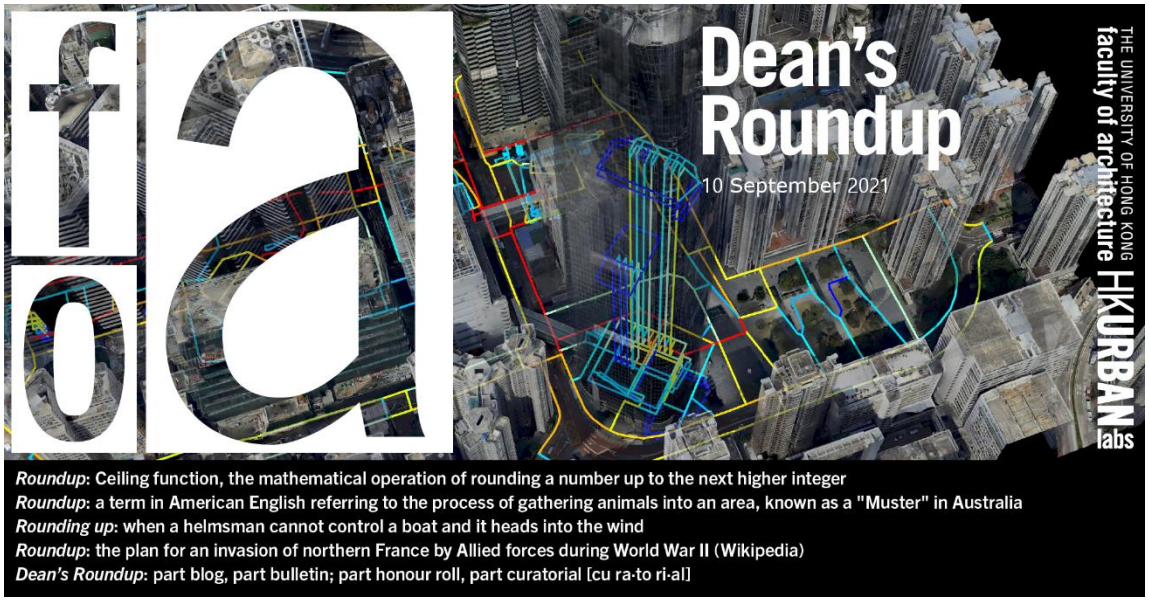


On bribes, blockchain and breakdown in trust

A friend of mine is currently in the Middle East with a filming crew. In spite of letters from Culture Ministries, police and security agencies, I was not surprised when he called me saying the local police had asked for a payment. It is in the nature of human interactions that whenever someone is in a position of power and there is even the minutest degree of ambiguity that allows for local discretion in the interpretation of laws or regulations or procedures, bribery will emerge. Egypt and Thailand (and many other countries), for example, have endemic bribery, not because of intrinsic morality in the culture or individuals, but because of ambiguity in laws arising either from contractual or legal-coding ambiguity, or from the practice of non or partial enforcement. Incomplete enforcement renders a well coded law ambiguous in its implementation and is as bad as poor coding. In Thailand, estimated bribe income, I was once told by a senior government officer, is discussed openly during government job applications. The ex-Thai police chief currently under arrest for demanding a bribe in order to desist from torturing a drug-dealer, also held the 'manor' of confiscating illegally acquired supercars. His alleged crime at the moment, is not so much deriving an estimate of HKD 100M worth of 'finders fees' in searching for buyers for the confiscated cars, but the 47 supercars registered in his own name.

When the pandemic introduced a whole new set of risks to international and domestic travelling, much of the law-based infrastructure that allowed the free-flow of people around countries and the globe became suddenly temporarily redundant. Where once, an e-ticket and a passport could get me a boarding pass, now I need a Covid-19 test with proof that the testing laboratory is either ISO certified or is a Covid lab on the host country's list of authorised testing labs. This would be ok if lists and certificates were standardised, complete, static and easily interpreted and therefore endorsed across countries. For obvious reasons this is difficult. And so, when I boarded a Lufthansa flight to HKG from FRA last week, a full 30 people or about 8% of my flight were disallowed boarding even though they had a ticket, passport and what they interpreted to be adequate certification

of their Covid test result documentation. I have no doubt at all that in some parts of the world, bribes are being paid to get on flights.

The fast expanding and super-efficient and productive global economy that has grown over recent decades is based on trust. Not the trust between strangers meeting for the first time across an airline check-in counter, but the trust that both parties to a transaction place in the instruments of exchange and laws governing them. E-tickets work because passengers and check-in staff trust the legal infrastructure behind them. The ticket and the contract and laws underpinning it intermediates trust between two people, allowing a high value transaction to take place in a matter of minutes.

The number of legal contracts in place to facilitate a pleasant 11-hour London-HK flight with, say, a predictable 14-hour door-to-door home to destination journey, is counted in tens of millions. My trust in a single printed e-ticket to deliver me the 14-hour experience in comfort relies on the airline's vast number of supplier and service contracts: with Rolls-Royce for engine parts, services and warranties (thousands of contracts over different parts and services), with RR in turn relying on multiple contracts with inhouse and contracted engineers, suppliers of high-grade titanium, rare-earth metals, toilet cleaning services and so on; with tyre companies who in turn rely on contracts with warehouses, shipping countries, export credit guarantee finance companies, payment platforms, right down to the humble estate worker who gets up at 5am every morning to harvest sap on a remote Malaysian rubber plantation[1]; with shareholders, banks, construction companies, airline food companies, security guards, and so many more.

When circumstances arise that are not explicitly addressed in any one of this world-wide webbed nexus of legal agreements, a contract may fail to deliver the expected outcome. Systemic shocks like a pandemic render existing contracts unworkable at multiple parts of the nexus because the contracts are not complete enough to cover the novel circumstances created by a footloose virus. Trust breaks down. The global economy stops flowing.

It was not sufficient for me to explain to my Cathay check-in manager at LHR last week that the word 'Ozel' in Turkish means 'Private' in English and that the name, in Turkish, of the test lab on the Turkish government's authorised list was the same as the English language translation of the test lab name printed on my test results certificate. How can he know that my translation is accurate? What constitutes an accredited translation? No – Google Translate would not do. In the absence of contractually agreed terms of trade, my passport and ticket and Covid-19 test certificate with its Turkish MoH endorsed chop, proved insufficient. The insufficiency proved sufficient justification to leave me to sleep on an airport bench for the night and fly to another country the next day in search of a test lab with a different approach to certification. But 'no sir' I cannot guarantee that a German test certificate will get you aboard a flight – only Cathay's expert advisors back in HK can determine whether the package is sufficient to satisfy HK's fastidious border health police.

[1] With apologies to Leonard E Read's 'I, Pencil', first published in 1958 – check it out on Google for inspiration.

I made it. But not without learning a valuable lesson in the fragility of the modern economy.

Which is why, while being something of a techno-future sceptic, I am inclined to think that smart-city forecasters have something – and also why I occasionally invest in crypto currency. Assuming that the pandemic is not the last big shock to life as we know it, it is almost completely certain that transaction systems, be they for individual banking, or international travel, or the exchange of building design, ownership and performance management data and documents, will become blockchain enabled within only a few years. Blockchain, like traditional contracts, provide the glue that allows people to appear to trust each other in undertaking the many thousands of transactions that enable us all to live clustered together in cities, completely reliant on the skills of others to subsist even for one single day. Try lasting a day without using something that has been made and provided by someone else.

To make a point about the need to give students in all of our Built Environment subjects an ability in the conversational languages of BIM and other software communication systems, seems trite. But you get my point. Blockchain-enabled smart contracts run on platforms, crypto and tokens like EOS and Ethereum, will quickly become the glue that binds us. That makes it possible to act as though we trust each other in the face of increasing complexity and uncertainty. That binds urban societies and economies together.

They may frighten us, but there is nothing quite more frightening than being faced with the raw intransigent power of a low-level decision maker who suddenly finds themselves a gatekeeper without clearly defined guidance on how to administer the great responsibility suddenly landed upon their shoulders.

Congratulations for each of the impressive achievements mentioned below. I am looking forward to an exciting new academic year and to interacting with you all as it proceeds.

Chris
Dean, FoA

Faculty of Architecture

1. Welcome to Dr Yanan Liu, who has joined the Faculty as Post-doctoral Fellow with the Department of Urban Planning and Design, w.e.f. 15 July 2021.

2. Professor Juan Du

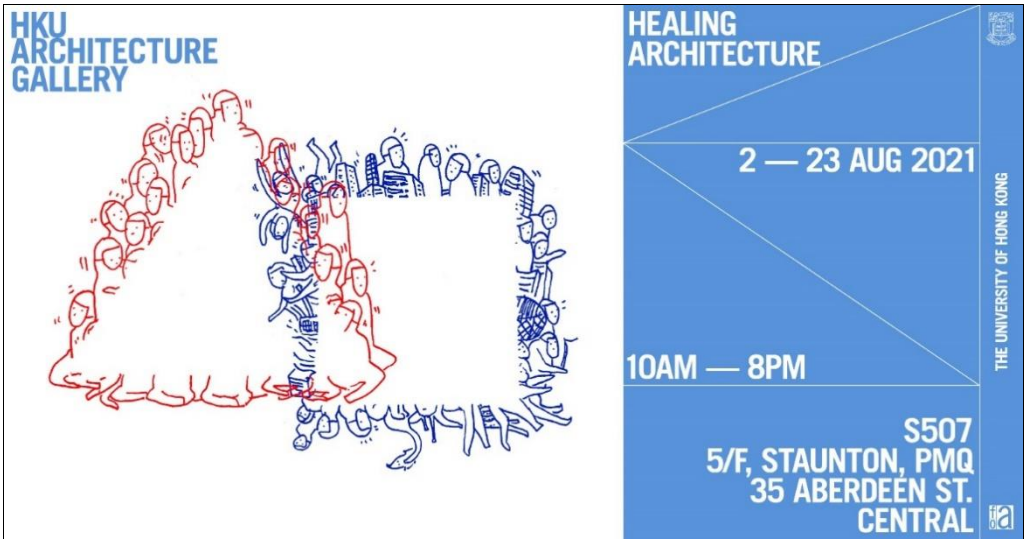
   - was interviewed in the following media article:

     Smithson, A. (2021, August 3). More new deans discuss the pandemic, their institutions, and approaches to design education. *The Architect's Newspaper*. https://www.archpaper.com/2021/08/more-new-deans-discuss-pandemic-institutions-and-approaches-to-design-education/

Department of Architecture

1. ‘Healing Architecture’ Exhibition

   - From architect to artist – the ‘Healing Architecture’ Exhibition @PMQ was an interactive and experimental platform between alumnus Ricky Luk and the audience to co-create a space in the city that healed one’s mind.



The exhibition drew on Ricky Luk’s (humchuk) art practice that has called attention to mental health challenges in the urban environment. Ricky received his Master of Architecture degree from the University of Hong Kong in 2012 and has taken up a career as an illustrator and visual artist since 2014. His fourth book ‘累倒就躺著不要動’ was published in mid-July 2021. Ricky’s creative works also include collaboration with the Centre for Civil Society and Governance, HKU, on a project called *Focusing on SEN*, and with the Department of Psychiatry, HKU, for the development of *HK Flow Tool*, a mental health recognition tool. Currently, Ricky is researching the outlying island community as an artist-in-residence in the ‘Lamma Mia’ public art project organised by the Art Promotion Office, LCSD.

Throughout the course of three weeks, visitors witnessed the building of the exhibition in progress with live in-situ discussions with the artist, as open studio visits were held every Thursday and Saturday.

For more information, please visit the HKU Architecture Gallery official webpage.

Date:	2 August 2021 (Monday) – 23 August 2021 (Monday)
Time:	10:00am – 8:00pm
Venue:	S507, 5/F, Staunton (Block A), PMQ, 35 Aberdeen Street, Central, Hong Kong
Public Event:	21 August 2021 (Saturday), 5:00pm

Media Coverage: '在 PMQ 繪出「治癒建築」 藝術家含蓄盼用留白讓觀眾喘息', *Stand News*, 6 August 2021: https://bit.ly/3xCJUA7

Division of Landscape Architecture

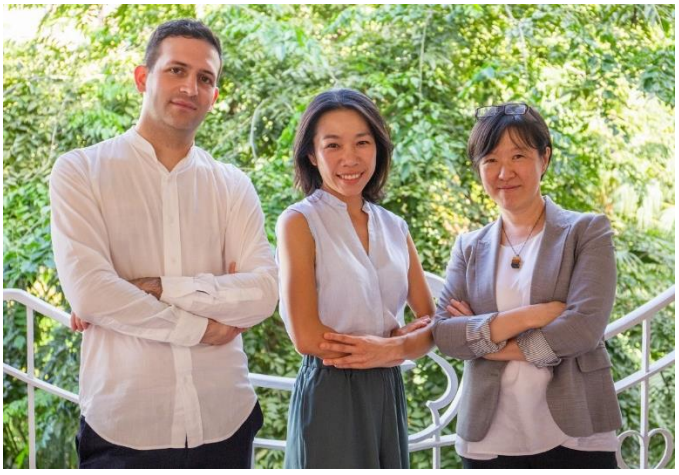
1. Vincci Mak, Dr Cecilia Chu and Maxime Decaudin

   - have been awarded in the HKSARG Countryside Conservation Funding Scheme (CCFS) 2021-22, at the amount of HK$1,900,774, for their project titled ‘Village Commoning: Developing a Community-led Model in Countryside Revitalisation‘.

     Project Description: In recent years, Hong Kong saw a growing number of village revitalisation schemes initiated by non-profit organisations (NPOs) with expertise in ecological and heritage conservation. While many of these projects have been commended for their success in reactivating the countryside through public engagement and educational programs, less attention has been paid to addressing the needs and aspirations of local villagers, who remain largely disengaged from the revitalisation processes.

     This project aims to derive a community-led model of village revitalisation that enables local stakeholders to take a greater role in initiating the revitalisation of their village assets. Utilising “commoning” as a conceptual framework, this model emphasises the collective management of resources that can lead to the creation of new values, in particular in fostering a sense of pride, and ownership of place and empowering the community as a whole.

     The first phase of this project includes a review of international case studies of commoning practices that mobilised collaborations between different stakeholders. The second phase involves the organisation of a series of engagement exercises to gather feedback from relevant parties. The final phase involves the generation of an “advisory platform for commoning” and a set of implementation guidelines for future use.

     About the awarded project:
     https://www.epd.gov.hk/epd/sites/default/files/epd/english/environmentinhk/conservation/files/RA7_Village%20Commoning%20%28Eng%29.pdf

A full list of approved projects in this round: https://www.epd.gov.hk/epd/english/environmentinhk/conservation/ccfs/ccfs_approved_projects.html

Press release issued by the HKSAR Government on 2 September 2021: https://www.info.gov.hk/gia/general/202109/02/P2021090200322.htm?fontSize=1

2. Mathew Pryor

- shared his views on urban farming in an interview with *China Daily*. The article titled 'How green is my balcony!' was published on 20 August 2021: https://www.chinadailyhk.com/article/234336

Lifestyle

How green is my balcony!

Growing vegetables at home caught on during the most challenging phase of the pandemic in Hong Kong. **Rebecca Lo** tries to gauge if the amateur farming wave will sustain.

On a balmy summer evening recently, members of the American Institute of Architects' Hong Kong Chapter, went on a tour of K-Farm. Led by the chapter's past-president Vicky Chan and designed by his company Avoid Obvious Architects for the local NGO Rough C Limited, K-Farm aims to make farming fun by throwing innovative architecture into the mix.

K-Farm runs parallel to the Belcher Bay Promenade. The compound consists of three open-air pavilions, a reflecting pond, a fish pond and planters anchored on either end by a greenhouse and administrative buildings. It introduces farming to the local community and operates on a three-year renewable tenancy.

Chan noted how circles were used as a design motif throughout structures where hydroponic and aquaponic farming was practiced. "The vertical green wall, vertical farming racks and farming tables allow people with special needs to access farming without bending down," Chan explains. "All three shelters have rainwater collection and solar panels on their roofs, offsetting its electricity consumption."

He hopes that K-Farm will inspire the next generation of farmers to incorporate "cool" architectural features in their facilities. "We hope our vision allows more people to understand how urban Hong Kong can be more inclusive toward all kinds of living things. This organic farm also helps the ecosystem of the whole area. As the adjacent parks use pesticides, our farm has suddenly become an attraction for birds and insects. K-Farm is increasing the biodiversity along the waterfront."

Community bonding

"Urban farms are a valuable contribution to the city," states Mathew Pryor, the University of Hong Kong's landscape architecture head. Pryor authored the book *The Edible Roof* and oversaw the HKU Rooftop Farm in Runme Shaw Building for seven years.

"My research after interviewing hundreds of participants indicated that rooftop farming is not about food — it is about happiness," Pryor explains. "That is a difficult thing to put into a guideline. People, particularly those in the government, don't know how to codify it." However, such projects are successful when the public are personally invested in them, he adds.

Enoch To believes that trying out farming is what helped her survive the most challenging months of the pandemic in Hong Kong. Between working from home and supervising her eight-year-old son Allan's Zoom lessons, To had managed to obtain one of the 30 allotments run by the Tung Chung residential complex in which she lives. For a HK$1,300 fee ($167), she can farm a 3 by 0.6 metre plot, six months at a time.

"We have been farming for a year," To reveals. "Allan likes to help me catch worms. We can be there for an hour and don't realise the time passing. We grow *choi sum*, papaya, beans, pea shoots and carrots, and use egg shells and tea bags as fertilizer. It's all organic."

Nowadays, To grows enough fruits and vegetables to meet her family's needs, but says she is into farming primarily for the pleasure of it. "It's therapeutic," she says. Farming has led to greater community bonding, she adds, as neighbors often exchange seedlings. It's also fun to watch what the person next door is up to, "such as our Indian neighbors tending the herbs they use in their cooking."

Pryor agrees that successful urban farms strongly emphasize community building. The biggest challenge, he says, is for urban people to have a sustained interest in farming. As farming is an everyday activity, people who participate need to take ownership and responsibility. "Farms need constant gardeners," he says. "We saw a lot of HKU students interested but when exam time arrives, they all disappear."

Start with something easy

Shouson Hill resident Caroline Ma started farming on her roof last year, finally realizing a childhood interest in gardening. "I was thinking more about sustainability," she notes. "I have always wanted to make better use of our roof and encourage my daughter Adelyn to eat more vegetables."

Landscape architecture expert and University of Hong Kong academic, Mathew Pryor says people take to rooftop farming because they enjoy the process more than the harvest.

She began planting the seeds collected during various travels. "I started with mint and basil, and then challenged myself with zucchini and melon. Now I grow cantaloupes and daikon radish, which my mother-in-law used during Lunar New Year to make radish cakes."

For Ma, farming is a meditative experience. "I am in my own little world and I can forget about the world's problems for a brief period," she says. Like To, she too has made friends over farming, exchanging seeds and harvests, and comparing notes with fellow urban farmers.

"Also, I am active in promoting urban farming and local non-genetically modified seeds," Ma adds. "Many friends started their own rooftop or balcony farms after seeing my harvests on social media."

Her roof is not the most ideal spot for growing things though, exposed as it is to unrelenting sun and wind. Still, Ma is grateful to have a bit of outdoor space.

"I highly encourage everyone to try growing something," she states. "Roofs, balconies, terraces and gardens have their advantages and limitations. Start with something easy. Use organic and good quality soil, seeds and fertilizers. Find out what is seasonal to grow. Talk to other amateur urban farmers. Most like me are very eager to share. And if there is no space to grow at home, you can always rent a space in urban farms such as Vegefarmhk."

"The government assumes that urban farms are commercial ventures and are not as willing to invest in them," Pryor says. "Well-being or happiness cannot be monetized. Urban farming ticks all the right boxes: it promotes social well-being and intergenerational interaction, among many other benefits."

Help at hand

Founded in 2015, Rooftop Republic has transformed nearly 80,000 square feet of underutilized Hong Kong spaces into 70 productive urban farms in premises ranging from schools to office buildings. It has worked with Link REIT at Lok Fu and Sun Hung Kai Properties at Metro-plaza shopping mall in Kwai Fong.

"Our ultimate goal is to make urban farming available to everyone in the community," states Pol Fàbrega, Rooftop Republic's chief operating officer and co-founder. "From building customized farms on commercial or residential buildings to offering home gardening solutions, we support individuals and families to grow from the comfort of their own home.

"Urban farming could help companies increase their property value. Moreover, it could offer employees opportunities to participate in farming and practice sustainability," says Fàbrega, who feels early exposure to farming through school initiatives could help "educate children about healthy food and lifestyle while improving self-esteem."

"It cultivates greater understanding of environmental issues while offering students a learning experience outside of the classroom," he adds.

Rooftop Republic Academy provides hands-on training to nurture new farmers or those interested in setting up their own garden.

"Our team of experienced urban farmers oversees the entire operation at the farms," notes Michelle Hong, Rooftop Republic's chief marketing officer and co-founder. "We provide the necessary technical and human resources support for effective farm maintenance and fruitful experiences with our client's stakeholders."

Andrew Tsui, CEO and co-founder of Rooftop Republic, credits the explosion of interest in urban farms to more Hong Kong residents aspiring to a healthier and more sustainable lifestyle.

"As born and bred city people ourselves, we realize how disconnected we all are from our food sources," Tsui says. "We believe that when people are involved in the process of growing their own food, they will be able to re-build this relationship, get to know farmers, connect with their local community and help bring about a more sustainable, healthier and more inclusive food system."

Clockwise from above: Urban farmers Caroline Ma with daughter Adelyn; Enoch To with son Allan; Rooftop Republic co-founders, Andrew Tsui, Michelle Hong and Pol Fàbrega; the K-Farm compound runs parallel to Belcher Bay Promenade in Kennedy Town, and Rooftop Republic's organic farm at Kwun Tong.

K-Farm in Kennedy Town supports hydroponic and aquaponic farming. Rough C Limited, the NGO running the facility, aims to inspire respect for all living things in community members participating in the process.

Department of Real Estate and Construction

1. President's Scholar and Sports Scholarship Scheme

- Martin Chan Ho-hin, one of the 13 HKU President's Scholars this year, has chosen to study the Bachelor of Science in Surveying programme starting in September. His aspiration to create a sustainable living environment and reverse the climate crisis has been covered in the following media articles, on 12-13 August 2021:

  - 「探花」追風小子棄神科　選讀港大測量學　盼推環保建設 [HK01]
  - 曾提活化海濱方案自設追風專頁　探花讀港大測量拒選「神科」：不要被分數牽著走 [Hong Kong Economic Times]
  - 探花入港大延追風夢 考古迷讀中大研歷史 [Sing Tao Daily]
  - 關注環保/探花陳浩軒以「明德學子」身份入港大 [Ta Kung Pao]
  - DSE 探花讀測量圓追風夢 [Wen Wei Po]

- The BSc(Surveying) programme has also admitted three outstanding athletes through the HKU Sports Scholarship Scheme this year, namely Ho Kin-ling, Lai Cheuk-nam, and Kieran Wu Hiu-chun.

2. Professor Lawrence Lai

- introduced the rare surviving Gin Drinker's Line pillboxes from the Battle of Hong Kong in an interview with TVB, in which he also called on the government to conserve and develop these war relics into a WWII memorial museum, as well as a war heritage walk along the defensive line. Watch the full video interview HERE.

Department of Urban Planing and Design

1. Lincoln Institute of Land Policy PhD Thesis Fellowship

   - Si Qiao (PhD candidate supervised by Professor Anthony Yeh) and Xiang Yan (PhD candidate supervised by Professor Shenjing He) have been awarded the PhD Thesis Fellowship by Lincoln Institute of Land Policy to support their PhD research.

2. Professor Bo-sin Tang, Professor Anthony Yeh, Dr Weifeng Li and Dr Kenneth Tang

   - attended the ESRI Young Scholars Award Presentation and Award Ceremony 2021, organised by ESRI China (Hong Kong) at H6 CONET on 20 July 2021. ESRI Young Scholars Award recognises the exemplary work in geospatial sciences of undergraduate and graduate students around the world since its first launch in 2012.

     The awards were presented by Ir Wai Chi Sing, Managing Director of the Urban Renewal Authority, to the three awardees – all from DUPAD:

     - Champion: Maosu Li (PhD student)
     - 1st Runner Up: Cheng Chi Chiu, David (MUP Year 2)
     - 2nd Runner Up: Lui Wing Hin, Daniel (BAUS Year 3)

Media Coverage: 「Esri 青年學人大賽」，本港大專生善用 GIS 透視社會問題，展現勇於創新思維！', *etnet*, 17 August 2021: http://www.etnet.com.hk/www/tc/lifestyle/digitalnewage/smartcity/73650

3. DUPAD Degree Show

- In collaboration with the Planning Department of the HKSAR Government, DUPAD organised a private view of the Degree Show of the Master of Urban Design, Master of Science in Urban Planning, and Bachelor of Arts in Urban Studies programmes, from 17:00-19:00 on 30 July 2021 (Friday) at the City Gallery next to the City Hall in Central, Hong Kong**.**

  Dean Webster officially opened the Degree Show, and the exhibition was on public view from 31 July to 2 August 2021.

4. Dr Jiangping Zhou

- has been successfully accepted as a Chartered Member of The Chartered Institute of Logistics and Transport (CILT) in Hong Kong, one of the accreditation institutes of DUPAD's MUP and MATPP programmes.

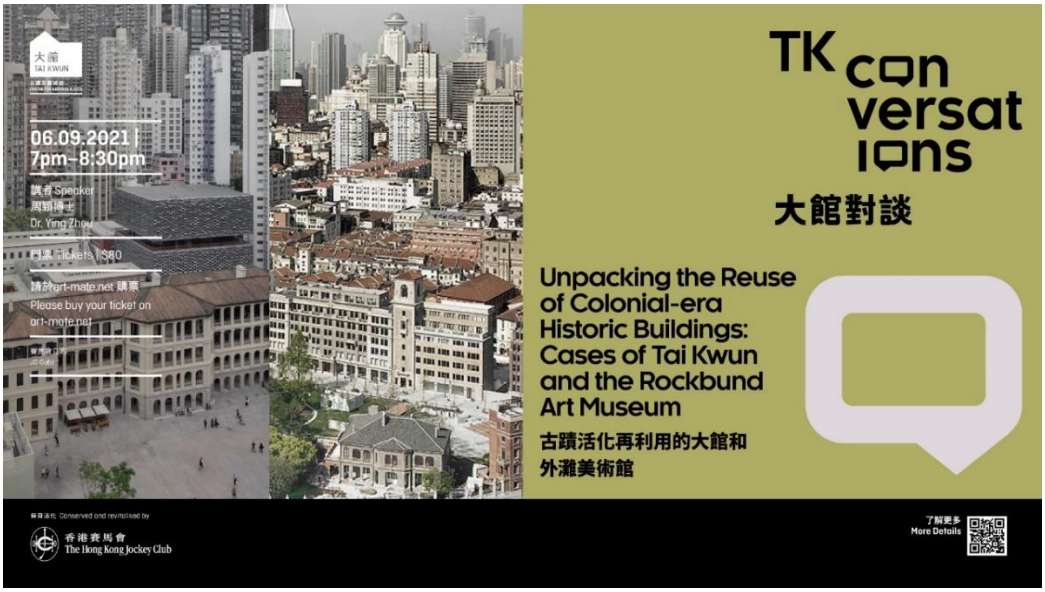
Built Heritage Research Collaborative

1. Dr Ying Zhou and Dr Cecilia Chu

   - Dr Ying Zhou was invited to deliver a public lecture, entitled ‘Unpacking the Reuse of Colonial-era Historic Buildings: Cases of Tai Kwun and the Rockbund Art Museum’, at Tai Kwun on 6 September 2021. The talk, which was moderated by Dr Cecilia Chu, discussed the reuse of two sets of colonial-era historic buildings in Hong Kong and Shanghai, and contextualised the cities’ nuanced relationships with their recent pasts.

     The event was part of the Tai Kwun Conversations Series and was organised with support from Docomomo Hong Kong. Tai Kwun Conversations is a series of talks that brings together brilliant minds to discuss the challenges and rewards in pursuing a sustainable future through the active management of heritage resources.

     https://www.taikwun.hk/en/programme/detail/tai-kwun-conversations-unpacking-the-reuse-of-colonial-era-historic-buildings-cases-of-tai-kwun-and-the-rockbund-art-museum/857



Centre of Urban Studies and Urban Planning

1. Dr Roger Chan

   - has published the following article:

     Luo, Y. & **Chan, C. K. Roger** (2021). Gendered digital entrepreneurship in gendered coworking spaces: Evidence from Shenzhen, China, *Cities*. DOI: https://doi.org/10.1016/j.cities.2021.103411

     Abstract: *The rise of digital entrepreneurship possibly empowers women. Female entrepreneurial activities and places are mutually constitutive. However, feminist geography research on entrepreneurship is limited, especially at the workplace scale. The gender implications of new types of workplaces are underexplored. This study adopts a feminist geography perspective to explore how the gendering of digital entrepreneurship intertwines with gendered practices in coworking spaces. Data were collected from 40 in-depth interviews with entrepreneurs, coworking managers, and relevant professionals in Shenzhen, China. This study suggests that the socialization of gender identity leads to a gendered digital entrepreneurial process in terms of the under-representation of female leadership, the reproduction of feminine fields, work–life imbalance, stress, and loneliness. The gendering of digital entrepreneurship further imbricates with spatial practices in coworking spaces and hinders the liberating potential of coworking in terms of openness, collaboration, and community.*

2. Dr Derrick Ho

   - has published the following article as a corresponding author:

     Ho, H. C.*, Guo, H., Chan, T.-C., Shi, Y., **Webster, C.**, & Fong, K. N. K. (2021). Community planning for a "healthy built environment" via a human-environment nexus? A multifactorial assessment of environmental characteristics and age-specific stroke mortality in Hong Kong. *Chemosphere*, 132043. ISSN 0045-6535. DOI: https://doi.org/10.1016/j.chemosphere.2021.132043

     Abstract*: With the prevalence of stroke rising due to both aging societies and more people getting strokes at a younger age, a comprehensive investigation into the relationship between urban characteristics and age-specific stroke mortality for the development of a healthy built environment is necessary. Specifically, assessment of various dimensions of urban characteristics (e.g. short-term environmental change, long-term environmental conditions) is needed for healthy built environment designs and protocols. A multifactorial assessment was conducted to evaluate associations between environmental and sociodemographic*

characteristics with age-stroke mortality in Hong Kong. We found that short-term (and temporally varying) daily PM10, older age and being female were more strongly associated with all types of stroke deaths compared to all-cause deaths in general. Colder days, being employed and being married were more strongly associated with hemorrhagic stroke deaths in general. Long-term (and spatially varying) regional-level air pollution were more strongly associated with non-hemorrhagic stroke deaths in general. These associations varied by age. Employment (manual workers) and low education were risk factors for stroke mortality at younger ages (age <65). Greenness and open space did not have a significant association with stroke mortality. Since a significant connection was expected, this leads to questions about the health-inducing efficacy of Hong Kong's compact open spaces (natural greenery being limited to steep slopes, and extensive impervious surfaces on public open spaces). In conclusion, urban plans and designs for stroke mortality prevention should implement age-specific health care to neighborhoods with particular population segments.

- has published the following articles as co-first author:

  (i) Song, Y., **Chen, B., Ho, H. C.,** Kwan, M. P., Liu, D., Wang, F., Wang, J., Cai, J., Li, X., Xu, Y., He, Q., Wang, H., Xu, Q. & Song, Y. (2021). Observed inequality in urban greenspace exposure in China. *Environment International*, *156*, 106778, ISSN 0160-4120. DOI: https://doi.org/10.1016/j.envint.2021.106778

  Abstract: *Given the important role of green environments playing in healthy cities, the inequality in urban greenspace exposure has aroused growing attentions. However, few comparative studies are available to quantify this phenomenon for cities with different population sizes across a country, especially for those in the developing world. Besides, commonly used inequality measures are always hindered by the conceptual simplification without accounting for human mobility in greenspace exposure assessments. To fill this knowledge gap, we leverage multi-source geospatial big data and a modified assessment framework to evaluate the inequality in urban greenspace exposure for 303 cities in China. Our findings reveal that the majority of Chinese cities are facing high inequality in greenspace exposure, with 207 cities having a Gini index larger than 0.6. Driven by the spatiotemporal variability of human distribution, the magnitude of inequality varies over different times of the day. We also find that exposure inequality is correlated with low greenspace provision with a statistical significance (p-value < 0.05). The inadequate provision may result from various factors, such as dry cold climate and urbanization patterns. Our study provides evidence and insights for central and local governments in China to implement more effective and sustainable greening programs adjusted to different local circumstances and incorporate the public*

participatory engagement to achieve a real balance between greenspace supply and demand for developing healthy cities.

(ii) Zheng, H., Yi, W., Ding, Z., Xu, Z., **Ho, H. C.,** Cheng, J., Hossain, M. Z., Song, J., Fan, Y., Ni, J., Wang., Q., Xu, Y., Wei, J., & Su, H. (2021). Evaluation of life expectancy loss associated with submicron and fine particulate matter (PM_1 and $PM_{2.5}$) air pollution in Nanjing, China. *Environmental Science and Pollution Research*, ISSN 1614-7499. Advance online publication. DOI: https://doi.org/10.1007/s11356-021-15244-z

Abstract: *Particulate matters with an aerodynamic diameter ≤1 μm (PM_1) significantly increased mortality risk, and the effect of PM_1 was even greater than that of $PM_{2.5}$ (aerodynamic diameter ≤2.5 μm). But the quantitative impact of PM_1 on life expectancy was unknown. We aim to examine the extent to which that people's life expectancy was shortened by PM_1 and $PM_{2.5}$. We obtained daily data on deaths, PM_1 and $PM_{2.5}$ records, and weather variables during 2016-2017 in Nanjing, China. Years of life lost (YLLs) were calculated by matching each decedent's age and sex to the Chinese life table. The fitted nonlinear dose-response associations of YLLs with PM_1 and $PM_{2.5}$ were estimated by utilizing a generalized additive model with a Gaussian link that controlled for confounding factors including meteorological variables, day of week, and long-term trend and seasonality. The effect estimates were presented as the YLLs when PM_1 and $PM_{2.5}$ concentrations fell in different ranges. Life expectancy losses attributable to PM_1 and $PM_{2.5}$ were calculated. Stratified analyses were also performed by age, sex, and death causes. Significant PM-YLL associations were observed, with greater increases in YLLs associated with PM_1 (68.9 thousand). PM_1 was estimated to reduce life expectancy, which was greater than $PM_{2.5}$ (PM_1: 1.67 years; $PM_{2.5}$: 1.55 years). For PM1, greater years of loss in PM-related life expectancy were found in the female group, ≥65 years group, and cardiovascular disease group. Exposure to PM1 had a greater impact on life expectancy loss than did $PM_{2.5}$. Constant efforts are urgently needed to control PM_1 air pollution to improve people's longevity.*

3. Dr Mandy Lau

- presented a paper at the 2021 Virtual Annual Meeting of the American Sociological Association on 9 August 2021. The presentation was titled 'Spatially and Socially Apart? Intergenerational Contact and Ageist Stereotypes in Hong Kong'. Programme schedule: https://www.asanet.org/sites/default/files/final_version.pdf

4. Professor Bo-sin Tang

   - was invited to give a webinar presentation entitled ‘Urban planning for a livable, high-density environment in Hong Kong’ at the 1000 Homes per Acre Housing Conference, presented by Senator Stanley Chang, Hawaii State Senate, Hawaii, on 13 August 2021. The presentation is available on Youtube: https://www.youtube.com/watch?v=T0mqco1NlKs

Healthy High Density Cities Lab

1. Yvonne Ka Yan Lai (PhD researcher), Dr Chinmoy Sarkar, Sarika Kumari and Dean Webster

   - have their UK-wide research on residential density, loneliness and social isolation reported in the following media articles:

   (i) Yirka, B. (2021, August 3). People living in dense parts of UK cities found to be more lonely. *Phys.org*. https://phys.org/news/2021-08-people-dense-uk-cities-lonely.html

PHYS.ORG

People living in dense parts of UK cities found to be more lonely

3 August 2021, by Bob Yirka

Credit: Pixabay/CC0 Public Domain

A team of researchers from the University of Hong Kong and one from Oxford University has found that people who live in the denser parts of U.K. cities tend to be lonelier than people living in more open areas. In their paper published in the journal *Landscape and Urban Planning*, the group describes their study of health data for people in the U.K. and what they found.

Prior research has shown that feelings of isolation can cause loneliness, which can lead to depression. In this new effort, the researchers wondered if people living in different parts of major cities experience different degrees of loneliness based in part on where they live. To find out, they turned to the UK Biobank—a repository of health information that has been compiled as part of large term genetic studies.

The researchers studied the records of 406,000 people living in major U.K. cities, focusing on answers given to questions about loneliness and comparing those answers to the places where the people were living.

The researchers found a pattern. Those living in closely packed apartment complexes reported feeling lonelier than people living in places with more space between living quarters. More specifically, they found that loneliness increased by 2.8% for each additional 1000 housing units within a kilometer of where people lived, and self-isolation rose by 11.4%.

The researchers also found that when controlling for such factors as gender, health, age or socioeconomic factors that the impact of living in dense parts of cities was more pronounced for men and for people who had retired. Men living in the densest parts of cities were found to be 23.5% more lonely than men living in the least dense parts of cities.

The researchers did not find any evidence showing why living in more densely packed parts of cities might be contributing to loneliness but suggest it is likely tied to lack of privacy and a sense of people feeling like they have less control over their lives.

The researchers suggest that their study shows that loneliness is endemic in densely packed city areas and that it could be reduced if city planners took into account the impact of dense housing on the people that live in such areas.

More information: Ka Yan Lai et al, Calculating a national Anomie Density Ratio: Measuring the patterns of loneliness and social isolation across the UK's residential density gradient using results from the UK Biobank study, *Landscape and Urban Planning* (2021). DOI: 10.1016/j.landurbplan.2021.104194

(ii) Hunt, E. (2021, August 2). People living in dense UK cities are more likely to feel lonely. *New Scientist*. https://www.newscientist.com/article/2285568-people-living-in-dense-uk-cities-are-more-likely-to-feel-lonely

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People living in dense UK cities are more likely to feel lonely

HEALTH 2 August 2021

By Elle Hunt

The skyline of Edinburgh, UK
Andrew Merry/Getty Images

People who live in dense urban areas, particularly those with closely packed apartments, are more likely to experience loneliness and isolation, a large-scale study of UK cities has found.

Chris Webster at the University of Hong Kong and his colleagues analysed health data from nearly 406,000 people in 22 UK cities held by the UK Biobank and compared it with detailed data of their environment, such as their proximity to busy roads and green spaces.

The team found that people's self-reported loneliness increased by 2.8 per cent for every additional 1000 housing units within 1 kilometre of their home, while their self-reported social isolation increased by 11.4 per cent. The researchers controlled for factors including age, health and socioeconomic status, finding that the effects were more pronounced in men and retirees.

Compared with their counterparts living in the lowest residential densities, men in the highest densities were 23.5 per cent more likely to report loneliness, while retirees in areas with the densest housing were 17.4 per cent more likely to do so.

"Our study suggests that loneliness is not only still prevalent in 21st-century cities, but is so endemic that we can detect a regular pattern and measure it," says Webster.

Read more: Green spaces aren't just for nature – they boost our mental health too

The team also looked at mental health impacts by housing type and found that people living near a higher density of detached housing were less likely to experience loneliness and social isolation. A higher density of apartments, on the other hand, was linked to an increase in these factors, which the researchers suggest could be due to a lack of privacy and control, producing social stress.

They say the findings demonstrate the need for urban design and density planning to be factored into strategies to tackle loneliness and associated chronic conditions.

"Housing is the basic building block of a city, and the way they are packed may be one of the keys to creating healthy and resilient cities of the future," says team member Chinmoy Sarkar, also at the University of Hong Kong.

Journal reference: *Landscape and Urban Planning*, DOI: 10.1016/j.landurbplan.2021.104194

(iii) Morrison, R. (2021, August 2). People living in dense UK cities are lonelier, with retirees and men in urban areas up to 23.5 per cent more likely to report loneliness, study finds. *The Daily Mail*. https://www.dailymail.co.uk/sciencetech/article-9852399/People-living-dense-UK-cities-LONELIER.html

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People living in dense UK cities are LONELIER, with retirees and men in urban areas up to 23.5 per cent more likely to report loneliness, study finds

- **Researchers used health data from over 400,000 people in the UK Biobank**
- **It included survey responses on loneliness and social isolation from volunteers**
- **The team compared that to housing density and other environmental factors**
- **They found those in the more densely packed streets were more likely lonely**

By RYAN MORRISON FOR MAILONLINE
PUBLISHED: 14:38 BST, 2 August 2021 | **UPDATED:** 14:39 BST, 2 August 2021

People who live in dense UK cities are lonelier than those in more rural locations, a study has revealed, finding retirees and men are up to 23.5 per cent more likely to be lonely.

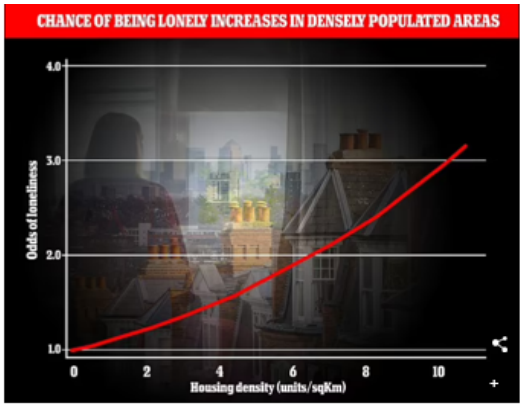
Data from 400,000 people in 22 British cities held by the UK Biobank allowed the team from the University of **Hong Kong** to link loneliness to population density.

They compared survey responses on loneliness to living conditions, including how close participants lived to green spaces and busy roads.

Their analysis revealed that for every 1,000 extra homes within half a mile of a home, participants had a 2.8 per cent greater risk of being lonely and 11.4 per cent increased chance of social isolation.

After controlling for factors such as age, health and social status, the team found that the effects of isolation and loneliness were seen more in men and retirees.

They didn't explore the cause of increased loneliness from higher density housing, but suggest it maybe due to a lack of privacy and control increasing stress.



People that live in dense UK cities are lonelier than those in more rural locations, a study revealed, finding retirees and men are 23.5 per cent more likely to be lonely

The team didn't explore the cause of increased loneliness from higher density housing, but suggest it may be due to a lack of privacy and control increasing stress.

Men living in the most densely populated parts of the country were 23.5 per cent more likely to reportloneliness than those in the most sparsely populated.

People over the age of 65 living in areas with more homes such as a large city were 17.4 per cent more likely to say they were struggling with loneliness.

'Loneliness is not only still prevalent in 21st-century cities, but is so endemic that we can detect a regular pattern and measure it,' said study author Chris Webster.

Researchers explored the population density within a 0.6 and 1.2 mile residential street network within the homes of study participants.

People over the age of 65 living in areas with more homes such as a large city were 17.4 per cent more likely to say they are struggling with loneliness

Men living in the most densely populated parts of the country were 23.5 per cent more likely to report loneliness than those in the most sparsely populated

They also explored other built environment factors such as how walkable the areas were, how regular public transport was and traffic levels on the nearest road.

The team then looked at other physical environment factors such as green space exposure within the catchment area for each of the thousands of participants.

They also assessed the mental health impacts of different housing types, from high density apartment blocks to a packed street full of detached houses.

Their analysis revealed that those in high density detached housing were less likely to experience loneliness and social isolation than those in large apartment blocks.

The researchers suggest this could be due to a lack of privacy and control, resulting in greater levels of social stress.

Based on the findings, the researchers claim there is need for urban design and density planning to be considered when tackling loneliness and social isolation.

'Housing is the basic building block of a city, and the way they are packed may be one of the keys to creating healthy and resilient cities of the future,' said Chinmoy Sarkar from the study team.

The findings have been published in the journal **Landscape and Urban Planning**.

RESEARCH SUGGESTS THAT IT IS POSSIBLE TO DIE OF LONELINESS

Research suggests it is possible to 'die of loneliness'.

A major study published March 2018 suggested social isolation can increase the chance of a stroke by 39 per cent and premature death by 50 per cent.

Loneliness may raise the risk of a heart attack by more than 40 per cent, researchers found.

The analysis was based on the health records of 480,000 Britons – making it the largest study of its kind.

Those who already had cardiovascular problems were far more likely to die early if they were isolated, suggesting the importance of family and friends in aiding recovery.

The research team, which included British academics, said lonely people had a higher rate of chronic diseases and smoking and showed more symptoms of depression.

2. Yvonne Ka Yan Lai (PhD researcher)

   - has been shortlisted for this year's **RTPI Awards for Early Career Researcher**, for her work on restorativeness and cemeteries in the city of Edinburgh, Scotland. The study was published in collaboration with Dr Chinmoy Sarkar and colleagues at the University of Edinburgh, in *Urban Forestry & Urban Greening*:

     Lai, K. Y., Sarkar, C., Sun, Z., & Scott, I. (2020). Are greenspace attributes associated with perceived restorativeness? A comparative study of urban cemeteries and parks in Edinburgh, Scotland. *Urban Forestry & Urban Greening*, *53*, 126720. DOI: https://doi.org/10.1016/j.ufug.2020.126720

     ***Abstract**: The health effects of under-utilized and passive greenspace with specialist functions, for example the urban cemetery have been rarely studied. In this study, we aim to examine the differences in the associations between greenspace attributes and perceived restorativeness (defined as recovering from mental fatigue) across two urban greenspace typologies; namely, parks and cemeteries. Among sub-samples of the study participants, this research further explores if social (i.e., having knowledge of or a previous relationship to a deceased person interred in the cemetery) and geographical distance (i.e., residential street distance to the cemetery) had significant beneficial effect upon participants' perceived restorativeness. A face-to-face on-site survey was conducted in Edinburgh comprising N_1 = 113 and N_2 = 120 participants from parks and cemeteries respectively. Geographic Information System (GIS) was used to measure the distance from interviewees' home to the study sites, while multivariate linear regression models adjusting for sociodemographic covariates assessed the strength and significance of the associations. Among the greenspace attributes, pleasantness and aesthetic quality remained significant predictors of perceived restorativeness in case of both parks and cemeteries. In addition, safety was significantly associated with perceived restorativeness in the park-exposure group, whereas presence of good paths was significant only in the cemetery-exposure group. Significant effects of greenspace attributes upon restorativeness were reported only among participants without a deceased person interred in the cemetery and those residing beyond a distance of 800 meters. The study findings advance our knowledge of the restorativeness of specific greenspace features in the parks and cemeteries and point to the need to integrate cemetery strategy with the local authority's urban greenspace planning and policy for optimizing the use of these thus far passive green areas.*

iLab

1. iLab researchers have published the following articles:

   (i) **Lu, W. S., Li, X., Xue, F., Zhao, R., Wu, L.,** & **Yeh, A. G. O.** (2021). Exploring smart construction objects as blockchain oracles in construction supply chain management. *Automation in Construction*, *129*, 103816. DOI: https://doi.org/10.1016/j.autcon.2021.103816

   Abstract: *Blockchain technology has attracted the interest of the global construction industry for its potential to enhance the transparency, traceability, and immutability of construction data and enables collaboration and trust throughout the supply chain. However, such potential cannot be achieved without blockchain "oracles" needed to bridge the on-chain (i.e., blockchain system) and off-chain (i.e., real-life physical project) worlds. This study presents an innovative solution that exploits smart construction objects (SCOs). It develops a SCOs-enabled blockchain oracles (SCOs-BOs) framework. To instantiate this framework, the system architecture of a blockchain-enabled construction supply chain management (BCSCM) system is developed and validated using a case study, whereby four primary smart contracts are examined in the context of off-site logistics and on-site assembly services. The validation results show that accurate data is retrieved against malicious data in each request, and the corresponding reputation scores are successfully recorded. The innovativeness of the research lies in two aspects. In addition to mobilizing SCOs as blockchain oracles to bridge the on-chain and off-chain worlds, it develops a decentralized SCO network to avoid the single point of failure (SPoF) problem widely existing in blockchain systems. This study contributes to existing research and practice to harness the power of blockchain in construction.*

   (ii) Ye, M., Wang, H. D., & **Lu, W. S.** (2021). Opening the "black box" between corporate social responsibility and financial performance: From a critical review on moderators and mediators to an integrated framework. *Journal of Cleaner Production*, *313,* 127919, ISSN 0959-6526, DOI: https://doi.org/10.1016/j.jclepro.2021.127919

   Abstract: *The corporate social responsibility (CSR) – corporate financial performance (CFP) link has been heatedly debated for several decades. Amid the intellectual debates is a shift of focus from the CSR-CFP relationship to the mechanism through which such relationship is taken shape. Nevertheless, such mechanism often appears as a "black box", we only know that some moderators and mediators are at play in it. This paper aims to open the black box by conducting an in-depth review of the moderators and mediators in empirical studies, and based on that, developing an integrated framework to structure them and their interplays. We collected a total of 270 journal articles on the CSR-CFP link, 77 of which engaged moderators and mediators. Their moderating and mediating effects as well as the applied theories, are summarised and*

elaborated. It is found that a mediator could be a process or outcome indicator to translate CSR into CFP, and a moderator could play a role from both the external and internal sides of a firm. The moderators that matter can be categorized at the macro-, meso-, or micro- level, while mediators are mainly at the meso- level. The paper goes further to develop an integrated framework to articulate how the moderators and mediators impact CSR and CFP relationship. This study contributes to the theoretical analyses of the mechanisms through which CSR is translated to CFP, and vice versa. It also sheds lights on the practical implications of how to better develop strategic CSR programmes to fulfil a firm's commitment to social, economic, and environmental sustainability.

(iii) **Yang, Z. Z., Xue, F.**, & **Lu, W. S.** (2021). Handling missing data for construction waste management: Machine learning based on aggregated waste generation behaviors. *Resources, Conservation and Recycling*, *175*, 105809. DOI: https://doi.org/10.1016/j.resconrec.2021.105809

Abstract: *In the era of big data, data is increasingly driving the construction waste management (CWM) for minimizing the impacts on the environment and recycling construction materials. However, missing data, led by various information barriers, often undermines the decision-making and hinders effective CWM. This paper applies aggregated behavior-based machine learning (ML) methods to handling the project-level 'missing not at random' (MNAR) data by using aggregated waste generation behaviors as a case study. First, we define a set of 821 waste generation behavioral features based on waste big data, then screen the indicative and decisive behaviors using automatic feature selection. Then, the most predictive ML method, trained via data of 2,451 construction projects in 2011-2016 in Hong Kong, is selected for handling the MNAR data. The experiments showed that the prediction of project missing data was satisfactory (validation F1 = 0.87, test F1 = 0.80). The contribution of this paper is to pinpoint the potential of waste big data in portraying project behaviors for more value-added applications, at the same time, to present a handling method for MNAR data that is automatic, fast, and low-cost from the CWM practitioner's perspective.*

(iv) **Bao, Z. K., Laovisutthichai, V.**, Tan, T., Wang, Q., & **Lu, W. S.** (2021). Design for manufacture and assembly (DfMA) enablers for offsite interior design and construction. *Building Research & Information*. Advance online publication. DOI: https://doi.org/10.1080/09613218.2021.1966734

Abstract: *Interior design and construction (IDC) is a sophisticated and often prolonged process that delivers a building to occupation. Traditional practice is rather unproductive, involving the work of several different trades crowded in situ and delivered sequentially one after another. To enhance productivity in IDC, offsite practice is receiving increasing attention as a process innovation along with Design for Manufacture and Assembly (DfMA), an emerging concept in the industry. This paper aims to investigate offsite IDC practice and develop a set of DfMA enablers for better achieving this building process. It undertakes a literature review,*

case study, and 18 semi-structured interviews. To support the offsite IDC and its production line, standardized procedure, automated machinery, and supply chain, 10 DfMA enablers are adopted, such as early collaboration, design standardization and simplification, and light material selection. These findings indicate a paradigm shift not only in interior design methodology but also in IDC professional practice process. This research enriches the literature on DfMA and IDC, in particular their synergy, and offers a new model for interior designers and offsite IDC practitioners.

(v) **Lu, W. S., Lou, J. F., Webster, C., Xue, F., Bao, Z. K.**, & Chi, B. (2021). Estimating construction waste generation in the Greater Bay Area, China using machine learning. *Waste Management*, *134*, 78-88. DOI: https://doi.org/10.1016/j.wasman.2021.08.012

Abstract: *Reliable construction waste generation data is a prerequisite for any evidence-based waste management effort, but such data remains scarce in many developing economies owing to their rudimentary recording systems. By referring to several models proposed for estimating waste generation, this study aims to develop a reliable and accessible method for estimating construction waste generation based on limited publicly available data. The study has two objectives. Firstly, it aims to estimate construction waste generation by focusing on the Greater Bay Area (GBA) in China, one of the world's most thriving regions in terms of construction activities. Secondly, it aims to compare the strengths and weaknesses of various waste quantification models. 43 sets of annual socio-economic, construction-related and C&D waste generation data ranging from 2005 to 2019 were collected from the local government authorities. By analyzing the data using four types of machine learning models, namely multiple linear regression, decision tree, grey models, and artificial neural network, it is found that all calibrated models, with their respective strengths and weaknesses, can produce acceptable results with the testing R^2 ranging from 0.756 to 0.977. This study also reveals that the 11 cities in the GBA produced a total of about 364 million m^3 of construction waste in 2018. The result can be used for monitoring the urban metabolism, quantifying carbon emission, developing a circular economy, valorizing recycled materials, and strategic planning of waste management facilities in the GBA. The research findings also contribute to the methodologies for estimating waste generation using limited data.*

(vi) **Peng, Z. Y., Lu, W. S., & Webster, C.** (2021). Quantifying the embodied carbon saving potential of recycling construction and demolition waste in the Greater Bay Area, China: Status quo and future scenarios. *Science of the Total Environment*, *792*, 148427, ISSN 0048-9697. DOI: https://doi.org/10.1016/j.scitotenv.2021.148427

Abstract*: Comparing with the enduring efforts to reduce carbon emissions in design, construction, and operation stages of a construction project, less attention has been paid to emission abatement potential in the end-of-life*

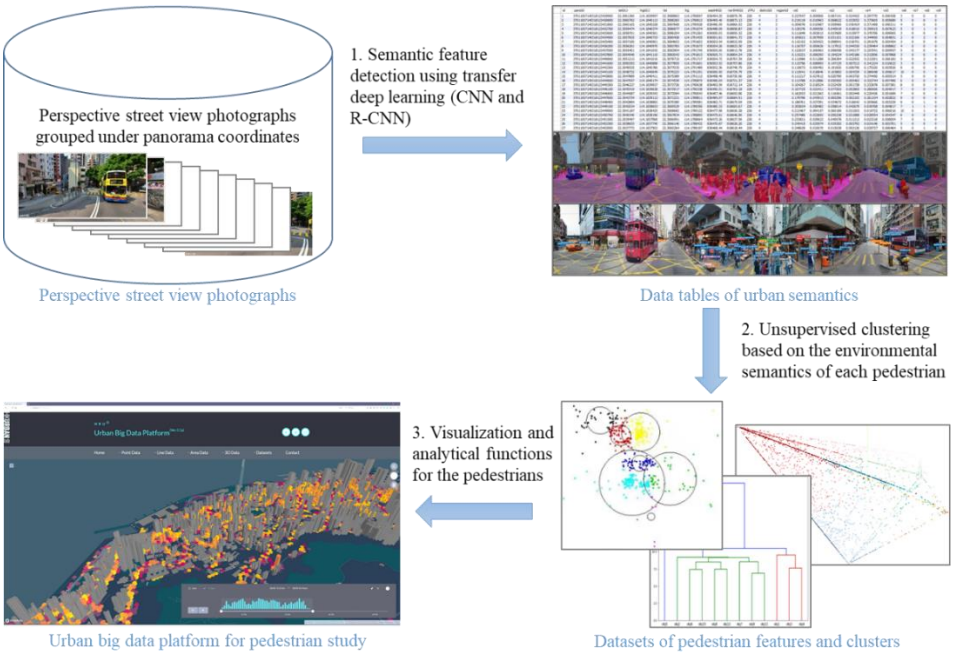
stage, particularly by recycling waste generated by construction and demolition (C&D) activities. This research aims to cover this knowledge void by quantifying the embodied carbon saving potential of recycling C&D waste. It does so by adopting a Life Cycle Assessment (LCA) and choosing the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) in South China for a case study. The carbon emission is treated as embodied in construction materials, by recycling which the equivalent amount of carbon generated from the virgin materials can be saved. It is estimated that the GBA produced 128.49 Mt. of C&D waste in 2018, which implies an embodied carbon saving potential of 92.26 Mt. carbon emissions. The research goes further to understand the future C&D waste generation and their corresponding embodied carbon saving potential. A first-of-its-kind dynamic approach is developed to simulate the future 42-year saving potential under four construction development scenarios. Depending on different construction growth rates, the embodied carbon saving potential in 2060 can be up to 894.80 Mt. and down to 166.34 Mt. This research can help achieve China's 2060 carbon neutral goal by focusing on a non-negligible sector in an economically important region. Methods proposed in this paper are also applicable to other regions worldwide, especially where C&D waste data is insufficient.

(vii) Charef, R. & **Lu, W. S.** (2021). Factor dynamics to facilitate circular economy adoption in construction. *Journal of Cleaner Production*. DOI: https://doi.org/10.1016/j.jclepro.2021.128639

Abstract: *There is enormous potential for the construction industry in adopting a circular economy (CE) approach, but the decision-making tools to support its adoption are lacking. This research aims to identify the factors impacting CE adoption and understand their dynamics, intending to develop decision-making tools to facilitate CE adoption in construction. A mixed-method approach is adopted comprising a literature review, a pre-interview questionnaire, and semi-structured interviews with 20 European experts in the field. A total of 64 factors impacting CE adoption were identified and placed into three interconnected categories: organisational, political and procedural, and technical factors. Also, the connections between the stakeholders' backgrounds and the 64 factors were explored and illustrated by a Sankey diagram. Lastly, a deeper analysis was performed, exploring the relationships between the factors and five entities, including stakeholders, asset lifecycle, material circularity, regulations, and facilitating technologies. As a result, this research further clarifies the impacts of the CE approach on five entities and organises the factors and their dynamics in an entity-relationship diagram (ERD), being the main contribution to the theoretical foundations. By expatiating how CE can be possibly achieved in the construction industry, the ERD is a stepping stone and can inform operable guidance to boost the adoption of CE in the construction industry.*

(viii) **Xue, F., Li, X., Lu, W., Webster, C. J., Chen, Z.**, & Lin, L. (2021). Big data-driven pedestrian analytics: Unsupervised clustering and relational query based on Tencent Street View photographs. *ISPRS International Journal of Geo-Information*, *10(8),* 561. DOI: https://doi.org/10.3390/ijgi10080561

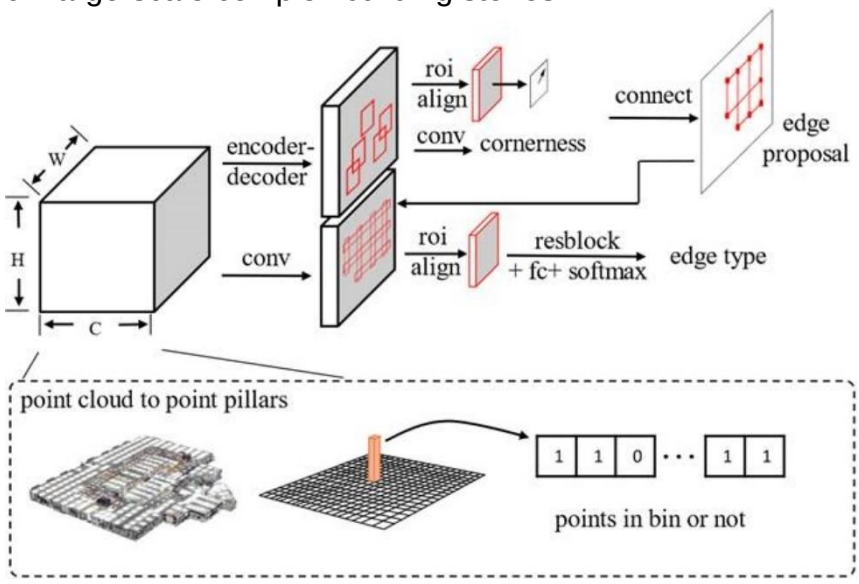
Abstract: *Recent technological advancements in geomatics and mobile sensing have led to various urban big data, such as Tencent Street View (TSV) photographs; yet, the urban objects in the big data have hitherto been inadequately exploited. This paper aims to propose a pedestrian analytics approach named Vectors of Uncountable and Countable objects for Clustering and Analysis (VUCCA) for processing 530,000 TSV photographs of Hong Kong Island. First, VUCCA transductively adopts two pre-trained deep models to TSV photographs for extracting pedestrians and surrounding pixels into generalizable semantic vectors of features, including uncountable objects such as vegetation, sky, paved pedestrian path, and guardrail and countable objects such as cars, trucks, pedestrians, city animals, and traffic lights. Then, the extracted pedestrians are semantically clustered using the vectors, e.g., for understanding where they usually stand. Third, pedestrians are semantically indexed using relations and activities (e.g., walking behind a guardrail, road-crossing, carrying a backpack, or walking a pet) for queries of unstructured photographic instances or natural language clauses. The experiment results showed that the pedestrians detected in the TSV photographs were successfully clustered into meaningful groups and indexed by the semantic vectors. The presented VUCCA can enrich eye-level urban features into computational semantic vectors for pedestrians to enable smart city research in urban geography, urban planning, real estate, transportation, conservation, and other disciplines.*



2. Yijie Wu and Dr Frank Xue

   - won the Second Runner-up in the 1st Scan-to-BIM Challenge (2D floor plan track), hosted by the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2021. The iLab's winning entry is FloorPP-Net, an end-to-end deep learning model that converts the input points into floor point pillars (PP) and predicts the corners and interior walls to reconstruct floor plans.

     About the conference and competition: CVPR is the premier annual computer vision conference (No. 1 H-index in Engineering & Computer Science). The competition benchmarks the reconstruction of 2D floor plans and 3D models from high-density point clouds (59.5 GB compressed) of 97 large-scale complex building stories.



Ronald Coase Centre for Property Rights Research

1. Dr Michael Wang Chongyu

   - has published the following paper:

     Ling, D. C., **Wang, C.**, & Zhou, T. (2021). Asset productivity, local information diffusion, and commercial real estate returns. *Real Estate Economics*, 1-33. DOI: https://doi.org/10.1111/1540-6229.12354

     ***Abstract**: An extensive literature finds that indices of returns on equity real estate investment trusts (REITs) predict return indices in the private commercial real estate (CRE) market. Using a novel geographically weighted proxy for the quarterly performance of the property types within the local markets in which a REIT is invested, or property portfolio return (PPR), we find a "private predicts public" result in a cross-sectional, firm-level context. This finding suggests that geographically dispersed information and investors' limited attention can delay timely stock price adjustments. Our findings also suggest it is the diffusion of information about "local" price changes, rather than local supply elasticities, regulatory constraints, the degree of local information risk, current rental income, or local liquidity that predicts REIT returns. The PPRs associated with REIT allocations to major "gateway" markets are more predictive of REIT returns than the property portfolio returns produced by allocations to secondary and tertiary markets. This study improves our understanding of the speed at which "local" information about the perceived productivity of a firm's assets is capitalized into stock prices.*

Rural Urban Lab

1. Ger Innovation Hub

   - The design project in Ulaanbaatar, Mongolia has been shortlisted for the World Architecture Festival Awards 2021, in the 'Civic and Community – Completed Building' category: https://www.bizcommunity.com/Article/196/1/218207.html

2. Countryside Conservation Funding Scheme

   - Rural Urban Lab has been awarded in the HKSAR Government's Countryside Conservation Funding Scheme (CCFS) 2021-22, at the amount of HK$2,998,905, for the project titled 'Balancing Ecological Sensitivity and Enhancing Experience: Experiments for the Deep Bay Outer Ramsar Site'.

Project Description: The focus of this study is to research innovative solutions for wetland revitalisation on sites located within Deep Bay, but that lie outside of the Ramsar protected area. This area includes fishponds which are actively managed, some which are deteriorating, and some that have been infilled. The project will develop strategies that allow the public to engage in activities in the area without disturbing the natural habitat. The objective is to reimagine how the wetlands can be used to balance conservation with new public attractors. By working with key stakeholders including villagers, fishpond operators and The Hong Kong Bird Watching Society the idea is to design and construct pilot projects that demonstrate the mutual benefit and cooperation needed to balance ecology with public activities. The project will support the continued and sustained ecological value of the site without its further degradation and raise public awareness on the future of Hong Kong's wetlands.

About the awarded project:
https://www.epd.gov.hk/epd/sites/default/files/epd/english/environmentinhk/conservation/files/RA6_Balancing%20Ecological%20%28Eng%29.pdf

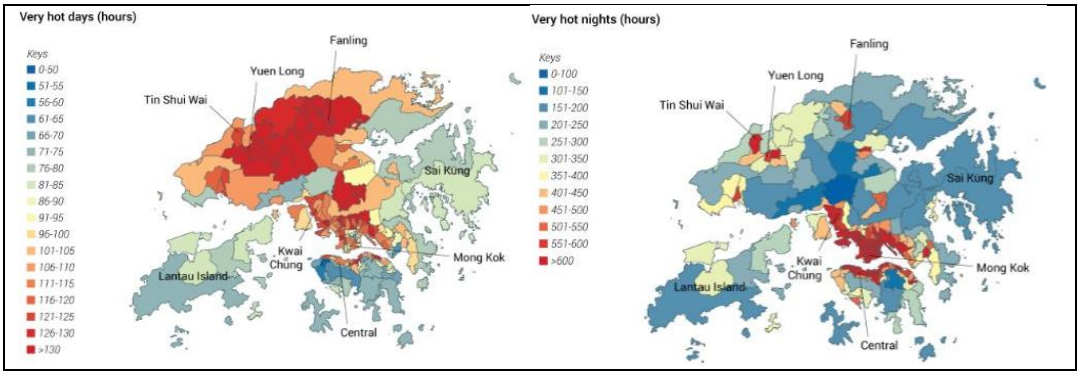
A full list of approved projects in this round:
https://www.epd.gov.hk/epd/english/environmentinhk/conservation/ccfs/ccfs_approved_projects.html

Press release issued by the HKSAR Government on 2 September 2021:
https://www.info.gov.hk/gia/general/202109/02/P2021090200322.htm?fontSize=1

Sustainable High Density Cities Lab

1. Dr Chao Ren

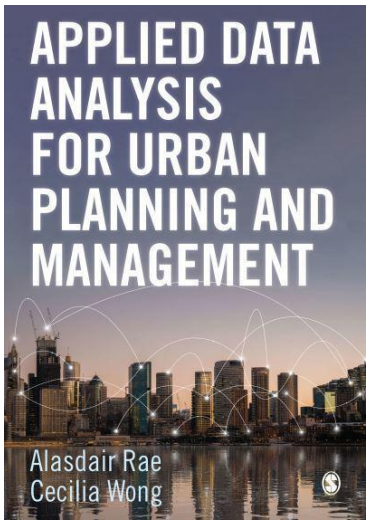
   - Her recent study on extreme heat risks in cities has been featured in the South China Morning Post (Hong Kong / Health and Environment), on 17 August 2021, entitled 'Temperature rising: Hong Kong's poorest suffer most as city gets hotter, while experts call for action to avoid tragedy': https://www.scmp.com/news/hong-kong/health-environment/article/3145215/temperature-rising-hong-kongs-poorest-suffer-most



   - has contributed as a lead author of a chapter to the following book to be published in September 2021:

     Ren, C., Ng, E., Tse, J. W. P., Yeung, P. S., Fung, J. C. H., Mills, G., Ching, J., Bechtel, B., & See, L. (2021). Data Analytics, Urban Form and Climate Change: The Urban Climate Map. In A. Rae & C. Wong (Eds.), *Applied Data Analysis for Urban Planning and Management* (1st ed., pp 103-126). SAGE Publishing Ltd.

     Preview: https://uk.sagepub.com/en-gb/eur/applied-data-analysis-for-urban-planning-and-management/book266073#preview



2. Dr Jing Xie

- has published the following article:

  Sun, Y., **Xie, J.**, & Hu, X. (2021). Detecting spatial clusters of coronavirus infection across London during the second wave. *Applied Spatial Analysis and Policy.* Advance online publication. https://doi.org/10.1007/s12061-021-09413-3

  Abstract: *The identification of seriously infected areas across a city, region, or country can inform policies and assist in resources allocation. Concentration of coronavirus infection can be identified through applying cluster detection methods to coronavirus cases over space. To enhance the identification of seriously infected areas by relevant studies, this study focused on coronavirus infection by small area across a city during the second wave. Specifically, we firstly explored spatiotemporal patterns of new coronavirus cases. Subsequently, we detected spatial clusters of new coronavirus cases by small area. Empirically, we used the London-wide small-area coronavirus infection data aggregately collected. Methodologically, we applied a fast Bayesian model-based detection method newly developed to new coronavirus cases by small area. As empirical evidence on the association of socioeconomic factors and coronavirus spread has been found, spatial patterns of coronavirus infection are arguably associated with socioeconomic and built environmental characteristics. Therefore, we further investigated the socioeconomic and built environmental characteristics of the clusters detected. As a result, the most significant clusters of new cases during the second wave are likely to occur around the airports. And, lower income or lower healthcare accessibility is associated with concentration of coronavirus infection across London.*

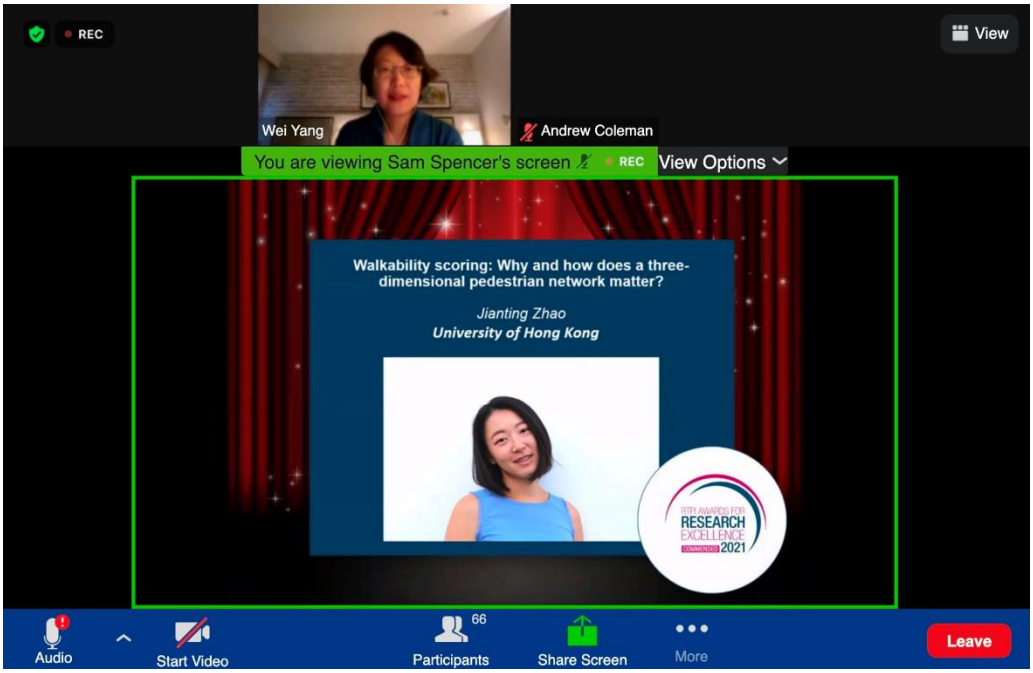
Urban Analytics and Interventions Research Lab

1. Jianting Zhao (PhD student supervised by Dr Guibo Sun and Dean Webster)

   - received RTPI Commendation Award for Research Excellence for her study on 'Walkability scoring: Why and how does a three-dimensional pedestrian network matter?', working with Dr Guibo Sun and Dean Chris Webster. The selection committee appraised the rigour of the analysis, and the importance of the work.

     Zhao, J., Sun, G., & Webster, C. (2020). Walkability scoring: Why and how does a three-dimensional pedestrian network matter? *Environment and Planning B: Urban Analytics and City Science*. DOI: https://doi.org/10.1177/2399808320977871

     ***Abstract**: Previous walkability scoring systems are all based on road networks, even though roads are not designed for pedestrians. To calculate an accurate walking score, we need pedestrian network data. This is especially the case in cities such as Hong Kong, where pedestrians are separated from vehicles by footbridges, underpasses or surface sidewalks. In this paper, we investigate why and how a three-dimensional pedestrian network makes a difference in walkability scoring, using Hong Kong as a case city. We developed a walkability scoring system based on networks and amenities, using multiple open-source programming platforms and languages. Separately, we calculated walkability scores (on a scale of 0–100) using the three-dimensional pedestrian network and road network of the city, comparing the differences between the two. A GIS raster analysis was conducted to extract walkability scoring differences from the two walkability surfaces, followed by a univariate linear model to examine how the scores were underestimated if without using the three-dimensional pedestrian network. Results show that streets were considered twice as walkable if rated by pedestrian network rather than road network. Walkability scores were 92% higher on average. The fitted model shows that the mean score underestimations were significantly different for different three-dimensional network elements. Surface sidewalks had an average underestimation of 33.75 ($p < 0.001$), footbridges and underground paths expanded the underestimations by 3.85 and 2.97 (both $p < 0.001$), respectively, and the linkages to footbridge and underground path enlarged the surface sidewalk underestimations by 2.68 and 4.92 (both $p < 0.001$). We suggest that walkability evaluation systems should be developed on pedestrian networks instead of road networks, especially for high-density cities.*



2. Dr Guibo Sun and PhD student Jianting Zhao

   - are visiting TU Dortmund University to implement their RGC/DAAD project 'Intercultural perspectives for understanding how people experience everyday space and place' (RGC/DAAD Germany/ Hong Kong Joint Research Scheme, G-HKU703/20, 2021.01-2023.01). Local collaborators are Jun.-Prof. Dr René Westerholt and his two PhD students in the School of Spatial Planning.