Editors: P. Appleyard and C. Lintag

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1. FORWARD

Professor Ehsan Mesbahi, Dean, Newcastle University & CEO, NUInternational Singapore

Our University's global vision is to offer "excellence with a purpose" in all academic fronts of teaching, research and engagement and Singapore is our purposeful destination of choice, for delivery of our strengths in Science and Engineering. We are proud to have been the "one" British University, operating for 10 years in Singapore, providing skills and expertise to more than 100 industrial sectors and graduating our 1000th student in 2015, when Singapore celebrates her Golden Jubilee. Our world-class academics, spread across Singapore, Malaysia and Newcastle are testaments of our excellence and relevance to global and regional demands. Our overseas operations are true witnesses of the fact that we are not only "good at" what we do, but also, we are "good for" addressing 21st century challenges at international platforms. "Celebrating Success" only represents what we have achieved during last 12 months; it also shows an exponential increase in NUIS' successes over past 5 years in most of performance categories. Congratulations to all my academic and professional support colleagues at NUIS and NU to make this possible. With your devotion, excellence and commitment, this trend of success and growth shall definitely continue for next 10 years… It has been a pleasure and privilege to be working with you.

Professor Chris Phillips, Head of Academic Operations, Newcastle University, Singapore

Academic Year 2014/15 has seen a number of notable successes, by staff and by students, at NUIS of which we can all be justifiably proud. Many of these successes are of a professional nature, e.g. publication in a highly-ranked journal, or the award of a research grant, but others are of a much more personal nature, and we celebrate all of these successes equally. These successes help to raise the profile of individuals, but also of NUIS collectively, here in Singapore and at Newcastle University's King's Road campus and we all benefit from that. Congratulations to all those being celebrated here, I'm sure that this will spur us all on to even greater things.

2. RESEARCH ACCOMPLISHMENTS

The creation of a 'circle of knowledge', a process by which new knowledge is created (via research), shared with colleagues (via conferences, publications/journal articles, informal 'brown-bag' sessions and so on) then woven into the learning materials that make up core learning experiences for undergraduates and postgraduates alike, is part and parcel of being an Academic member of staff at Newcastle University in Singapore.

The information provided below is a list of research output which has been uploaded to the MyImpact system and highlights the accomplishments of members of Academic staff in Singapore and so, adds to the' circle of knowledge'.

'Successes' can come in many guises, administrative, personal and academic, they can be created and shared in many different ways. In addition to this Celebrating Success report, Celebrating Success posters were and continue to be created, as another medium to share the successes of the team at NU in Singapore. See Appendix A for samples of these celebratory posters.

Please note, where two members of staff in Singapore have collaborated on a publication, book etc. but are from different Schools, the item will appear in both School sections.

2.1 Articles by Academics

2.1.1 Agriculture, Food & Rural Development

Dr. Iain Brownlee

Chater PI, Wilcox MD, **Brownlee IA**, Pearson JP. Alginate as a protease inhibitor in vitro and in a model gut system; selective inhibition of pepsin but not trypsin. Carbohydrate Polymers 2015, 131, 142-151.

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Chater PI, Wilcox M, Cherry P, Herford A, Mustar S, Wheater H, **Brownlee I**, Seal C, Pearson J. Inhibitory activity of extracts of Hebridean brown seaweeds on lipase activity. Journal of Applied Phycology 2015, (epub ahead of print).

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Seal, C., & **Brownlee, I.** (2015). Whole-grain foods and chronic disease: evidence from epidemiological and intervention studies. *Proceedings of the Nutrition Society , 74(3)*, 313-319. Cambridge University Press. doi:10.1017/S0029665115002104

Dr. Mei-Yen Chan

Ong, A., Frewer, L., & **Chan, M.-Y.** (2015). Cognitive Dissonance in Food and Nutrition – A Review. *Critical Reviews in Food Science and Nutrition*. doi:10.1080/10408398.2015.1013622

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Dr Nasir Al-Lagtah

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Nasir M.A. Al-Lagtah, Alaa H. Al-Muhtaseb, Mohammad N.M. Ahmad, Yousef Salameh, Elaboration and characterisation of novel low-cost adsorbents from grass-derived sulphonated lignin, Arabian Journal of Chemistry, Available online 2 July 2015, ISSN 1878-5352, http://dx.doi.org/10.1016/j.arabjc.2015.06.033. (http://www.sciencedirect.com/science/article/pii/S1878535215002051)

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Dr Sagheer Onaizi

Onaizi, S., Nasser, M., & Al-Lagtah, N. M. (2015). Adsorption of an anionic surfactant at air-liquid and different solid-liquid interfaces from solutions containing high counter-ion concentration. *Colloid and Polymer Science, 293*(10), 2891-2899. doi:10.1007/s00396-015-3694-5

2.1.3 Electrical & Electronic Engineering

Dr. Wai Lok Woo

Zhao, L., Yin, A., Gao, B., & **Woo, W. L.** (2015). Fast Partial differential equation De-noising filter for Mechanical Vibration Signal. *Mathematical Methods in the Applied Sciences*.

Logenthiran, T.; Naayagi, R.T.; **Woo, W.L.**; Phan, V.; Abidi, K., "Intelligent Control System for Microgrids Using Multiagent System," in Emerging and Selected Topics in Power Electronics, IEEE Journal of , vol.3, no.4, pp.1036-1045, Dec. 2015
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DOI:http://dx.doi.org/10.1121/1.4903913

N. Tengtrairat, **W.L. Woo**, Single-channel separation using underdetermined blind autoregressive model and least absolute deviation, Neurocomputing, Volume 147, 5 January 2015, Pages 412-425, ISSN 0925-2312, http://dx.doi.org/10.1016/j.neucom.2014.06.043.
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Su, C.Q.; **Woo, W.L.**, "The importance of experience sharing as part of smart conditioning monitoring-a case study," in Electrical Insulation Magazine, IEEE , vol.31, no.1, pp.6-11, January-February 2015. doi: 10.1109/MEI.2015.6996673

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Prof. Ehsan Mesbahi

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Dr. Burak Cerik

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Agnew, B.; Walker, S.; Ng, B.; **Tam, I.C.K**. Finite Time Analysis of a Tri-Generation Cycle. *Energies* 2015, *8*, 6215-6229.

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Dr. Xin Wang

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2.1.5 Mechanical & Systems Engineering

Dr. Michael Lau

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Dr. Eugene Wong

M. Gupta, **W.L.E. Wong**, Magnesium-based nanocomposites: Lightweight materials of the future, Materials Characterization, Volume 105, July 2015, Pages 30-46, ISSN 1044-5803, http://dx.doi.org/10.1016/j.matchar.2015.04.015. (http://www.sciencedirect.com/science/article/pii/S104458031500131X)

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2.2 Books by Academics

2.2.1 Electrical & Electronic Engineering

Dr. Khalid Abidi

Abidi, K., & Xu, J.-X. (2015). *Advanced Discrete-Time Control: Designs and Applications* (Vol. 231). (J. Kacprzyk, Ed.) Singapore: Springer. Retrieved from http://www.springer.com/gp/book/9789812874771

2.3 Book Chapters by Academics

2.3.1 Mechanical & Systems Engineering

Dr. Kheng-Lim Goh

De Silva, R., Pasbaksh, P., & **Goh, K.-L**. (2015). Biopolymer nanocomposites: Polyactic Acid/Halloysite Nanotube Composites. In P. Pasbaksh, & G. Churchman (Eds.), *Natural Mineral Nanotubes: Properties and Applications.* Apple Academic Press. Retrieved from http://www.crcpress.com/product/isbn/9781771880565

2.4 Conference Proceedings by Academics

2.4.1 Faculty of Science, Agriculture & Engineering

Prof. Chris Phillips

Phillips, C., Starov, O., Kharchenko, V., & Skylar, V. (2015). Hacking the Innovations with University - Industry Hackathons. *University-Industry Interaction Conference.* Berlin Germany. Agriculture, Food & Rural Development

2.4.2 Agriculture, Food & Rural Development

Dr. Iain Brownlee

P. I. Chater, M. Wilcox, **I. Brownlee** and J. P. Pearson (2015). A synthetic model gut system to study macronutrient digestion in vitro. Proceedings of the Nutrition Society, 74, E6 doi:10.1017/S002966511500021X.

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2.4.3 Chemical Engineering & Advanced Materials

Dr. Ming Tham

KY, C., Birch, M., **Tham, M.**, & Novakovic, K. (2015). Intelligent Chitosan-polyvinylpyrrolidone Hydrogels for Mechanoresponsive Cell Proliferation and Differentiation. *ICMAT2015 & IUMRS-ICA2015.* Singapore: Materials Research Society of Singapore (MRS-S).

Dr Nasir Al-Lagtah

Nasir Al Lagtah. A Case Study of the Application of Aspen HYSYS to Optimise the Performance of an Existing Gas Sweetening Process Plant. *2015 AIChE Spring Meeting & 11th Global Congress on Process Safety, Austin, TX, April 26-30, 2015.*

2.4.4 Electrical & Electronic Engineering

Dr. Wai Lok Woo

Yang Thee Quek; **Woo, W.L.**; Logenthrian, T., "DC appliance classification and identification using k-Nearest Neighbours technique on features extracted within the 1st second of current waveforms," Environment and Electrical Engineering (EEEIC), 2015 IEEE 15th International Conference on , pp.554-560, 10-13 June 2015
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Teo, T. T., Logenthiran, T., & **Woo, W. L.** (2015). Forecasting of Photovoltaic Power using Extreme Learning Machine. *IEEE PES Innovative Smart Grid Technologies (ISGT) in Asia.* Bangkok, Thailand. Retrieved from http://www.ieee-pes.org/meetings-and-conferences/conference-calendar/monthly-view/165-sponsored-by-pes/334-2015-isgt-asia

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Julyanto, D., Chin, C. S., Gao, Z., Jia, J., Toh, W., **Woo, W. L.**, & Lin, W. (2015). Modelling and Simulation of a 12-Cell Battery Power System with Fault Control for Underwater Robot. 2015 IEEE 7th International

Ma, Y., Chin, C. S., & **Woo, W. L.** (2015). Neural Networks-based Acoustic Annoyance Model for Laptop Hard Disk Drive. 17th International Conference on Noise and Vibration Engineering (ICNVE 2015) (pp. 1-4). Amsterdam, The Netherlands: World Academy of Science, Engineering and Technology. Retrieved from https://www.waset.org/abstracts/30857

Charles O. Ukpai ; Satnam S. Dlay ; **Wai L. Woo**; Pupil segmentation using active contour with shape prior. Proc. SPIE 9443, Sixth International Conference on Graphic and Image Processing (ICGIP 2014), 94432J (March 4, 2015); doi:10.1117/12.2180065.

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Dr. Khalid Abidi

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Dr. Naayagi Ramasamy

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2.4.5 Marine Science & Technology

Prof. Ehsan Mesbahi

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Dr. Cheng Chin Siong

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Dr. Arun Dev

Dev, A. K. (2015). Motion and Station Keeping Aspects of Semi-Submersibles. *4th Mobile Offshore Drilling Units Conference (MODUC) 2015.* Singapore: Petromin.

Dev, A. K., & Mukherjee, K. (2014). Consideration on Structural Integrity Management Systems for Marine and Offshore Structures. *Structural Integrity Management Summit Asia Pacific 2014.* Kuala Lumpur, Malaysia.

2.4.6 Mechanical & Systems Engineering

Dr Kheng – Lim Goh

Saeedipour, H., Kalaiselvi, S., Sim, A., Gibson, G., **Goh, K.-L.**, Wong, W., & Talamona, D. (2015). Advanced in composite repair technology for aero-structures. *JEC Asia 2015 Conference.* Singapore.

Dr Didier Talamona

Saeedipour, H., Kalaiselvi, S., Sim, A., Gibson, G**.,** Goh, K.-L., Wong, W., **& Talamona, D.** (2015). Advanced in composite repair technology for aero-structures. *JEC Asia 2015 Conference.* Singapore.

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2.5 Newspaper, Radio, Newsletter or Online Contribution by Academics

2.5.1 Agriculture, Food & Rural Development

- The Asia Pacific Food Industry publication shared the Workforce Development Agency's announcement in April 2015, of the SkillsFuture Earn and Learn initiative that mentioned NU's involvement with the STEP scholarship – two WDA scholarship holders will be joining NU in Singapore in January 2016.

2.5.2 Chemical Engineering & Advanced Materials

- A **Making green plastics viable for everyday use** clipping shared the research of Dr. Nasir Al-Lagtah and was released in the Straits Times on the 1st November 2014. Dr. Al-Lagtah's research provided insight into processes which could make plastics environmentally friendly. There has been additional pick up of the NUIS press release. The coverage in China Plastic and Rubber Journal as well as Plastikcity (syndicated from PRW).

  You may also wish to access the articles from the following links;
  - Singapore university finds improved way to produce bioplastics http://www.adsalecprj.com/Publicity/MarketNews/lang-eng/article-67016288/Printing.aspx
  - Singapore scientists claim breakthrough in bioplastic production (syndicated from PRW – please see attached coverage) http://www.plastikcity.co.uk/industry-news

- Dr. Nasir's research was highlighted as part of the TechInnovation event – coverage sent across two weeks ago.
  - New bioplastics nanotechnology research presented at TechInnovation in Singapore - http://www.plasticsandrubberasia.com/oct2014/materials2.html

2.5.3 Marine Science & Technology

- Dr. Ivan Tam has been awarded Certificate of Registration as IES Chartered Engineer (Marine & Offshore Engineering) from Deputy Prime Minister. He will be one of the four pioneering M&O Chartered Engineers in Singapore and will be a panel member in the interview of candidates who apply for Chartered Engineer status.

- Dr. Tam personally led a small team of engineers to visit the Jurong Rock Caverns (JRC) in April. It was reported in the Singapore Engineer which was a publication by IES.
  - http://www.straitstimes.com/singapore/five-things-to-know-about-the-jurong-rock-caverns
  - http://www.jtc.gov.sg/industrial-land-and-space/pages/jurong-rock-caverns.aspx

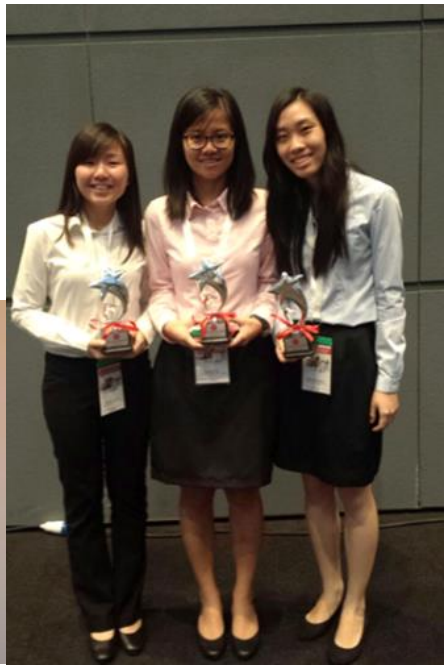
2.6 Student Conference Research and Award/Prize Successes

2.6.1 Agriculture, Food & Rural Development

- Five abstracts accepted for presentation at the forthcoming ASEAN Food Conference 2015 (one oral presentation and 4 posters) based on undergraduate student projects and Research Scholarships

2.6.2 Chemical Engineering & Advanced Materials

- Yayasan MENDAKI (Council for the Development of Singapore Malay/Muslim Community) awards for academic excellence, recognised three CEAM undergraduate students (Muhammad Haiqal Bin Mohamed Ibrahim, Jahangier S/O Abusalih and Sheik Abdul Hafidz Bin Sheik A Hamid) who graduated with first class honours degrees.
- To commemorate Singapore's 50th birthday, Spring Singapore organised the "Local Champion, Global Leaders" competition with the objective of paying tribute to the contribution of business and its workers who play a part in building our nation. Several NU students from CEAM have participated in the competition: Team Prima (and Dorothy Yeo, Sharmaine Koh and Shera Tan) and SINE (Samantha Liew, Nicholas Low and Yaseen Ahzhal Muqaffa Bin Hamzah). Their efforts were showcased at Suntec City Exhibition Hall from 5 Feb to 9 Feb 2015.



Team Prima went on to the finals and emerged as 1st runner up.

2.6.3 Electrical & Electronic Engineering

- Undergraduates from the School of EEE worked on the development of an electric buggy project as part of the FYP

2.6.4 Mechanical & Systems Engineering

- Two teams of undergraduates from MSE, lead by Dr. Eugene Wong and Dr. Ahmed Qureshi, entered the SAFE awards which were sponsored by the Ministry of Home Affairs.

  The coverage was also carried on Asia One:
  http://news.asiaone.com/news/singapore/students-create-rescue-and-survey-drone

  Short news clip "Keeping Singapore SAFE" about our students on the SIT newsletter SIT on Page 10 (attached and accessible on page:
  http://www.singaporetech.edu.sg/images/alumni/sitizenissue6.pdf).

Keeping Singapore SAFE!

Students from the Bachelor of Engineering (Hons) in Mechanical Design & Manufacturing Engineering from Newcastle University won Bronze and Merit prizes in the Security Awareness For Everyone (SAFE) Programme. Organised by the Ministry of Home Affairs, it is a competition where students submit ideas and innovations that address safety and security challenges in Singapore.

The Bronze prize-winning project was "Aerial Surveillance Autonomous Platform", a quadcopter which aids enforcement work by surveying hard-to-reach forested or crowded areas. The team comprised Mr Kok Wai Geng, Mr Mohammad Izwan bin Ismail, Ms Surianah binte Sulaiman Sujai, Mr Philemon Chor and Mr Nadeen Abu Musawwir (pictured above from left to right, with one of their supervisors, Dr Ahmed Qureishi, third from left).

Receiving a Merit prize was the project "Mobile Screen for Traffic Operations", a portable screen that can be assembled quickly to shield accident sites. The team comprised Ms Angelia Ang, Mr Koh Ih Chin, Mr Leong Wei Jian, Mr Ngu Jun Keat, and Ms Nurul Asyqah binte Roslan.

3. DOCTORAL TRAINING CENTRE & POSTGRADUATE RESEARCH

3.1 Doctoral Training Centre Working Group

Formed approximately 24 months ago, the DTCWG meets every six months and is made up of academic staff, PGR professional support staff and a PGR representative. Matters discussed include: new PGRs joining NUIS, Induction, PGR support for conference travel, PGR training opportunities (including how staff in Singapore can contribute to the PGR research training and how this will be recognised under the workload model), the potential involvement of NUIS PGRs in the QAA process in the first quarter of 2016, updates on the ePortfolio system, Supervisory duties and requirements when staff leave, development of a Postgraduate Immersion Programme and a dedicated PGR Handbook for Singapore.

Discussions from the DTCWG feed into the Faculty Researcher Development Board via skype meetings with the Head of Academic Operations and the Senior Manager Research and Development. Celebrating this process and organisational success highlights how the teams in Singapore adapt and work with the existing Newcastle systems/committees and continue to work towards equivalence when providing support our PGR candidates in Singapore.

3.2 Master of Philosophy Programme

The first MPhil candidate joined NUIS in January 2014 and submitted their thesis for examination in June 2015.

Currently there are eight MPhil candidates (including the recently submitted candidate) representing four of the five schools.

3.3 Doctor of Philosophy Programme

The first PhD candidate joined NUIS in September 2013, and the first PhD candidate to complete and submit their thesis for examination did so in June 2015.

Currently there are 29 PhD candidates (including the recently submitted candidate) representing all five Schools who offer undergraduate programmes in Singapore, plus one candidate from the School of Computer Science.

The PGR Singapore cohort is a mixture of candidates who are self-funded, supported by their Schools, industry scholaships or supported by Singapore government scholarships.

3.4 Research Education for PGR Candidates

3.4.1 Live-link Workshops

The concept of live-link training sessions was first suggested by the Research team in Singapore to the Faculty Postgraduate Skills Development team late 2014. In the spring of 2015, a 14 week PGR live-link training programme was developed in Newcastle and implemented in Singapore. This enabled the PGR candidates in Singapore to gain valuable research training and credit points towards their annual progression.

A second 14 week PGR live-link programme started in the autumn term 2015, again, providing regular PGR training opportunities. Similar programmes are being developed for future semesters. See Appendix B

3.4.2 PGR Conference Travel

A number of the PGR candidates in Singapore are 'self-funding', that is they are not on a scholarship that may support them to, for example, travel to conferences. To support these candidates to enable them to share their research, further their research careers and highlight the research activity of Newcastle University, a PGR Conference Travel fund has been set aside to support candidates when no other financial support is available. Guidance notes and application form can be found in Appendix C

3.4.3 Postgraduate Immersion Programme (PIP)

After various discussions with PGR candidates in Singapore, it became evident that while some had visited the campus in Newcastle, many hadn't and a large number were keen to do so to not only spend time with their UK based Supervisors, but also to experience all that actually *is* Newcastle University and Newcastle in general and, they wanted to do this as a group. At the PGR Research Retreat in June 2015, when Dr. Bryn Jones was presenting, the notion of a Postgraduate Immersion Programme (PIP) was raised and possible dates were discussed. It was difficult to find a suitable date for all, but the 'best fit' dates of 14-26 March 2016, was suggested and these are in fact the dates being worked towards.

Dr. Jones presented three possible scenarios to the Faculty Steering Group (FSG) with regards to the format of the PIP and also support (both academic/research training that could occur during the PIP and financial) that would be needed from the Faculty. In addition, he highlighted a critical mass requirement of 15 minimum PGR candidates to attend to make the PIP logistically and financially viable. Currently, 20 candidates have signed up.

The PIP will consist of a week of intense research training workshops and activities (similar to the intensive weeks arranged for PGRs who are in Newcastle) and a week with their School including

time with their UK based Supervisor (if applicable) and time with other Newcastle University PGRs in the School.

The achievement of developing the PIP (and its celebration as a success) can only be fully realised once the PGR candidates have returned from this overseas opportunity and provided feedback on the experiences they had. However, the effort and time spent by the teams in both Singapore and Newcastle should be recognised and acknowledged as a new researcher development opportunity is set up.

3.4.4 NUIS Postgraduate Researcher Handbook

While the PGR candidates in Singapore are admitted to the university in the same way as those situated in Newcastle and they follow all the processes in which Learning Agreements, PGR Proposals are approved and Annual Progression takes place, there are some areas where, due to distance from the main UK campus, the exact same processes cannot be followed. To guide the PGR candidates in Singapore, Dr. Gail de Blaquiere of the Faculty Postgraduate Skills Development team and Ms. Pauline Appleyard, Senior Manager, Research & Development, created the first Singapore focused PGR Handbook.

3.5 PGR awards/nominations & publications

- Mr. Antony Prince (CEAM) was nominated by his Supervisor Dr. Kamelia Boodhoo for 2015 IES Young Creators' Award.
- Mr. Antony Prince (CEAM) and Dr. Kamelia Boodhoo were part of the team who undertook bio-fouling research and published in Nature – Self-cleaning Metal Organic Framework (MOF) based Ultra filtration membranes – A solution to bio-fouling in membrane separation process. September 2014.
- Ms. Karin Y.M. Tan (AFRD) was part of a team who undertook research into food products health claims – **Tan, EM van der Beek, MY Chan, X.J. Zhao & L Stevenson** (2015) Health claims on food products in Southeast Asia: regulatory frameworks, barriers, and opportunities *Nutrition Reviews*
- Mr Ng Kok Poh (EEE) presented at the IEEE Asia Pacific Conference on Wireless and Mobile 2015. His paper was entitled, "Energy-efficient Synchronization Algorithm for Duty-Cycle MAC Protocols".
- Mr. Shahrain Mahmood (MSE) presented at the International Conference on Engineering Design 2015 – Design for Life. His paper was entitled, "Design for Scalability and Strength Optimisations for Components created through FDM process"
- Ms. Karin Y.M. Tan (AFRD) received sponsorship from the International Life Sciences Institute (ILSI) Southeast Asia Region, and ILSI SEA Region Indonesia Country Committee,

Indonesian National Agency Drug and Food Control and Bogor Agricultural University, Department of Family and Consumer Sciences to present in Bali, Indonesia.

- Mr. Keith Fwa presented at the IEE ICCSE 2015 conference. His paper was entitled, "Automatic Detection of Frustration Novice Programmers from Contextual and Keystroke Logs".

4. DEVELOPING PROCESSES TO LINK/ALIGN WITH NEWCASTLE

4.1 MyProjectProposals online system implementation

All research undertaken in the university must be internally approved and research undertaken at NUIS had, until recently, gone through a hard copy paper based system of approval. In April 2015, the process of aligning NUIS with the NU online system, started.

Working with the Research Enterprise Services team in Newcastle, the Singapore based team developed and delivered training on the system for those who needed it in Singapore, phased out the paper based long format proposal form and phased in the online system.

From the 1st January 2016, in line with Newcastle University in the UK, staff undertaking research will be using the online MyProjectProposals system.

4.2 Thesis examination process alignment

Section 3.2 and 3.3 shared PGR numbers and news regarding the success of the first MPhil and PhD submissions. In addition to the academic success for both the candidate and the supervisory team, this also heralds an administrative, process alignment success for the Research team in Singapore and the Research Student Support team in Newcastle.

Simple but effective process have been put in place In Singapore (and continue to be updated) to ensure the university thesis submission and examination process is in place, aligns with that of the established university system and upholds to exacting standards for auditing purposes.

5. CREATING LINKS, FUNDING AWARDS & COLLABORATIONS

5.1 Intellectual Property Intermediary (IPI) – TechInnovation 2015

IPI are a non for profit organisation who, with the backing of the Ministry of Trade and Industry, assist with the development of links between people and organisations who have 'technology offers' to solve 'technology needs' and *vice versa*. NUIS have signed an MOU with IPI and in September took part in the TechInnovation 2015 event showcasing research work undertaken by staff in Singapore.

The research team in Singapore have created a link with Business Development colleagues in Newcastle, the Research and Enterprise Support team and IPI to offer a platform for sharing knowledge and solutions with a view to developing international research opportunities.

5.2 NewRail

In the past 20 years the mass rapid transit (MRT) rail network in Singapore has been growing at a steady rate; these networks are currently being subjected to in-depth maintenance work and this work will continue as long as the MRT system is in operation, that is the foreseeable future. Over the next 20 years more lines are being tendered, commissioned and brought into use. More rail networks means a greater need to engage qualified rail personnel at all levels with the above development in mind. The research team in Singapore has been working with the NewRail team In Newcastle to develop both research and professional development opportunities with the Land Transport Authority, local education providers and local rail operators.

5.3 Global Excellence Fund (GEF)

Dr. Cheng Siong Chin has been awarded £10,000 to complete research in the area of Non-invasive Fouling Recognition System with Nanyang Technological University as a partner.

5.4 Robotic Waiter System for the food and beverage industry

Dr. Michael Lau and a team from Nanyang Polytechnic with industry collaborators from Yu Sin Engineering Work Pte Ltd were awarded funding to develop automated waiters.

5.5 Skills Future credit scheme

Under **SkillsFuture Credit**, all Singaporeans aged 25 years and above will receive learning credits to pay for course fees for work-skills-related courses supported by public agencies. The Maritime and Port Authority of Singapore will now include the maritime-courses conducted by Newcastle University in Singapore specifically, the Master of Science in Marine Technology (International) under the SkillsFuture Credit framework. Dr. Arun Dev has developed this initiative and is the point of contact for initial enquiries.

6 TEACHING & LEARNING SUCCESSES

- Dr. Sagheer Onaizi - CASAP M2 result; Fellowship of the HE Academy; Completing CASAP - Descriptor 2 of the UK Professional Standards Framework.
- Dr. Didier Talamona and Dr. Ahmed Qureshi were nominated as a partner for STEM Education, a Singapore government's initiative to bring Applied Learning in Engineering and Science to secondary schools.
- Dr. Li Chuanzhao has been promoted to Senior Lecturer.
- The following people were nominated for the Newcastle University Teaching Excellence Awards (TEA)
    - Dr. Arun Dev – Support Staff of the Year
    - Dr. Li Chuanzhao - Support Staff of the Year and Contribution to Outstanding Feedback
    - Dr. Dawn Jones – Contribution to Pastoral Support and Contribution to Outstanding Feedback
    - Mr. Soo Hangjian – Support Staff of the Year
    - Dr. Iain Brownlee – Innovative Teaching Methods
    - Ms. Ong Lifang – Support Staff of the Year
    - Ms. Suzana Mohamed-Asri – Support Staff of the Year
    - Dr. Wang Xin - Innovative Teaching Methods
    - Mrs. Wu Xiuqi - Support Staff of the Year

7 OTHER ESTEEM INDICATORS AND SUCCESSES

- Dr. Cindy Lee Lai Yeng (CEAM)
  - Editorial Board member of Advanced Powder Technology (Elsevier)
  - Reviewer for Advanced Powder Technology (Elsevier)
  - Reviewer for Chemical Engineering Science (Elsevier)
  - Reviewer for Fibers (http://www.mdpi.com/journal/fibers)

- Dr. Cindy Lee Lai Yeng (CEAM) and Dr. Iain Brownlee (AFRD) presented and shared their research at the IPI sponsored TechInnovation 2015 event (http://www.techinnovation.com.sg/)

- Dr. Woo Lok - Chair of the organising committee for the International Conference Progress in Applied Mathematics in Science and Engineering. http://piamse.com/

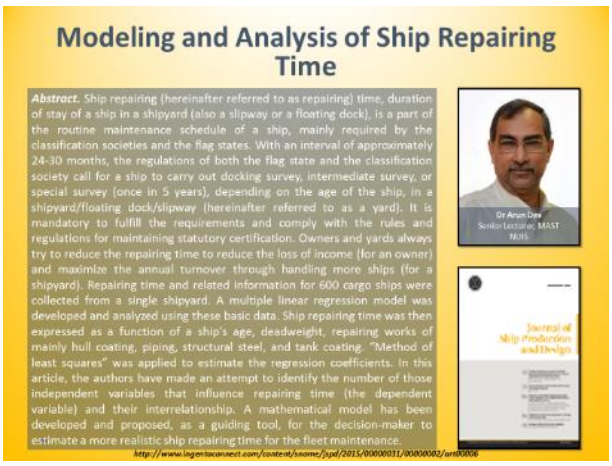
- Dr. Eugene Wong
  - National Serviceman of the Year 2015.

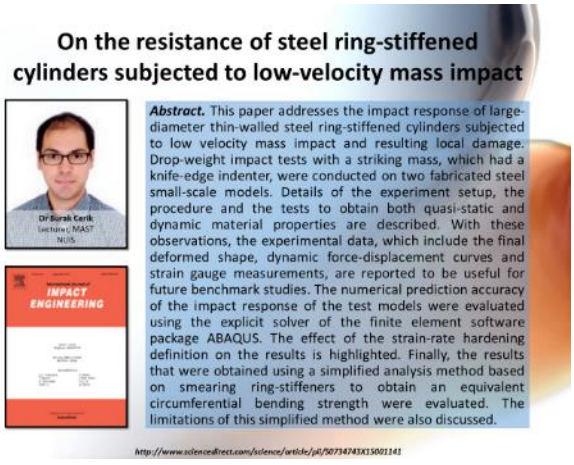
  - National Service and Military expertise recognised in the form of promotion http://www.mindef.gov.sg/imindef/press_room/official_releases/nr/2015/aug/28aug15_nr.html#.VejnsHn2OM8

- Dr. Naayagi Ramasamy – elevated to Senior Member of IEEE. Of the 433,000 members, only 9% are at the level.

- Dr. Phan Van Tung – received an invitation to visit the Centre for Functional Nanomaterials, Brookhaven National Laboratory, New York, U.S.A. with a view to building research links.

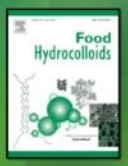
Appendix A. Samples of Celebrating Success posters





Biological activity of alginate and its effect on pancreatic lipase inhibition as a potential treatment for obesity

Abstract. Alginates are classed as a dietary fibre and have been shown to inhibit digestive enzymes *in vitro*, and therefore could be used as an obesity treatment. The current study aims to assess whether alginate in a bread vehicle maintains its inhibition properties despite cooking and digestion, and may therefore be used as a potential treatment for obesity. After 180 min in a model gut that replicates digestion in the mouth, stomach and small intestines alginate bread (AB), control bread (CB), CB with Manucol® DM alginate, free DM alginate and model gut solution were collected. DM, LFR 5/60 and SF200 were heated at 37 °C and 200 °C, with DM also heated at 50, 100 and 150 °C. Samples from the model gut and heated alginate were assessed for molecular size and inhibition properties using viscosity, gel filtration and a lipase turbidity assay. AB does not significantly increase viscosity in the model gut. Viscosity of alginate reduces beyond 100 °C, although alginate retains its inhibition properties up to 150 °C. Cooking into the bread does not reduce the molecular size of the alginate or affect its inhibition properties. These data demonstrate the robustness of alginates lipase inhibition despite the cooking process and digestion. Therefore adding alginate to a bread vehicle may have the potential in the treatment for obesity.



http://www.sciencedirect.com/science/article/pii/S0268005X15000806

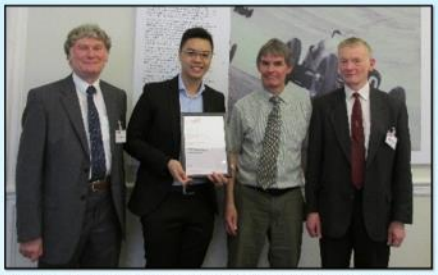
Finite Time Analysis of a Tri-Generation Cycle

Abstract. A review of the literature indicates that current tri-generation cycles show low thermal performance, even when optimised for maximum useful output. This paper presents a Finite Time analysis of a tri-generation cycle that is based upon coupled power and refrigeration Carnot cycles. The analysis applies equally well to Stirling cycles or any cycle that exhibits isothermal heat transfer with the environment and is internally reversible. It is shown that it is possible to obtain a significantly higher energy utilisation factor with this type of cycle by considering the energy transferred during the isothermal compression and expansion processes as useful products thus making the energy utilisation larger than the enthalpy drop of the working fluid of the power cycle. The cycle is shown to have the highest energy utilisation factor when energy is supplied from a low temperature heat source and in this case the output is biased towards heating and cooling.

energies

http://www.mdpi.com/1996-1073/8/6/6215

Zi Jie is IMechE Mechatronics Student of the Year



Mr Choong Zi Jie, is our graduate and currently doing his PhD at Newcastle University in UK, has just won the prestigious IMECHE mechatronics student year award this year.

http://www.ncl.ac.uk/mech/about/news/item/zi-jie-is-imeche-mechatronics-student-of-the-year

Advanced Discrete-Time Control

Abstract. This book covers a wide spectrum of systems such as linear and nonlinear multivariable systems as well as control problems such as disturbance, uncertainty and time-delays. The purpose of this book is to provide researchers and practitioners a manual for the design and application of advanced discrete-time controllers. The book presents six different control approaches depending on the type of system and control problem. The first and second approaches are based on Sliding Mode control (SMC) theory and are intended for linear systems with exogenous disturbances. The third and fourth approaches are based on adaptive control theory and are aimed at linear/nonlinear systems with periodically varying parametric uncertainty or systems with input delay. The fifth approach is based on Iterative learning control (ILC) theory and is aimed at uncertain linear/nonlinear systems with repeatable tasks and the final approach is based on fuzzy logic control (FLC) and is intended for highly uncertain systems with heuristic control knowledge. Detailed numerical examples are provided in each chapter to illustrate the design procedure for each control method. A number of practical control applications are also presented to show the problem solving process and effectiveness with the advanced discrete-time control approaches introduced in this book.

http://www.springer.com/us/book/9789812874771

SG50 Local Champions Global Leaders

To commemorate Singapore's 50th birthday, Spring Singapore organized the "Local Champion, Global Leaders" competition with the objective of paying tribute to the contribution of business and its workers who play a part in building our nation.

Student teams from local universities and polytechnics represented various local companies and presented their story from the students' own point of view – the entrepreneurial spirit of the people, values of the company, and its workers and the contributions of the company in Singapore.

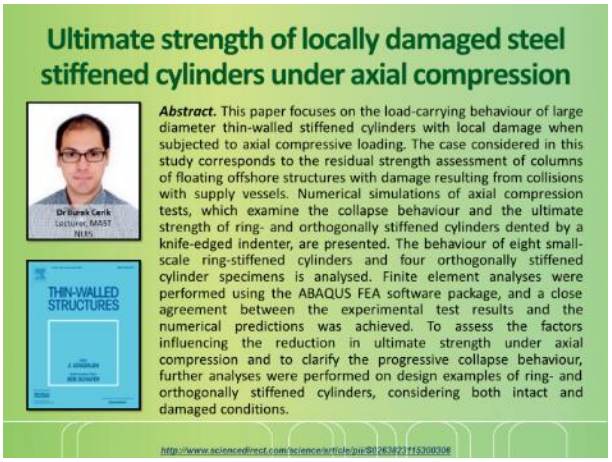
For more information on the competition, please visit http://www.singapore50-ei.sg/.

Several NU students from CEAM have participated in the competition: Team Prima (and Dorothy Yeo, Sharmaine Koh and Shera Tan) and SINE (Samantha Liew, Nicholas Low and Yaseen Ahzhal Muqaffa Bin Hamzah). Their efforts were showcased at Suntec City Exhibition Hall from 5 Feb to 9 Feb. Let us congratulate them for their hard work and effort.

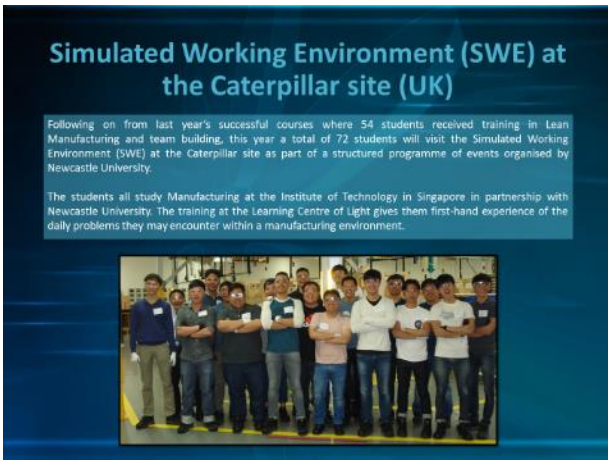
SAF NSMan of the Year Award 2015

We are happy to share with you all that Dr Eugene Wong was awarded the Singapore Armed Forces National Service Man of the Year Award 2015, 1st July 2015, at the SAF 50 Parade.

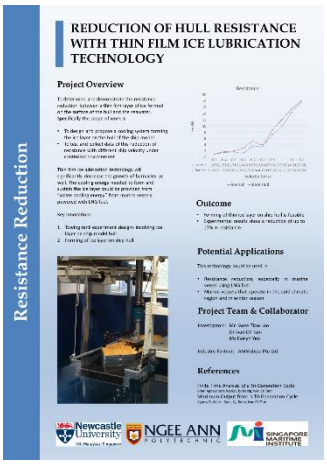

Successful Buggy Project
We would like to congratulate Dr Van Tung Phan, Dr Naayagi Ramasamy and our NUIS students for the success of the buggy project this 2015. All students have put their best effort to compete in the race and they were all excited and cheering. Students were very proud of their achievements and this was made possible with the supervision and coaching of the Academic Staff.


Ultimate strength of locally damaged steel stiffened cylinders under axial compression
Dr Burak Can
Lecturer, MAST
NUS
THIN-WALLED STRUCTURES
Abstract. This paper focuses on the load-carrying behaviour of large diameter thin-walled stiffened cylinders with local damage when subjected to axial compressive loading. The case considered in this study corresponds to the residual strength assessment of columns of floating offshore structures with damage resulting from collisions with supply vessels. Numerical simulations of axial compression tests, which examine the collapse behaviour and the ultimate strength of ring- and orthogonally stiffened cylinders dented by a knife-edged indenter, are presented. The behaviour of eight small-scale ring-stiffened cylinders and four orthogonally stiffened cylinder specimens is analysed. Finite element analyses were performed using the ABAQUS FEA software package, and a close agreement between the experimental test results and the numerical predictions was achieved. To assess the factors influencing the reduction in ultimate strength under axial compression and to clarify the progressive collapse behaviour, further analyses were performed on design examples of ring- and orthogonally stiffened cylinders, considering both intact and damaged conditions.
http://www.sciencedirect.com/science/article/pii/S0263823115300306


Chartered Engineer in Singapore
We would like to commend Dr Ivan Tam for receiving the Certificate of Registration as IES Chartered Engineer (Marine & Offshore Engineering) from Deputy Prime Minister last 22nd July 2015. He will be one of the four pioneering Marine & Offshore Chartered Engineers in Singapore.
Further information about the IES Chartered Engineer scheme can be found from the following websites.
http://www.charteredengineers.sg/
http://charteredengineers.sg/doc/Chartered%20Engineer%20-%20Competency%20Standard%20and%20Assessment%20Statement%20Ver%201a.pdf
Dr Ivan Tam
Senior Lecturer, MAST
NUS
THE INSTITUTION OF ENGINEERS SINGAPORE


Simulated Working Environment (SWE) at the Caterpillar site (UK)
Following on from last year's successful courses where 54 students received training in Lean Manufacturing and team building, this year a total of 72 students will visit the Simulated Working Environment (SWE) at the Caterpillar site as part of a structured programme of events organised by Newcastle University.
The students all study Manufacturing at the Institute of Technology in Singapore in partnership with Newcastle University. The training at the Learning Centre of Light gives them first-hand experience of the daily problems they may encounter within a manufacturing environment.


Energy-efficient Synchronization Algorithm for Duty-Cycle MAC Protocols
Abstract. Different variants of duty-cycle MAC protocols have been designed for wireless sensor networks to reduce energy consumption. However, the synchronization process of these protocols consumes a significant amount of energy. In this paper, we propose a new energy-efficient synchronization algorithm referred to as 1-Sync that can be easily integrated with duty-cycle MAC protocols. We compare 1-Sync with fixed periodic synchronization (F-Sync) algorithm and Intelligent Network Synchronization (INS) algorithm and show that 1-Sync outperforms F-Sync and INS in energy-efficiency over a wide range of node densities. Analytical models that describe the energy consumption behavior and synchronization performance of these synchronization algorithms are also presented.
Mr Ng Kok Poh
PGR Candidate, SCEE
NUS
IEEE ASIA PACIFIC CONFERENCE ON WIRELESS AND MOBILE
APWiMob
Bandung - Indonesia, August 27-29, 2015


Resistance Reduction
REDUCTION OF HULL RESISTANCE WITH THIN FILM ICE LUBRICATION TECHNOLOGY
Project Overview
Outcome
Potential Applications
Project Team & Collaborator
References
Newcastle University
NGEE ANN POLYTECHNIC
SINGAPORE MARITIME INSTITUTE

Appendix B: PGR Live Training Schedule

Live Training Sessions 2015-16

Date	Time	Facilitator	Topic	Venue
15/10/2015	16.00	Bryn Jones	C2: Research Degrees at Newcastle University	NYP - NUIS Meeting Room
22/10/2015	16.00	Sam James	A2: Statistics 1	NYP - NUIS Meeting Room
29/10/2015	16.45	Simon Cotterill	C2: Using ePortfolio	MR7E – NYP Meeting Room
05/11/2015	16.45	Sam James	A2: Statistics 2	NYP - NUIS Meeting Room
12/11/2015	16.45	Victoria Mountford	A3: Innovation and Creativity	NYP - NUIS Meeting Room
19/11/2015	16.45	Sam James	A2: Statistics 3	NYP - NUIS Meeting Room
26/11/2015	16.45	Bryn Jones	C2: Writing your PhD Project Proposal	NYP - NUIS Meeting Room
03/12/2015	16.45	Sam James	A2: Statistics 4	NYP - NUIS Meeting Room
10/12/201	16.45	Gail de Blaquiere	C1: Good Practice in Your Research	NYP - NUIS Meeting Room
17/12/2015	16.45	Sam James	A2: Statistics 5	NYP - NUIS Meeting Room
13/01/2016	16.45	Sue Vecsey	A1: Presentation Skills Using PowerPoint	NYP - NUIS Meeting Room
27/01/2016	16.45	Katie Wray	D3: Project ACTION: a 2016 Enterprise Project Funding Opportunity	NP - NUIS Meeting Room
10/02/2016	16.45	Helen Webster	D2: Academic Writing 1	NYP – NUIS Meeting Room
24/02/2016	16.45	Library Team	A1: Library	NYP – NUIS Meeting Room
09/03/2016	16.45	Helen Webster	D2: Academic Writing 2	NYP – NUIS Meeting Room

Spring – Summer 2015

DATE	TIME	LOCATION	TOPIC	PRESENTER
09-Apr-15	16:30 - 18:00	NYP Meeting Room	PG Dean intro to VC programme	Bryn Jones, Elaine Urwin, Gail de Blaquiere
16-Apr-15	16:30 - 18:00	NYP Meeting Room	Stats 1 - Data Types and Descriptive Statistics	Stacey Aston
23-Apr-15	16:30 - 18:00	NYP Meeting Room	Stats 2 - Graphical Displays	Stacey Aston
30-Apr-15	16:30 - 18:00	NYP Meeting Room	Stats 3 - Sampling Strategies	Stacey Aston
07-May-15	16:30 - 18:00	Held at NP	Stats 4 - Introduction to the Theory of Hypothesis Testing	Sam James
14-May-15	16:30 - 18:00	Remote Link in only	Stats 5 - Examining Confidence Intervals	Sam James
21-May-15	16:30 - 18:00	NYP Meeting Room	Stats 6 - Example Hypothesis Tests	Sam James
28-May-15	16:30 - 18:00	NYP Meeting Room	Enterprise and Entrepreneurship	Kellie Forbes-Simpson
11-Jun-15	16:30 - 18:00	NYP Meeting Room	Library - Research Information	Moira Bent/ Jenny Campbell
18-Jun-15	16:30 - 18:00	NYP Meeting Room	Academic Writing 1	Helen Webster
25-Jun-15	16:30 - 18:00	NYP Meeting Room	Academic Writing 2	Helen Webster
02-Jul-15	16:30 - 18:00	NYP Meeting Room	Presentation Skills using PowerPoint	Rebecca McCready

Appendix C: PGR Conference Travel Guidance notes and application form

Guidance note for PGR Student Conference Research Travel

Objectives

The primary objectives of the PGR Student Conference Research Travel Scheme are to:

- Support research of excellence by students
- Enhance the capacity of students undertaking research by ensuring funds are available to contribute to travel costs when students present their research work at conferences.

Eligibility Criteria

The following will be considered when assessing funding requests:

- Only current PGR students of NUIS are eligible to apply for funding.
- Students who have had a full paper accepted for presentation at a peer reviewed conference are eligible to apply for funding.
- Students are required to have the approval/support of their supervisor before they apply for funding.

Conditions of award

- The maximum amount of funding available is SG$2,000 per annum.
- If an accepted paper is written by more than one student, only one student may apply for funding for conference travel in relation to that paper.
- If a student has had more than one paper accepted for presentation at the named conference, the award amount remains at a maximum of SG$2,000
- The award of SG$2,000 may be utilised for more than one conference, e.g. if there are funds remaining after an initial conference has been attended, providing another full paper is being presented (and published in conference proceedings or being submitted to a journal for publication consideration), the remaining funds to a maximum of SG$2,000 can be utilised.
- If the student has a scholarship in which travel to conferences is covered, this funding source must be utilised first before NUIS funds are awarded.
- Funding will be on a ‘first come first served’ basis and the award should be utilised in the financial year it was awarded.
- Retrospective requests will not be considered.
- At the discretion of the Head of Academic Operations and in exceptional circumstances, more than SG$2,000 can be awarded; a compelling case for support should be submitted with the applications form.
- Awarded funds may not be spent for purposes other than those costs highlighted in the application for funding.

Reporting Requirements

- Fund awardees and their supervisors are required to update the Senior Manager, Research & Development and the Head of Academic Operations, of the output from the conference e.g. full paper published in the conference proceedings or on the progress of the paper being accepted as a journal article.

How to apply for an award

- Requests for funding should be submitted using the PGR Conference/Research Travel form via the student's supervisor/s to the Senior Manager, Research and Development (or their Nominee)
- Submitted documents should include:
  - Letter/email from the conference organiser confirming that the full paper has been accepted into the conference
  - Publication details e.g. conference proceeding/journal details
  - Summary of conference travel costs.

PGR STUDENT CONFERENCE RESEARCH TRAVEL FORM

This form should be used by PGR students when applying for funding to attend conferences.

Applicant's details	
Applicant's name:	Programme/Course:
Supervisor's name:	Programme/Course end date:

Details of conference		
Title of event		
Event venue and website details:		
Date of event	From	To
I confirm that the full paper been accepted at the conference. Please tick Yes ☐ Conference proceedings/publication ISBN/DOI number _____		
Please provide authors' details 1st author name, programme/course/department: 2nd author name, programme/course/department: 3rd author name, programme/course/department:		

Funding details	**Computation (where applicable) e.g. US$ to SG$**	**Amount ($)**
Airfare/taxi/bus/train costs		
Registration fee (student or early bird rate only)		
Accommodation		
Total amount		

Applicant's signature and date	
Signature	Date

Application acknowledged and supported by Supervisor	
Signature	Date

Funding approval			
Approver	Name	Signature	Date
Dean NUIS or Head of Academic Operations			

Please remember to:

- **Provide a copy of the accepted paper and notification of publication of proceedings, conference proceedings, ISBN of journal etc**
- **Attach conference acceptance documentation**
- **Attach funding documents e.g. screen shot of conference registration cost, flight/train/bus ticket costs, accommodation costs.**
- **Ensure you upload your paper to the ePortfolio system**
- **Share your experiences/circulate your paper with your fellow students**

Should you have any queries regarding this document please contact:

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