investigated still left?

My research focuses on how to effectively integrate different energy sources into the power grid through the use of mathematical optimisation techniques. Currently, my focus is on the effective utilisation of Combined Heat and Power (CHP) plants for supply of both electricity and heat for industrial processes. I also study the utilisation of such plants when it is used in conjunction with other generation sources like wind, solar, battery storage and thermal energy storage systems. The overall aim of my research is the more effective utilisation of clean energy sources which will lead to reduced carbon footprint and more reliable energy supply for mankind. As for blank spaces, ensuring the stable operation of the electric grid while integrating renewables is a major challenge which researchers are working on. In addition to this, several researchers are looking at ways to bring down the costs for renewable sources. Cyber-security is a major emerging research in relation to smart grids since the introduction of communication technology makes the grid vulnerable to hackers. I presented some examples of this during my talk.

Your research is tightly connected with industry which requires the involvement of collaboration. Do you receive any supervision from industrial partners?

I am trying to implement my research on a pilot scale plant in the Clean Energy Research Lab at NTU in collaboration with some undergraduate FYP students. I am associated with the Cambridge CARES project which has opened windows for collaboration with researchers from NUS and University of Cambridge. Moreover, I have published a few papers in renowned conferences like
The smartest grid

the American Control in 2016. I have also submitted some manuscripts to reputed journals which are currently under review.

This is impressive! I believe that international recognition of your work is the best inspiration to continue. Is there another driving force that instigates you to conduct your research?
The immense potential of electrical energy to transform lives and indeed entire economies inspires me. At the same time, it is important to recognise that the carbon footprint of conventional sources of energy is harmful and therefore we need to try and find effective ways to increase the penetration of cleaner energy sources.

While being busy with the development of technologies for pursuing your PhD studies, do you find time for social activities?
I am currently the Executive Vice President of NTUGSC. This role allows me to meet people from diverse backgrounds in NTU and to contribute something back to the NTU community. My other hobbies range from philately, numismatics, distance running, table tennis and quizzing. I also love watching movies in my native language Malayalam and Hollywood movies (from 1950-1980). I am also active in Nanyang Scholars’ Toastmasters Club which has played an important role in improving my communication skills.

Your research area with a vast number of technical definitions might seem complicated for people with different from engineering backgrounds. At the same time, your talk for NTU Society of Young Researchers attracted students from different schools who left the meeting with a clear understanding of what smart grids are about and the ways of their functioning. How did you manage to achieve this and why have you decided to share your research project?
Electricity is not something which is often tangible, and the complexities and innovation involved in its supply are not well known among the general public. I wanted to spread some awareness as to how ongoing research in this field impacts our everyday lives. In addition, I wanted to showcase different aspects of research in my area to demonstrate how interdisciplinary it actually is and how people with different areas of expertise can really contribute. At each point in my presentation, I tried to put myself in the shoes of the general audience to see if they would be able to follow my explanation! The lively discussions and questions my talk provoked left me satisfied that I was successful in my attempts to some extent at least.

And the last question: what affected your choice of NTU as a start point of your career?
To be honest, I was attracted by NTU’s ranking while applying for the post-graduate program in NTU. In addition, NTU allowed those with Bachelor degrees to apply for PhD. I had received offers for doing my Masters from several universities in Sweden and Germany. My current supervisor’s research profile coupled with encouragement from my family, friends and teachers led me to finalise NTU as the destination for my post graduate education. Singapore’s reputation as a safe, multi-cultural and vibrant country also played a major role in me choosing NTU for my post-graduate education.

Your passion for the work you do can serve as inspiration for the scientific community. The ideas you contribute to the development of smart grids are relevant and internationally well recognised. We would like to thank you for revealing your bright personality and for active participation at NTU Society of Young Researchers.

Op – ed
To read: Renewable Energy: Power for a Sustainable Future
They say that rapid implementation of electronic technologies puts book industry under danger of extinction. At the same time, book addicts help to establish independent and underground publishing houses that promote distribution of printed books. What impact do you believe your research would have for followers of both opinions?

Basically, I look at the contemporary book trade landscape. How a book is born, how it dies, and how sometimes it is born again. Oftentimes familiarity of certain objects causes us to neglect them—but if we look closely a book isn’t just a book—it can be an instrument of oppression, a tool for gaining independence, a measurement of a certain society’s success, among many others.

Does book publishing follow the same historical pattern in any part of the world? Are there any differences in understanding book trade according to your worldwide colleagues?

I’ve presented parts of my thesis in different parts of the world—the UK, New Zealand, Taiwan, China, South Korea, and will be doing so in the United States soon…but ironically not in the Philippines (my home country)! I only know of two book historians in the Philippines. We do have a very vibrant publishing industry, but I guess not too many people are interested in the subject. That’s okay, more research for me! Haha! Another thing is that when people think of communication and information studies (my field), the impulse would be to equate it to social networking sites and the Internet… then again, today we live in a polymedia society—with Facebook, Twitter, Instagram, yes—but books, newspapers, the radio, and television have not been obsolete yet! And I think this is an angle that most researchers miss—at least in this part of the world. So for my resources, I have to rely mostly on those from North America and Europe, but I hope more people in the region will be drawn to this topic in the near future.

Every book is a separate world that instigates your imagination, develops creative thinking and adds auxiliary life experience. Solely this can become an inspiration source for conducting research. But what else arouses your interest?
The book’s materiality—the “bookness” of the book. Its smell, the feel of its pages, the beautifully crafted cover. Lately, I’ve been drawn to studying books of centuries past, with very intricate details and expensive materials (including gold)! Ah, they don’t make them like they used to. And yes, I am an old soul. Haha.

While reading becomes an extracurricular activity for most of us, your interaction with books is an enjoyable obligatory everyday part. What else captures your mind as strongly as books? TRAVEL! It doesn’t necessarily have to be overseas (although I won’t say no to that). A trip to Tiong Bahru or even a stroll along Singapore’s reserves is enough to energise me. I also love meeting new people, gaining new experiences, eating new food. Doing my PhD here in Singapore and being a member of GSC allows me to do all that—and more!

It is marvellous – all your passions interact and complement each other! I hope, your talk about the development of comics industry in the Philippines, delivered within the frames of NTU Society of Young Researchers and followed by subsequent dynamic discussion bolstered by students with engineering backgrounds, contributed to gaining new experience. What important keynote did you take after your presentation?
People from other fields can actually help me with my research. I think it’s the outsider looking in perspective. I might have been too immersed in communication and information studies that I have developed a blind spot from some things. It was great hearing from people doing research on hair conditioner, international relations, salmonella, music and children’s education (among many others) comment on my thesis. I actually added another finding thanks to their inputs. I’m really thankful to NTU SYR for the opportunity—and for the food! Haha. The satay was DIVINE!

What has attracted you in Singapore so that NTU became your university of choice for conducting your research?
I fell in love with Singapore’s diversity (in more ways than one) when I first came here as a tourist. Every visit is a unique experience. They say it’s a tiny red dot, but its geographical space is not directly proportional to the amount of culture it contains! Singapore still surprises me with its little nooks and crannies.

And, of course, we all would appreciate the opinion of an expert: what are three books on your bookshelf that you often refer to or would recommend to our readers?
Oh dear—it’s like having a thousand dollars and asking me which dollar is my favourite! I believe that every book has a reader, and every reader has a book—so I’d rather not impose on what people should and should not be reading. I’m also not elitist in the sense that I believe reading is reading—no such thing as “trashy” books or books that are a waste of time. If 50 Shades of Gray tickles your fancy (no pun intended) then, by all means, go read it, and more importantly, enjoy it!

Karryl, it was an amazing experience going together with you through this interview. Your engaging discussions about the current state of books industry coupled with personal reflections and inquisitive mind made the time pass by very fast. We are grateful for your contribution to the development of NTU Society of Young Researchers and passionate sharing of ideas!

Op – Ed
To read: The Amazing Adventures of Kavalier & Clay by Michael Chabon
Research fellow Dr. Shahrouz Amini is an outstanding young researcher. Today, his h-index reached 9, whereas the highest number of paper citations is 63. His research focus is on mineralized hard tissues with modulated and graded properties. He investigates the structure/properties relationships in complex biological materials using various experimental and computational tools, from nano-mechanics to finite element modelling.

Through millions of years of evolution, living organisms have refined a wide range of biomineralized tissues to meet the key functional requirements that are central to their survival. This includes load-bearing elements and protective armour that must display adequate stiffness and strength or sharp and cutting “bio-tools” that are key in predation and feeding. These mineralized tissues exhibit multi-scale hierarchical structures to meet their functional requirements, with a precise organisation of their building blocks to optimise the combination of their mechanical properties including stiffness, strength, and fracture resistance. A distinctive model system that has gathered recent interest is the dactyl club from stomatopods (mantis shrimps). In comparison to many biomineralized composites that play a passive (defensive) mechanical role, dactyl clubs are dynamically active, hammer-like devices which are used by stomatopods to shatter the hard shells of their prey through repetitive impact loading. The mantis shrimp appendage is one of the most fascinating multifunctional biological material “bio-tools” in the animal kingdom, which the animal uses for its aggressive predatory strategies. Its hierarchical structure helps to strike and catch its prey 50 times faster than the blink of an eye while exhibiting exceptional damage tolerance properties. These ultra-damage tolerant biomineralized hard tissues represent a fascinating model to engineering composite materials with a high damage resistance, such as restorative implants, armours, and protective barriers.
Nowadays, science is inspired by the wise organisation and fine tuning nature. Biological materials compete with synthetic ones in strength and stress resistance. More and more groups turn to the development of synthetic approaches to obtain silk, collagen or to mimic adhesive mechanism of mussels. What guided you to settle in this area? First of all, as a SINGA scholar, I had the chance to propose my supervisor(s), in consequence, my research area. Joining to our lab called “Biological and Biomimetic Materials Laboratory” (BBML), which is leading in a wide range of biological materials researches from soft proteinaceous materials to ultra-hard and damage tolerant biomineralized models, gives me the chance to pick my research topic within plenty of available projects. Of course, my background in mechanical engineering and biomedical engineering over my undergraduate and postgraduate studies as well as my industrial experiences lead me to have a wise selection.

Biomaterials are characterised by high biocompatibility, meaning that the main area of their application would be medicine and biomedical engineering. What are your expectations of the impact on life quality that your research would make? My research is mainly focused on exploration, characterization and analysis of biological materials and their structural properties. These models have been evolved and optimised over millions of years to address their functional requirements. By acquiring these unique design strategies and applying them in engineering materials, we would be able to go toward a bio-friendly world while we benefit from their extraordinary design concepts and structural properties.

I believe you are the one among NTU postgrads who by the end of their PhD studies had already published several papers in highly cited journals. Would you share your secret of persistence? During my PhD studies, I have established myself as a recognised scientist in the field of nano-mechanical and multi-scale structural characterization of both hard and soft biomaterials. Over the past few years, I have fostered a strong network of international collaboration (e.g. our collaborators at University of Wisconsin- Madison, Harvard University, University of New Mexico and Max Planck Institute of Colloids and Interfaces) along a variety of research topics, which have given me great exposure to different areas of the biomaterial science and biofouling fields. These tight collaborations have led to fruitful academic achievements, such as publishing 4 first-author papers in high impact journals during my PhD (Nature Materials, IF 38.9, ACS Nano, IF 13.3, Nature Communications, IF 11.3, and Acta Biomateriala IF 6.0) in addition to being a co-author of 13 articles in prestigious journals such as Nature Biotechnology, Advance Functional Materials, Advanced Materials, etc. These achievements were recognised by my university, as I was granted the “Research Excellence Award – Class 2016” at MSE/NTU. This award is equivalent to the best PhD thesis.

Indeed, Shahrouz, you are the person for all graduate students to look up to! Having established numerous fruitful collaborations, published manuscripts in highly cited journals and participated in international symposia, you contributed to high appreciation of NTU research traditions all around the globe. In the meantime, you found time to deliver talk about structural and mechanical characterization of biological materials at SYR event, which heightened interest of students from different colleges, and it is thankworthy.
During your presentation for NTU Society of Young Researchers, you started your talk demonstrating a famous Stanford experiment that was an example of how your views and obtained results changed while working on a research project. What was your trigger to start developing a new direction in your research?

Above all, I would love to talk about the main reason behind the selection of Stanford experiment as the topic of my lecture in SYR. My purpose is to inspire more thoughts upon how social rules are established and reinforced in different organisations in real life beyond the prison in this famous psychological experiment. The reason is also in line with my dream about research - extending in-depth thinking from academia to real life. That’s why I engage in studying mobile phone use by migrant women with very limited socioeconomic status. I feel my greatest contribution might lie in the exploration of their lives with sharp and well-trained mind from academia.

Why do you consider your research significant?

My research focuses on mobile phone use by low-skilled and less-educated female migrant workers across the national border, such as Filipina and Indonesian domestic workers in developed countries, and within a nation state, such as rural-urban Chinese female migrant workers. Rather than aiming at improving mobile communication technologies to change the lives of these women, my research places the emphasis on exploring the social impacts brought by their use of mobile phones, in particular, the role of mobile phones in their gender construction and negotiation processes.

Do female migrant workers set the contact readily? Are there any obstacles that you encounter when asking for access to their mailing correspondence?

Honestly, these women do not even use mails. I access the factory, which is a fruit can factory in Northeast China, via personal networking with their managers. Then I worked temporarily in different workshops in the factory. That is how I obtained the opportunities to observe and to talk with these women.
Communication with migrant workers involves a lot of travels and work onsite. As far as the results of your study can be implemented worldwide, have you presented your work in international conferences?

I’ve presented my articles in different important conferences in the field of communication studies, such as International Communication Association (ICA), International Association for Media and Communication Research (IAMCR) and so forth. Besides, I am working on papers for publication with my supervisor.

I believe that communication with people of different cultures and learning about their ways of lives is the best motivation for conducting your research. What makes you persist in your project?

The persistence stems from my curiosity about the views and behaviours of the human being, or how human beings work together to constitute different societies. More significantly, the persistence emerges out of the persistent discovery of myself.

Facing an overwhelming amount of social contacts during your studies can be tiring. How do you blow off steam?

I love shopping, though I really try very hard to think of a more fancy hobby. But I really love shopping. The second thing came across my mind is watching videos of interviews. I love observing how people talk and analysing what they talk about.

You were the first speaker at the NTU Society of Young Researchers event who attracted students from both College of Engineering and College of Humanities because you revealed how you dealt with a sudden twist in your research journey which many of us face. How did you feel after sharing your experience?

I love the processes of diffusing knowledge via talking to others and recreating the knowledge via discussion with others. For instance, the audience of my lecture is mostly engineering students. But I was amazed by their profound thinking and sophisticated expression over the knowledge from social science. I personally feel I played the role of delivering the knowledge, engaging in the discussion of creating new knowledge and learning something new from the created knowledge. I feel particularly satisfied in the multiple role-playing, and I believe this might be the charm of SYR.

And finally – why have you decided to pursue your research in Communications field?

As Walter H. Annenberg said, “every human advancement or reversal can be understood through communication.”

Your interaction with people of different cultures and backgrounds is admirable! Making people think outside the box and play unusual roles in everyday life requests development of both creative and reasonable thinking, one part of which we usually lack to engage. Thank you, Xin, for sharing your thoughts and broad outlook with us!

Op – ed

To read: The Handmaid’s Tale by Margaret Atwood