

PhD Student Wins Young Scholars Award in Geospatial Sciences

Congratulations to Maosu Li – a PhD candidate of the Department of Urban Planning and Design under the supervision of Professor Anthony Yeh and Dr Frank Xue – for being awarded Champion of the 2021 Esri Young Scholars Award (Hong Kong) programme.

Maosu's winning story map is about his study on visual and physical accessibility to nature in 3D cities. Urban residents can access nature both visually (e.g. a window view of nature) and physically (e.g. going hiking or having a walk or jog in a park). Maosu examined the integrated pattern of the visual and physical accessibility of nature in the Wan Chai District of Hong Kong with a deep transfer learning-based automatic assessment, utilising the latest ArcGIS Pro and 3D city models. The assessment pinpointed three clusters of buildings with the lowest nature accessibility indices, which are associated with building age. Findings of this study are useful in providing quantified evidence of the nature visibility and accessibility in a 3D city, as well as in revealing new means for urban optimisation.

The Esri Young Scholars Award programme was launched in 2012 by the Environmental Systems Research Institute (Esri), the world leader of GIS software, to recognize the exemplary work in geospatial sciences of undergraduate and graduate students in universities around the world.



New Graduate School Dean



The Graduate School is pleased to announce that Professor Max Shen has been appointed as the Dean of the Graduate School with effect from September 1, 2021.

Professor Shen is the Vice-President and Pro-Vice-Chancellor (Research) and the Acting Director of the Technology Transfer Office and Knowledge Exchange Office of HKU. He is also concurrently appointed as Chair Professor jointly in the Faculty of Engineering (Industrial and Manufacturing Systems Engineering) and the Faculty of Business and Economics.

With research interests in the areas of logistics and supply chain management, data-driven decision making, and system optimization, Professor Shen's research programmes cut through businesses,

energy systems, transportation systems, smart city, healthcare management, and environmental protection. Internationally recognised as a top scholar in his field, Professor Shen is a Fellow of the Institute for Operations Research and the Management Sciences (INFORMS), the President-Elect of the Production and Operations Management Society, and a past President of the Society of Locational Analysis of INFORMS.

Professor Shen considers research postgraduate education an essential element of the University as a research-intensive institution. He is looking forward to working with Faculty members to further advance research postgraduate education and support research postgraduate students at HKU in their professional and personal development.

Our warmest welcome is extended to Professor Shen. We would also like to take this opportunity to thank our former Dean, Professor Frederick K.S. Leung, for his dedication to the work of the Graduate School from September 2019 to August 2021.

HKU 2021 Summer Research Programme

The HKU 2021 Summer Research Programme (SRP) was successfully held in June to August 2021 by the Graduate School. The programme provided elite students with an 8-week programme (June 21 to August 13) of intense research training together with extracurricular activities. A total of 37 undergraduate and postgraduate students who were residing in Hong Kong participated in the programme.

Each participant in the SRP was supervised by an HKU professoriate staff member on a one-to-one mentorship basis to plan and carry out an independent research project. They were required to deliver a project plan presentation at the beginning of the programme and a project summary poster presentation in the last week.

Four academic workshops were conducted for the participants to learn about basic knowledge in research

See what our participants say:

“I like how interdisciplinary it is. I learned a lot from others during the seminars and the retreat. I think the seminars were really helpful. They consolidated the crucial skills I need as a researcher or as a student.”

practice, research writing, oral presentation, and skills and methods in preparing a research statement for the graduate programme. A two-day Transferable Skills Retreat enhanced both the personal and research effectiveness of the SRP students by offering them an opportunity to develop awareness and skills with significant relevance to their study, career, and whole person development. Students also met their peers from different disciplines and cultural backgrounds in the retreat.

A scholarship of HK\$20,000 was awarded to each participant upon successful completion of the SRP. Students who completed the programme with outstanding performance received the Outstanding Completion Awards, with a conditional offer of the HKU Presidential PhD Scholarship. An award presentation ceremony was held to conclude the programme.

“I am highly satisfied with the mentorship I received. My mentor and his lab were highly supportive.”

“I made a lot of new friends and it was on the whole a very enlightening experience. I really enjoyed talking to my peers. As we were all from different disciplines, it's great to see things from alternative perspectives.”



Virtual HKU Three Minute Thesis (3MT®) Competition 2021

The Graduate School and the Knowledge Exchange Office (KEO) jointly organised the Three Minute Thesis (3MT®) Competition 2021 of HKU in a virtual format in April to June, 2021. Developed by The University of Queensland, Australia in 2008, the 3MT celebrates the discoveries made by research postgraduate (RPg) students and encourages them to develop academic, presentation, and research communication skills through communicating the importance of their research to the broader community. This year, 18 RPg students submitted videos of their presentations of up to three minutes that were targeted at a non-specialist general audience.

The adjudicating panel included Professor John Bacon-Shone, Associate Director of the KEO, who served as the Chair of the panel, Professor Frederick Leung, erstwhile Dean of the Graduate School, Professor Yvonne Sadovy, Honorary Professor of the School of Biological Sciences, and Dr Yahong Li, Associate Professor of the Department of Law.

Videos of the presentations of the awardees and finalists are available at <http://www.ke.hku.hk/hku3mt/index.php/competition/2021/2021-videos-of-finalists-and-awardees>. Also, congratulations to all the winners of the Virtual HKU 3MT Competition 2021:

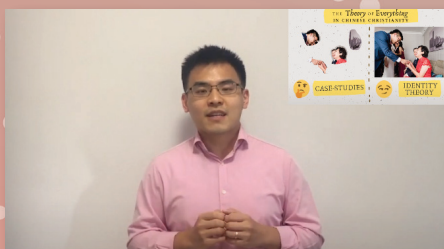


Champion

Name: Lu Peng (PhD candidate, Faculty of Engineering)
Presentation Title: A bubble within a membrane, a drop from the ocean
Primary Supervisor: Professor Chuyang Tang

1st Runner-up

Name: Nicolo Paolo Ludovice (PhD candidate, Faculty of Arts)
Presentation Title: Epidemic villains? Animal histories in human health
Primary Supervisor: Professor Robert Peckham



2nd Runner-up

Name: Tim King Fai Yung (PhD candidate, Faculty of Arts)
Presentation Title: The theory of everything in Chinese Christianity
Primary Supervisor: Dr Peter Anthony Cunich

Online People's Choice Award

(the finalist who receives the most 'Likes' on YouTube)

Name: Mukesh Kumar (PhD candidate, Faculty of Science)
Presentation Title: Why endure allergies when you can cure them?
Primary Supervisor: Professor Billy Kwok Chong Chow



Do You See What I See?

– An Alumni Story of Dr Kennedy Kam Ho Chan,
Associate Professor, Faculty of Education

Imagine an older Hong Kong at a time before the MTR extended its octopus-like arms from Kowloon into the developing areas beyond the city. Picture the familiar hustle and bustle, with the surge of shoppers, and the waves of commuters. Do you see what I see? A small boy, heavy schoolbag over his shoulders, skilfully negotiates the crowd: a young Kennedy Chan is on his way home from primary school in Tseung Kwan O.

Dr Chan was from those early years a strong academic student who followed the scientific path with a particular interest in plant molecular biology. He graduated with a BSc and MPhil in Biological Sciences, but it soon became apparent that his true passion lay in science teaching, and so he pursued a PGDE teaching diploma.

As a practising secondary science teacher, he became fascinated by “the multi-faceted and complex nature of science teaching”. He observed that, “Teaching was an interactive and dialogic process.” He became keen to delve deeper into these ideas and so his interest in uncovering “the secrets of high quality science teaching” became a personal research goal.

Dr Chan has been an educational researcher remaining at HKU throughout his career to date, which has enabled him to focus fully on his development and understanding of science teacher expertise. He has tremendous respect for his mentor Dr Benny Yung, who he describes as “an accomplished scholar”. Dr Chan’s doctoral study focused on how biology teachers developed a professional knowledge for teaching a new science topic in the context of curriculum change in Hong Kong.

As a great advocate of research-led teaching, he became aware of the need to observe teachers in action from different perspectives. To do this, he has introduced video-based classroom environments where the innovative technology records teachers and their leaders in action. These ‘point of view’ cameras capture the act of teaching from all angles, allowing the viewer to see what both students and teachers “see from both sides – do you see what I see?” With dedicated input from Dr Gaowei Chen, “a very intelligent colleague” and Associate Professor from the same faculty, the classroom data is collated and visualised before being shared for invaluable reflection and analysis.

So, did that young graduate see himself reaching out to scholars in five continents? In his eagerness to exchange knowledge, to broaden his research base, and to contribute to critical international debates, Dr Chan has worked alongside highly respected academics from establishments such as the University of Melbourne, Durham University, Stanford University, the University of the Witwatersrand, the National Institute of Education, and National Taiwan Normal University, where in 2017 at a local conference he gave the keynote speech on teacher expertise and workshops for Taiwanese in-service teachers.



Dr Chan (left) with his PhD supervisor Dr Benny Yung

He has reported his findings in highly respected local and international publications, such as *Studies in Science Education*, and he is the lead name on the paper most aptly entitled, ‘Do you See What I See?’ – a close collaboration with a team from three Australian Universities, namely, Monash University, Deakin University, and the University of Melbourne.

Dr Chan praises HKU for giving him financial support through grants and also for providing an environment where he has the freedom to pursue lines of research, particularly in the emerging field of ‘teacher noticing’. He also highlights the efficient support he receives from his Faculty’s administrative staff.

Dr Chan has won extensive professional recognition. He was invited to the Pedagogical Content Knowledge (PCK) Summit II in 2016 and is one of 26 scholars involved in conceptualising the refined consensus model for PCK.

He has been presented with multiple teaching awards from his Faculty and the University based on different criteria such as student evaluation ratings, teaching portfolios, and student nominations, including the 2017 University Early Career Teaching Award and the Student-Led University Teaching Feedback Award (2017–2018). He was also a 2019 University Grants Committee Teaching Award finalist (Early Career Faculty Members).

Currently, Dr Chan is working with a local charity organisation, the Bei Shan Tang Foundation. Together with principals, teacher leaders and colleagues from Stanford and Monash Universities their goal is “to empower teacher leaders and teachers to use classroom videos to enhance teacher expertise and student learning”. He thinks that taking a systemic approach is critical as support from colleagues and school administrators is essential to sustain teachers’ ongoing professional learning.

He is also an Executive Committee member of the Community of Practice on ‘The Innovation and the Future of STEM Education’ of the Hong Kong Teaching Excellence Alliance (HKTEA).

With such a full programme, how does Dr Chan achieve the work life balance? Quite simply in his own words: “I am very poor at that.”

But perhaps if you are strolling past his building in Kowloon City, you might hear over the rumble of traffic the strains of Faye Wong’s unique voice while Dr Chan’s feet rhythmically pound a running machine. Yes, Dr Kennedy Chan is winding down so he can stay mentally and physically fit and be ready for his next busy day.

HKU Students Win Awards in the 7th Hong Kong University Student Innovation and Entrepreneurship Competition

HKU students won twenty awards at the 7th Hong Kong University Student Innovation and Entrepreneurship Competition in May 2021. Research postgraduate (RPg) students received two Second Prizes and five Third Prizes under the 'Innovation' category, and one Merit Prize in the 'Entrepreneurship' category.

The competition is organised by the Hong Kong New Generation Cultural Association for academic exchanges and innovation and entrepreneurship talents from the tertiary institutions in Hong Kong. Winning teams may represent Hong Kong at national competitions including the 'Challenge Cup' National College Students' Extracurricular Academic Science and Technology Contest and the China College Students' 'Internet +' Innovation and Entrepreneurship Competition.

Congratulations go to the following winners:

Award	Name of Project	Project Team Members
Category: Innovation		
Subject: Energy, Environmental and Chemical Engineering		
Second Prize	Tissue-like liquid robots programmed by phase separation enabled all-aqueous printing	Shipei Zhu Yage Zhang <i>(PhD students, Department of Mechanical Engineering)</i>
Second Prize	Single-shot, synthetic polarization digital holographic microscope for under water microplastic detection	Yanmin Zhu <i>(PhD student, Department of Electrical & Electronic Engineering)</i>
Third Prize	Durable paper fuel cells with instant refueling ability	Shijing Luo, Kee Wah Leong, Xiaolong Zhao <i>(PhD students, Department of Mechanical Engineering)</i>
Third Prize	Model predictive control based voltage and frequency regulation in microgrids	Yau Chung Cheng <i>(PhD student, Department of Electrical & Electronic Engineering)</i>
Third Prize	Reusable nanofibrous membrane filters for environmental applications	Shenghua Zhou Li Long <i>(PhD students, Department of Civil Engineering)</i> Junwei Zhang <i>(BEng(CivE) student)</i> Yan Tung Lo <i>(BEng(CivE)/BBA student)</i>
Subject: Life Sciences		
Third Prize	Graphene liquid marbles accelerate osteogenic maturation of human bone marrow-derived mesenchymal stem cell spheroids	Yage Zhang <i>(PhD student, Department of Mechanical Engineering)</i>
Third Prize	Bioengineered hair follicle model for hair follicle regeneration and high-throughput drug screening	Wanjing Ou <i>(PhD student, Department of Mechanical Engineering)</i>
Category: Entrepreneurship		
Entrepreneurship Proposal		
Merit Award	Genetic testing-based intelligent health data management	Guolan Chen Justin Tubbs <i>(PhD students, Department of Psychiatry)</i> Zixuan Li <i>(BBA(Acc&Fin) student)</i> Chun Wang Kwan <i>(BBA(Acc&Fin) student)</i>

Physics PhD Student Obtains the Higgs Mode via Dimensional Crossover in Quantum Magnets

The Higgs mode or the Anderson-Higgs mechanism (named after Nobel Laureates Peter Higgs and Philip W. Anderson), which contributes to our understanding of the origin of mass of subatomic particles, has widespread influence in our current understanding of the physical law for mass ranging from particle physics – the elusive ‘God particle’ Higgs boson discovered in 2012 – to the more familiar and important phenomena of superconductors and magnets in condensed matter physics and quantum material research.

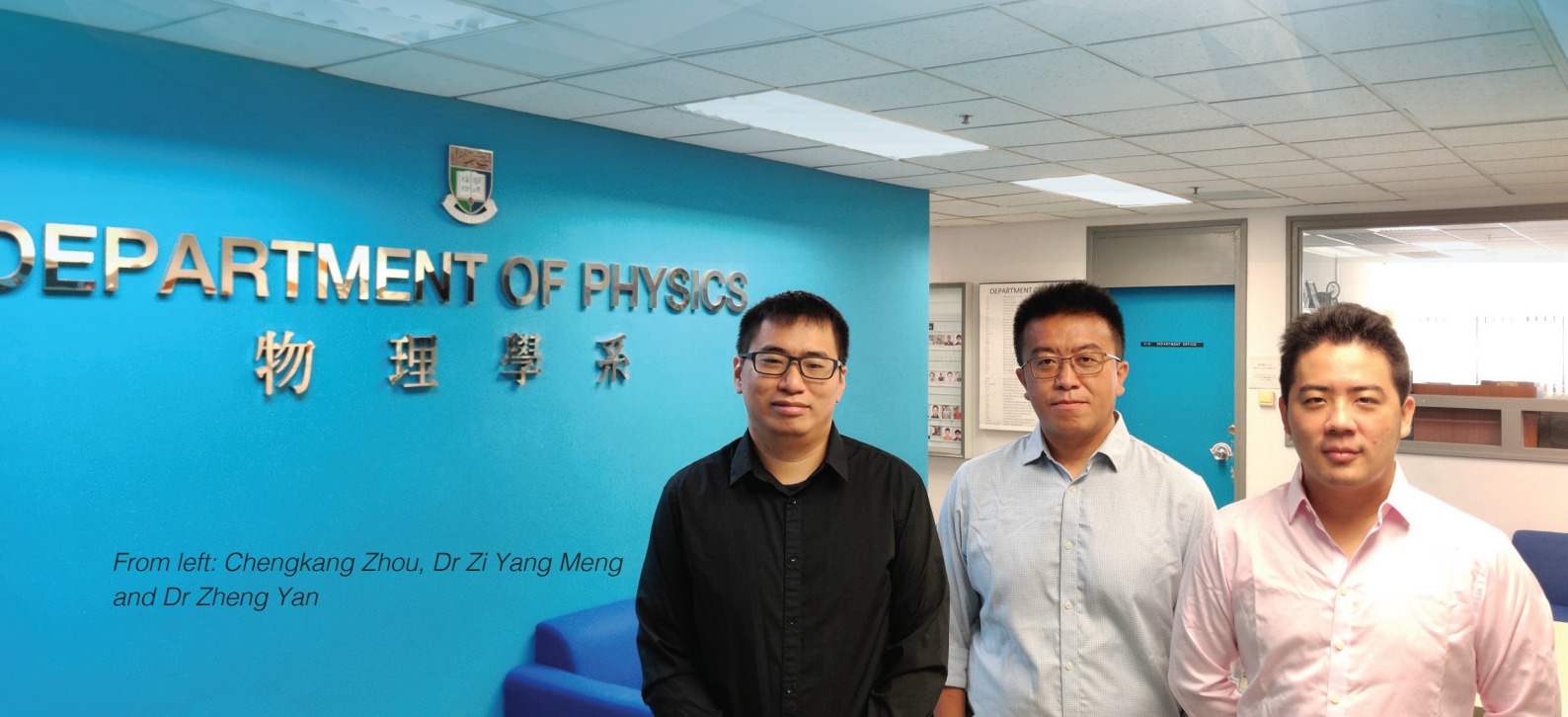
Both the Higgs mode and the Goldstone mode are caused by the spontaneous breaking of continuous symmetries in the various quantum material systems. The Goldstone mode has been widely observed via neutron scattering and nuclear magnetic resonance spectroscopies in quantum magnets or superconductors. However, the observation of the Higgs mode in the material is much more challenging due to its usual overdamping, which is also the property in its particle physics cousin – the elusive Higgs boson. Researchers have suggested various methods to weaken this damping, such as through quantum critical points, which yielded several remarkable results, and dimensional crossover from high dimensions to lower ones, which achieved fewer successes.

To fill this knowledge gap, HKU PhD student Chengkang Zhou worked together with Dr Zheng Yan and Dr Zi Yang Meng in the Department of Physics

and designed a dimensional crossover setting via coupled spin chains. They applied quantum Monte Carlo simulation to investigate the excitation spectra of the problem. They collaborated with other researchers, including Dr Hanqing Wu from Sun Yat-sen University, Professor Kai Sun from the University of Michigan, and Professor Oleg A. Starykn from the University of Utah, and observed three different kinds of collective excitation in the quasi-1D limit, including the Goldstone mode, the Higgs mode, and the scalar mode. By combining numerical and analytical analyses, they successfully explained these excitations, and in particular, revealed the clear presence of the Higgs mode in the quasi-1D quantum magnetic systems. All these results can not only help to find out the key model parameters of the material but also reveal a picture of how dimension matters in the condensed material. The findings have been published in one of the most prestigious journals in the field of physics – *Physical Review Letters*.

In the framework of modern physics, symmetry and dimension are two of the most important factors that determine the properties of quantum many-body physics. The phenomenon caused by dimension reduction is also a key topic in quantum magnetic systems. The research team’s findings provide an attractive model and data support for understanding what an essential role dimension plays in our world, as well as stimulating the development of next-generation quantum material and components.

(This article is adapted from <https://www.hku.hk/press/press-releases/detail/22907.html>.)



From left: Chengkang Zhou, Dr Zi Yang Meng and Dr Zheng Yan

PhD Student Receives Grant for Research Tackling Child Labour

Alhassan Abdullah, a PhD Candidate in the Department of Social Work and Social Administration, has been awarded a 'From Research to Action (RTA)' project seed grant for his proposal on investigating the issue of child labour in Ghana.

The RTA project (in full: 'From Research to Action: Using Knowledge to Accelerate Progress in the Elimination of Child Labour and Forced Labour') was developed by the

International Labour Organization in collaboration with the International Organization for Migration with partnership support from the United States Department of Labor. It aims to support junior and early career researchers worldwide on research, both at policy and practice levels, to address gaps in knowledge on child labour, forced labour and human trafficking.

Existing research on child labour in Ghana points towards the instrumental role of socio-cultural norms and values that support the practice. Alhassan's proposed study, however, aims to adopt a bottom-up practice research approach by engaging key stakeholders (children, parents, community key informants and workers of non-governmental

agencies) from the two leading occupations with child labour problems – cocoa farming and sea fishing – to unravel norms underpinning child labour practices in Ghana. Narratives from the stakeholders will provide insights into the local norms that support child labour practices, to inform a normative change campaign that can target shifting and reshaping the negative child labour norms to ensure better outcomes for children.



PhD Student Wins Scholarship for Research on Africa-China Relations

Congratulations to Ignatius Suglo, a PhD candidate of School of Modern Languages and Cultures (China studies) at HKU, for winning editorial support through a Laura Bassi Scholarship. He is one of just eleven awardees out of over two thousand applicants.

Ignatius' PhD project examines knowledge production and circulation on constructing 'Africa' in modern China, and he has recently published two academic journal articles. Based on archival fieldwork in the Shanghai Propaganda Art Centre's Collection, one of his journal articles, which is published in the *Journal of Asian and African Studies*, examines propaganda posters produced in China between 1950 and 1980.

This study interrogates the motivations, strategies, and geopolitical implications of the African presence in Chinese propaganda during the Mao and post-

Mao era. It demonstrates that Chinese posters informed public opinion by defining friend and foe, carved a narrative that served China's domestic and international ambitions, and paradoxically challenged and reinforced some widely held stereotypes about the African continent. The second article is published in *Verge: Studies in Global Asias* and examines musical imagination of Africa in the work of a Chinese folk musician – Zhu Mingying – in the mid-20th century. Her stage make-up and performances of African folk songs produced and circulated a mediated image of Africa and circulated into 21st century music classrooms in China. Ignatius' research aims to unearth the underlying currents of the image and perceptions of Africa(ns) in China, which he suggests are rooted in the production and circulation of popular knowledge over the past centuries. His work contributes to growing research on Africa-China relations.



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