

RESEARCH@UCSI







WORLD UNIVERSITY RANKINGS

TOP 500

2020

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FOREWORD BY THE VICE-CHANCELLOR AND PRESIDENT



Forging ahead!

Welcome to the Inaugural Research Newsletter. The initiative to develop a research culture in UCSI requires an effective communication amongst all stakeholders. This would go a long way to support the university's vision to be a private university which emphasises research that brings significant impact to society and the environment.

Collaborative multidisciplinary research is the strategy towards successful achievement of the research goals. I encourage all UCSI academics to work together to transform the university to be one of the top research universities in Malaysia and globally. Now is the time to take that leap, and the challenge.

Go Beyond; Be Profound: Make a Difference!

Academician Senior Professor Dato' Dr Khalid Yusoff, FASc DPSK, PSK, MBBS (Melb.), Doctor of Med Sc (honoris causa) (Melb.), MRCP (UK), FRCP (Lond.), FRCP (Glasg.), FRCP (Edin.), FACC (USA), Hon. FRACP (Aus.), Hon. FPCP (Phil.), FIAS, FNHAM, FMSA, FAMM Vice-Chancellor and President

UCSI University

REMARKS BY PROFESSOR DR PHANG SIEW MOI

A very warm welcome to the Inaugural Research Newsletter Research@UCSI which aims to provide updates on UCSI research highlights, development, achievements and awards, of both the academics and the students. Research@UCSI is also a platform for idea exchange and formulation of research collaborations that will enhance the quality of research and its deliverables in UCSI.

Join us as we celebrate the successes of our colleagues and marvel at the world of discovery. Let us proudly support the aim of CERVIE to promote research, value innovation and entrepreneurship as one of the University's core drivers.



Emeritus Professor Dr Phang Siew Moi FASc, FMBA (UK) Deputy Vice-Chancellor, Research and Postgraduate



OUR PROMINENT RESEARCHER EMERITUS PROFESSOR DR PHANG SIEW MOI

Emeritus Professor Dr Phang Siew Moi needs no introduction when it comes to Algae Research in Malaysia. Her commitment to world class scientific research has placed Malaysia on the world phycological map. She pioneered and spearheaded the development of Phycology (study of algae) in Malaysia. She also headed a research institution focussing on ocean and earth sciences for more than 15 years.

For the last 40 years, Professor Dr Phang Siew Moi has devoted her life to biological research, focusing on understanding the diversity, biology and utilisation of the tropical algae, with a view to harnessing the diversity of products and services algae may provide. In honour of her vast experience and contributions to phycological research, two new species *Pterocladiella phangiae* J. Sohrabipour, P.-E. Lim & C.A. Maggs, and *Batrachospermum phangii* E.T.Johnston, P.-E.Lim & M.L. Vis, were named after her. Apart from the discovery of numerous algae species in the region, Professor Phang's achievements also include the development of genetic transformation of algae and bioelectricity production from algal photosynthesis, which won the Newton Prize 2017 from the UK Research Council. A special issue of the 2017 European Journal of Phycology was dedicated to Professor Phang in honour of her excellent and significant contribution to the development of Applied Phycology.



Professor Phang's research output includes 17 books, 55 book chapters and 249 journal publications; numerous awards of 8 Gold, 9 Silver, 10 Bronze Medals from R&D Expos and 5 patents granted and 12 filed. Significantly, her most far-reaching and visionary achievement is the establishment of the "Consortium of Southeast Asian Seaweed Taxonomy (SEASTax)". In line with the SEASTax objective of nurturing the next generation of seaweed taxonomists, young taxonomists are mentored by senior taxonomists in the SEASTax triannual seaweed taxonomy training workshops. The successful mentoring of seasoned taxonomists and aspiring young phycologists is evidenced by the three Taxonomy of Southeast Asian Seaweeds monographs and 14 joint international journal publications.

Her experience and knowledge enable her to serve on various scientific societies. She was a founding member and President of two international scientific societies, namely the Asian-Pacific Phycological Association and the Asian-Pacific Society of Applied Phycology, as well as the Vice-President of the British Phycological Society. Apart from that, she also serves in several advisory and technical committees, including MESTECC, and international organisations such as International Foundation of Science (IFS) and the International Association of Biological Oceanography (IABO). She is the Assistant Editor of the Journal of Applied Phycology and serves as editorial board member of two other journals.

Professor Dr. Phang has groomed and inspired generations of capable young phycologists nationally and in the region, for continued progress in the field. Some of them now serve as professors, researchers and industry managers, continuing Professor Phang's legacy in the field of Phycology.



OUR PROMINENT RESEARCHER PROFESSOR DR HOH BOON PENG



Professor Dr Hoh Boon Peng is a molecular and population geneticist who has placed great interest in Darwinian Medicine which is also known as Evolutionary Medicine. His interest focuses on human migration from Africa, its evolution and adaptation to different environment under the natural selection process that ultimately attributes to medical knowledge in understanding disease physiology of common and complex diseases especially on infectious diseases, cardiovascular diseases, and neuropsychiatric diseases. Currently, he is supervising 5 PhD candidates and to date, 4 PhD students and 11 MSc students have graduated under his supervision. He has been appointed as a member of the editorial board for journals PLOS ONE and BMC Medical Genetics.

Being trained in animal genetics, Prof Dr Hoh has rapidly excelled himself in the field of human genetics since he obtained his PhD in 2005. He was awarded the Academy of Sciences Malaysia Dr Ranjeet Bhagwan Singh International Fellowship that allowed him to be attached to The Centre of Applied Genomics (TCAG) to study the human genomic structural variation. His attachment at TCAG has led to ongoing collaboration and has recently extended to a new area to include mapping of genomic structure in children with Autism Spectrum Disorder (ASD). Dr Hoh was awarded the Ten Outstanding Young Malaysian' Award under the category of 'Academic Achievement & Accomplishment', by Junior Chamber International Malaysia in 2013.

Dr Hoh had the privilege to be part of the HUGO Pan-Asian SNP Consortium (PASNP), which involves scientists from 11 countries, that addressed the fundamental question of human migration history of Asia. This joint effort has led to a seminal publication in Science (2009) entitled 'Mapping Human Genetic Diversity in Asia', and several subsequent publications. The effort of this consortium has unveiled the mysterious human migration route out-of-Africa to Asia, and the work is still highly cited by many geneticists to date. Affiliation with the PASNP Consortium has benefited Prof Dr Hoh in building solid rapport with many prolific scientists, especially those from the Chinese Academy of Sciences (CAS), Fudan University, Shanghai, and National University of Singapore (NUS).

His partnership with CAS resulted in publications of several high impact articles in the field of human population genetics. Some of the significant findings are the unraveling of the genomic structure of Southeast Asia (SEA) indigenous populations, the discovery of ~1-4% of archaic human genomic introgression (Neanderthals and Denisovan) in modern humans from SEA, and the success of identifying genomic regions that contribute to the malaria susceptibility.

Subsequently, he was appointed as the visiting fellow to CAS Shanghai for a year (2017-2018) under the initiative of 'CAS President's International Fellowship Initiatives'. Prof Dr Hoh has published four (4) articles during his short stint with CAS which include (i) his involvement in generating a suite of databases and toolkit focusing on the diverse research fields of human Population Genomics and Genetics (PGG) that led to a seminal publication in Genome Biology (WoS Indexed, Q1 with IF: 14.028); and (ii) another publication in BMC Genomics entitled 'Analysis of five deep-sequenced trio-genomes of the Peninsular Malaysia Orang Asli and North Borneo populations'. Currently, his team is preparing the fifth manuscript on a groundbreaking discovery on the human prehistorical migration in SEA.



Prof Dr Hoh also sought international collaborations with other research organisation such as the International Phenomics Consortium which is led by Professor Felix Li Jin. This is a cutting-edge effort to catalogue human traits, and attribute them to genomic structure as well as the changes of the environment. This is important to address the fundamental question of the functions of genomic variation and how its interaction with the environment is shaping the human traits and complex disease, ultimately to contribute to the approach of precision medicine.

Prof Dr Hoh also made substantial contributions to the understanding of pathophysiology of complex diseases. As a principal investigator in the very first cycle of Long Term Research Grant Scheme (LRGS, 2011) project, he studied host genetics of dengue and had identified the molecular pathway that may lead to the susceptibility of severe dengue. Furthermore, his team found that the copy number variation of a receptor gene varied across different populations, which may contribute to the varying susceptibility of vascular leakage in dengue. Several publications were produced from this work, and another manuscript is currently under preparation.

Prof Dr Hoh has worked closely with Academician Senior Professor Dato' Dr Khalid Yusoff in studies of cardiovascular diseases which found rare mutations in several novel candidate genes that have contributed significantly to the development of dilated cardiomyopathy. The team has also found the molecular pathway that could lead to increased risk of developing left ventricular hypertrophy among the hypertensive patients. This finding is important, not only to serve as a predictive marker, but also as a stepping stone towards the development of specific therapeutic strategy in tackling such cardiovascular complications.

Hypertension, a disease that affects close to half of the adults in this country, is another research interest to Prof Dr Hoh. He attempts to utilise the genetic information obtained, to predict patients' response to the different classes of anti-hypertensive medications. This is a collaborative study with Harvard Medical School. The research on cardiovascular disease has led to publications in reputative journals, and several other manuscripts are currently under preparation.



As a geneticist, Prof Dr Hoh hopes that one day in the near future he would be able to make significant contributions to the science through uncovering the routes of human migration and evolution and that the discoveries could be applied to the bedsides eventually.



BOOX : AN AUGMENTED REALITY CAMPAIGN FOR DYSLEXIA

Article by: Fonita Theresia Yoliando (ICAD's Postgraduate Candidate, 2019), edited by Dr Khairul Azril Ismail (AP)



Even the greatest minds such as Albert Einstein, Pablo Picasso, John Lennon, Steven Spielberg, Walt Disney, Leonardo Da Vinci, John F. Kennedy, Tom Cruise, Percy Jackson, or even Muhammad Ali are dyslexic at various levels. Note the common trait among these persons mentioned is that they were all artists in their own rights. In most real-life, yet unfortunate cases, an afflicted child will always get an earful to study harder, or even to some extreme, being left out and bullied by peers, educators, as well as their own parents into submissive and depressive state.

Believe it or not, it was noted that a modest 5% of people are dyslexic and the lack of informed decision making by the educators and parents had resulted in affected child's problem being swept aside until they grow as an adult. The level of awareness on dyslexia is still at a worrying state. However, current indicator had noted that at least 30% are dyslexic from our neighbouring country, Indonesia. This, hypothetically, could mean that we might be sharing similar numbers here in Malaysia.

Dyslexia is still either misunderstood, ignored or treated as a behavioural problem. In fact, it is a complex information processing problem in the brain which can happen to anyone regardless of any background, which is categorised as one of the most common learning disabilities. Visual perceptual distortion is the most unique symptom of dyslexia which causes the person to see letters in various movements such as running, jumping, dancing, rotating, multiplying, fading, or others.

In general, there are seven observable visual distortion of dyslexia: halo, blurry, rivers, wash out, shaky, swirl, and see-saw. Even though dyslexia may be a lifetime matter that cannot be cured, it can be treated through a proper assessment and education method. This is why an early diagnosis is considered beneficial for a dyslexic's future. In order to do that, raising awareness and giving sufficient information to parents and teachers are the first step that we can initiate.





Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



Triggered by that perspective, the 'BOOX' project from De Institute of Creative Arts & Design (ICAD) comes as an initial step to empathise and raise awareness about dyslexia. The programme consists of an exhibition in the form of an augmented giant book that visualises distortions experienced by dyslexics, collaborative exhibition with art and design students, seminars and sharing sessions, as well as relay games with prizes.

The first exhibition in Indonesia was held on 21 September till 6 October 2019 at Gramedia World Bookstore BSD, Tangerang, in Banten. The event attracted quite a number of people from several age groups, especially young parents (aged 20 to 39 years old). There were a total of 92 participants at the seminar while the visitors throughout the exhibition totalled up to 215 persons. Three speakers were present during the opening ceremony: Dr Eng Sumarsono, CEO and founder of Dyslexia Centre Indonesia; Asih Nur Imda, a consultant psychologist of Pantara Special School, and Elia Adawiyah, a specialist teacher of Pantara Special School (whose research paper initiative named "Smart with Different Ways of Learning" had been selected to be original and widely considered compared among the top universities in Indonesia).

The BOOX project had received many suggestions to reach out to schools to spread awareness on dyslexia. We believe that having parents and teachers understand dyslexia is crucial in creating a better environment and providing a better education for dyslexic people.



For local initiatives, the BOOX project had collaborated with **IDRISSI INTERNATIONAL SCHOOL (a 5-star in Quality Standards for Private Education Institution (SKIPS) for their practise as an Eco-Islamic International School)**. At this event, ICAD students' artworks (interactive posters, infographic, documentary video, motion graphic, and 2D animation videos) were displayed to showcase the reality of dyslexia.

Dyslexia is not a matter that can be solved singlehandedly by just the government, schools, or parents. Rather. It requires all of us **TO WORK TOGETHER**. It is not the condition that matters but the decision to take the first step to change.



BOOX Project is a series of Augmented Reality Awareness Campaign initiated by Ms Fonita Theresia Yoliando, supervised by Dr Khairul Azril Ismail (Asst Prof) and co-supervised by Mr Alan Ong Tee Chuan in collaboration with De Institute of Creative Arts & Design, UCSI University and the Universitas Multimedia Nusantara. The project is supported by Persatuan Dyslexia Malaysia, Dyslexia Center Indonesia, Pantara Foundation, and the Idrissi International School.

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UCSI 2019 FRGS RECIPIENTS



Dr Yam Hok Chai and co-researchers

Comprehending the structural interaction between bacterial leukotoxin (LtxA) and human leukocytes

The outcome of the study is to understand the molecular interaction between microbial factor and susceptible host which is essential for curative approach design.

Dr Michelle Soo Oi Yoon and co-researchers Interaction of Acinetobactor venetianus and Cycloclasticus pugetii with acetylated Kapok (Ceiba pentandra) cotton fibres, and their ability to degrade crude oil

The outcome of the study is to effectively absorb and degrade crude oil particles into carbon dioxide and water using oil-degrading bacteria and a fibrous carrier for sustainable oil spill management





Assoc Prof Dr Mogana Sundari Rajagopal and co-researchers Standardisation and the mechanism of action of polyherbal formulation MM-15 for primary dysmenorrhea

This fundamental research shall allow future research with further clinical evaluation of a clinical candidate for the treatment of primary dysmenorrhea. The outcome of the study is to provide safer and evidence based alternative medicine for women, made from renewable local resources that will also bring economic prosperity to the mass growing of the raw materials.

Asst Prof Dr Lim Wei Hong and co-researchers Novel mechanism of evolving convolution neural network based on novelty search of nature inspired algorithms for data classification

The outcomes are to incorporate the open-ended evolution concept into the nature-inspired algorithms to enhance the quality diversity of optimisation solutions and automatically evolve the architecture of convolutional neural network to enhance the classification performance of deep learning framework.





Asst Prof Dr Rohana Binti Sham and co-researchers Blockchain mechanism in a refuse management system

The outcome is to produce a pollution-free environment by integrating the blockchain mechanism in the refuse management system for the utilisation of the surrounding community.

Asst Prof Dr Leong Choi Meng and co-researchers Foreign monetary policy uncertainty and macroeconomic fundamentals asymmetric effect to stock prices movements determination

The outcome is to identify the fundamental determinants of stock prices via asymmetric approach in predicting the stock prices movements to increase the explaining power of the model.





2019 TOP RESEARCH PUBLICATIONS



Note:

The publications are selected based on their number of citations recorded in the Web of Science (WoS) as per 30th November 2019.



STARTREK PROGRAMME

National Taipei University of Technology (NTUT)



(Left picture) From left Koh Jia Shun, Chong Ying Hai, Lim Kel Vin, Prof. Dr. Leehter Yao, Assoc. Prof. Dr. Rodney Tan, Ng Weng Mun at NTUT

StarTrek students from Mechatronic Engineering have been selected to conduct their research attachment at National Taipei University of Technology. This attachment from 1st September 2019 to 31st December 2019 at NTUT's Intelligent Control Lab has both students involved in a project related to constructing the biomimetic robotic fish used in the entertainment industry.

University of Queensland



(Left picture) From left Hoon Jian Wen and Khoo Hon Sern at The University of Queensland.

Khoo Hon Sern (CGPA 3.91) has conducted 1-month research attachment at University of Queensland (UQ) from 1st September 2019 to 30th September 2019 designated under Prof Dr David Mee from Centre of Hypersonic. This center possesses the expertise in computational fluid dynamics, optical diagnostics, as well as the field of space engineering. Our student has participated in a small-scale project related to engineering acoustic.



OUR YOUNG ACHIEVERS

Best Poster Award Theresa Lee Wei Ting

Bachelor of Pharmacy (Hons), Faculty of Pharmaceutical Sciences

MET-I-CON 2019 International Conference on Innovation in Pharmaceutical Technologies

Title: In Vitro Superoxide Dismutase (SOD) Evaluation of Leaves and Stems of *Artabotrys suaveolens*

Reported findings: *Artabotrys suaveolens* is a promising deviation of potential enzymatic antioxidant and it may be used as preventive medicines in diseases.



Best Free Paper Award Assistant Professor Dr Eugenie Tan Sin Sing

School of Healthy Aging, Medical Aesthetics and Regenerative Medicine Faculty of Medicine and Health Sciences

6th Asia Pacific Conference on Public Health

Title: Heavy Metals in Angelicae sinesis (Danggui) Consumed by Postpartum Mothers and Its Health Risk

Reported findings: Heavy metals contaminations (cadmium, chromium, arsenic and lead) were found in Angelicae sinesis (Danggui) where arsenic (HQ>1) is possible to cause non-cancer health risk in postpartum mother.

Best Paper Award Dr Poh Tian Er

Master of Science (Healthy Aging, Medical Aesthetics and Regenerative Medicine) Faculty of Medicine and Health Sciences

6th Asia Pacific Conference on Public Health

Title: Efficacy and Safety of Stem Cell Therapy for People with Cerebral Palsy: Systematic Review with Meta-Analysis'

Reported findings: Positive treatment effect for stem cell intervention on gross motor function and treatment effect was noted greatest for umbilical cord blood cells. More stem cell research for cerebral palsy is worthy to provide stronger evidence for safety and efficacy.





CERVIE Activities



Meeting with Universitas Indonesia (UI)

Research Collaboration Outcome: **Sustainable Coastal Cities** UCSI Faculties involved: **FAS, FETBE, FMHS, SABE, FOSSLA** Proposed Joint Funding Application: **Asia-Pacific Economic Cooperation (APEC)**

SCOPUS Training

Twenty-two (22) academic staff attended the SCOPUS training held on the 28th November 2019. The training was organised by CERVIE to assist academic staff in their research activities. The training was conducted by Ms Yu Lang from Elsevier.



Editorial Board

Asst. Prof. Dr. Chew Yik Ling Dr. Jonathan Yong Chung Ee Nursyafiqah Ramli

Dr. Hong Sok Lai

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