A parable of 5 designers

Five professors sit around the cluttered desk of the Faculty of Architecture’s Dean. The senior professor of architecture, well known for his iconic buildings in three continents, is sat next to a professor of urban design. The urban designer, though trained as an architect in the same famous school as the professor of architecture, has no great buildings to her name. But she is well known for the clever software she has invented that turns geometric analytics into useful urban design performance estimations of land value, walkability and urban vitality. Across from them, the Dean, who has been engaging them in a discussion about the evolution of architectural representation from the ancient Egyptians through to early medieval geometric projection, sits reflecting on how little he knows about big name architects and, notwithstanding his deep sense of admiration for the great professors in front of him, feeling guilty about how little he cares about names and fame, compared to how much he cares about the principles and theory underlying the world’s great buildings. Then there is the professor of interiors and the professor of BIM. The former graduated from one of the world’s great boutique fine art colleges and came to interior design via industrial design and product design. The latter had a background in computer science and engineering before gravitating to the built environment domain, a move which he credits to his mother, who was a successful architect during Hong Kong’s booming 80s.

After a long pause, the professor of architecture continues the conversation, addressing the urban designer:

‘But of course you are not really a designer.’ It is a familiar jibe to explain a difference of views in the paused conversation, and comes with a sparkle in the eye that hints at their long-time friendship.

‘Quite so,’ she replies, in hallmark heavy Spanish accent, ‘Felizmente lo admito - I happily admit it.’ (they both speak Spanish), ‘I spend my time merely configuring
spaces between buildings and I rely as much on the metrics from my software as on my internal 3D design gyroscope.'

Then turning to face the Dean, the urban designer passes on the provocation: ‘and of course, Dean, you are even less of a designer than me.’

‘Without a doubt,’ agrees the Dean eagerly, ‘my only training in design is via the fine art I studied under private tuition since the age of 4, the fine art A-level I took at high school as an adjunct to my physics and geosciences, a few urban design studios on my BSc in urban planning, and a class in systems design when studying computer science. I guess I’ve also picked up contract design through my deep dive into the scholarly world of economics and law, which come to think of it has helped me advise governments on the design of urban planning laws and constitutions. I’ve also taught research design to undergrads, postgrads and PhD students since the mid 80s. But you are right, I’m no designer and am in total awe of those who can claim to be so, via wonderful portfolios of buildings and awards.’ The Dean enjoys the banter too, all the more so since he and the urban design professor are also old friends.

It is therefore mildly surprising to all three when the (relatively new) interior design professor speaks with just a hint of agitation, though delivered with what is obviously meant to carry the same degree of camaraderie. Addressing the professor of architecture, she says: ‘where I come from, architects are, of course, not considered real designers.’

A slightly awkward silence follows, so she quickly continues, leaning on the first word: ‘Real designers learn their design language from years of working with their hands at a one-to-one scale. You can only really internalise design by shaping, making and testing to destruction with a one-to-one tactile relationship between materials, form and function. Architects can only work with scaled down replicas of the objects of their design, so they can never be real designers in this sense.’

She has over-shot and realises it before the sentence is finished. Instinctively she reaches out to repair with a compensating gesture, touching the arm of the professor of architecture, but not before the fifth person in the room speaks up, emboldened by the way things are going.

‘Where I come from, what all of you call design would be regarded with admiration but as being somewhat suspect.’

Silence, for effect, or because he is making it up as he goes along. Then:

‘When I was in systems engineering I was called in for a satellite project because of my early experience in AI, in particular, logic programming languages. When designing both the technology systems and the physical products to travel into space, you need to be as near as 100% sure that your design is correct. By correct, I mean optimised for the crucial parameters of the various functions that will play their part in the mission. Not only is the design enabled by AI and other scientific computing routines, but the code that drives the computer-assisted systems, engineering and physical product designs is itself written in an AI programming language that follows the rules of logic. Predicate calculus logic, to be specific. Only this way can we know that the computer-
generated designs are correct. By writing computer code in the language of logic we can identify errors in a design in advance of catastrophically expensive mission failure. The errors of design appear as errors in logic. So you see, in my world, none of you are real designers.’ Then he adds, with contrition: ‘But of course, I would have no idea even of where to start thinking about how to design a house, never mind a point-tower.’

Why is design as a noun, verb or adjective (a design, to design, well-designed) contested territory? There are multiple styles, approaches to, definitions of, ways of teaching, methods of employing and scholarship about ‘design’. Let’s accept it and enjoy the creative conversations that arise. FoA was recently asked if our design teachers could contribute to a new degree course being proposed by another HKU faculty. The request triggered discussion about what is meant by design in our various departments. Hence this blog.

Another reason for sharing in this way is that I am talking with Heads of Departments about where is it in our curricula that we have conversations about design and designing with our students. One good idea would be to have a facilitated discussion between designers from different backgrounds as a session in our AFIC1001 common foundational course. That would help students better place and understand their own subject from the word go. It would also force us as teachers to be more precise, discriminating and circumspect about our own skills, knowledge, strengths, weaknesses and contributions to collaborative teaching and research endeavours.

Being systematic and rigorous in philosophising about a field of knowledge and activity is the foundation of an academic subject. Hence universities award Doctorates of Philosophy to people who philosophise about specialist subjects. Having a more explicit inter-disciplinary conversation about design among ourselves and in our teaching would have multiple advantages. Abstraction is central to knowledge, learning, technological and cultural advances, and to civilisation itself. Cultures and civilisations are built on memes, and the more important memes are formalised in abstract intellectual, technical and philosophical models.

HKU’s Engineering, Business and Economics, Arts, and Education Faculties all teach design formally. Even dentistry and biomedicine will have courses on the design of 3D-printed products. Architectural, landscape and urban design are all different from these modes of design in some ways but not completely. They are also different from policy design in DUPAD and from economic instrument design and BIM system and process design in REC.

Then there is the issue of research design, which unites all fields of academic scholarship within FoA and across the entire university. Research is research is research. There is no special research logic for languages, landscape or law. Or for maths, medicine or medieval studies. A few years ago I wrote a chapter for the Routledge Handbook of Planning Research Methods (Silva et al. 2015). Though the issues discussed, applications and selection of techniques and approaches reviewed were different to those likely to be found in similar handbooks for physiotherapy, geography or theology, the methods were drawn from the same meta-menu.

The logic of research is, well, a logic. There is only one ultimate palette to select from. Just as there is one universal colour palette, even though it may be derived
subtractively or additively and divided into fine grades of hues suitable for a specific purpose that are never used for another kind of purpose. Different kinds of research from within the overall logical lexicon and menu of tools are appropriate for different tasks. But the choice between quantitative vs qualitative; case study, cross-sectional, longitudinal and experimental; survey vs ethnography vs controlled experiment; exploratory vs explanatory; descriptive vs predictive; inductive vs deductive; and so on, is the same for researchers in medical, music and mechanical engineering departments. There are different languages of logic (predicate logic vs propositional logic; the symbolic logic of maths vs syllogistic logic; the syllogistic logic of Aristotle vs that of the Stoics); but they depict aspects of the same realities and can be mapped to each other. Some are superior to others for certain purposes. For example, reverse Polish symbolic logic notation (placing the mathematical operators of +, -, etc, after the operands rather than between them) was invented in the 1950s for more efficient implementation of mathematical logic in computers. Maths logic is more efficient for physics than critical literature scholarship not because of educational tradition but because of the nature of the material being studied.

Is design the same? Is design a universal process of logic that has many forms, appropriate to different purposes, or perhaps sub-species or local languages, evolved under different conditions in different places at different times? The more thoughtful of our students will be thinking about such questions. Do we help them open the questions to explore or do we sometimes close them down for convenience or worse? What would be a unique FoA contribution to training designers of all kinds in the built environment and to training designers in other faculties? Most admire the idea of architectural design. How can we ride on that admiration and elevate design awareness and skills elsewhere in the university as well as welcoming in other forms of design to further empower our own students?

Thanks and congratulations to my colleagues listed below for their inspiring contributions.

Chris Webster
Dean, FoA
1. Dean Webster

- attended the Inaugural InnoSharing by Professor Xiang Zhang, President and Vice-Chancellor of HKU, on 3 February 2021 (Wednesday) at the Tam Wing Fan Innovation Wing. The President shared his personal experience and stories, and gave insights on the pathway to innovation in this occasion.
Department of Architecture

1. Jason Xiang Ji, Alyssa Williams Ng, Ivan Santoso, Jason Setiawan, Yongki Sunarta, Regina Tania Tan

Date: 9 February (Tuesday) – 28 February (Sunday) 2021
Time: 10:00am - 8:00pm
Venue: S507, 5/F, Staunton (Block A), PMQ, 35 Aberdeen Street, Central, Hong Kong

In the Light of Matter

Architectural photography is a subgenre that focuses primarily on capturing the aesthetics of built forms. While its documentative quality is valuable in rendering factual information, it is not necessarily the type of photography used in the design process. The use of photography in architecture can be defined more fluidly for it is not only the art of capturing light but also a form of visual text conveying analytical and creative qualities. In this sense, photography serves a similar purpose of omitting, directing, and abstracting information.

This student-led exhibition reveals a compilation of model photographs specifically detailing materiality, craft, and spatial abstraction. Models are a significant part of architectural pedagogy but they are often used as physical representations or treated as the final products of the design process. Beyond
framing the geometry or revealing the texture of the models, this photography collection presents the diverse ways of capturing moments within models to evoke a spatial imagination based on the play of perspectives.

Photographers

Jason Xiang Ji, MArch 2
Alyssa Williams Ng, BA(AS) Year 3
Ivan Santoso, BA(AS) Year 2
Jason Setiawan, BA(AS) Year 4
Yongki Sunarta, BA(AS) ’20
Regina Tania Tan, BA(AS) Year 4

Media Coverage

Students' architectural photos that break conventional boundaries inspired by Hong Kong movie director Wong Kar-wai, South China Morning Post, 9 February 2021.
1. Dr Roger Chan
- was appointed by the Senate of Lingnan University as Chairman of the Master of Cities and Governance (MCG) programme’s Advisory Board.

2. Professor Rebecca Chiu
- was appointed by the Research Grants Council’s Assessment Panel for Hong Kong PhD Fellowship Scheme (HKPFS) and Postdoctoral Fellowship Scheme (PDFS) for 2021/22.

3. Professor Shenjing He
- was invited to give a keynote speech entitled “(Re)imagining and governing the post-pandemic city” at the Inaugural Cities Research Cluster Meeting “New Cities in the New Normal” at the Singapore Management University (via Zoom), on 22 January 2021.
- was invited to give a keynote speech entitled “The community question in the post-pandemic city” at the opening plenary meeting of the European Network for Housing Research (ENHR) 2021 Online Seminars, on 12 February 2021.
was invited to be the external examiner for PhD theses at the University of Melbourne, Australia, and Technical University of Delft, the Netherlands, in January and February 2021, respectively.

Centre for Chinese Architecture and Urbanism

1. Professor Weijen Wang

- has been awarded a research grant from the *Countryside Conservation Funding Scheme (CCFS)*, offered by the Environmental Protection Department of the HKSAR Government, for his project titled “Conservation and Revitalisation Strategies for Architecture and Landscape of Hakka Village Spaces in Sha Tau Kok”, under the funding category of *Research Activities on Countryside Conservation and Revitalisation* (Project No. EP86/27/24/11-10; funding amount: HK$1,999,588; project period: April 2021-March 2023).
Centre of Urban Studies and Urban Planning

1. Professor Anthony Yeh, Dr Roger Chan, Professor Shenjing He, Dr Xingjian Liu and Dr Kyung-Min Nam

- have published book chapters in Anthony G.O. Yeh, George C.S. Lin and Fiona F. Yang (eds) (2021), Mega-City Region Development in China. Routledge, UK, as follows:
2. Alain Chiaradia

- AI from black box to glass box:

Typically, we have little understanding on why AI systems such as Artificial Neural Network (ANN) make decisions or exhibit certain behaviours. They are inscrutable, which makes their use in urban planning and design somehow contentious. Chiaradia led a team with Dr You Zhou and Dr Lingzhu Zhang to elaborate an explainable AI (xAI) in conjunction with sDNA and statistical methods to appraise urban planning and design strategic scenarios, as part of the OBORobs initiative at DUPAD.

A sharing and discussion session was organised on 27 January 2021 via Zoom, between HKU (attendees: Professor Chris Webster, Dean of the Faculty of Architecture, and Professor Rebecca Chiu, CUSUP Director) and a group of professional town planners from the Planning Department, HKSAR Government, led by Miss Winnie Lau, Assistant Director of Planning/Territorial. Once the methodology suitability and limitations were understood the discussions shifted to how to improve the prediction of scenario outcomes through generation of better scenarios and enhancing appraisal techniques.

**xAI Principle [Reference Class Forecasting/SEM-SUR + artificial neural network (ANN)]**

1. **SELECT REFERENCE CLASS**

2. **SEM-SUR - PROBABILITY DISTRIBUTION & PARAMETERS ESTIMATE**
   - Jobs & Population interaction
   - Infrastructure accessibility profile & controls
   - Linear functional form
   - ANN "hidden" nonlinear functional form

3. **FORECASTING xAI**
   - "known" significant parameters reduce overfit risk
   - Infrastructure accessibility profile
   - ANN "hidden" flexible functional form
   - Inside view of scenario outcomes & controls

4. **COMPARISON**
   - If mismatch
   - Generate New Scenario & Iterate

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(ii) “A review of urban agglomeration and China’s urbanisation strategy”, co-authored by Roger C.K. Chan, Xin Mai and Shimou Yao.
(iii) “Producer service linkages that underlie China’s emerging mega-city regions: the case of the Pearl River Delta”, co-authored by Fiona F. Yang, Anthony G.O. Yeh and Xiaoqing Chen.
(iv) “Reproduction of space in the city centre of mega-city regions: bottom-up institutional reforms, profit redistribution, and urban redevelopment in Guangzhou”, co-authored by George C.S. Lin, Xun Li, Anthony G.O. Yeh, Shenjing He, Zhiyong Hu and Xingjian Liu.
3. Professor Rebecca Chiu

- has published the following articles:


Abstract: Sense of community may be shaped by the quality of the physical environment and has potential health implications. Based on a survey of 2,247 community-dwelling middle-aged and older adults living in Hong Kong, we tested the mediation effect of sense of community on the relationship between the quality of the built environment and physical and mental health using path analysis. The quality of the built environment was indicated by the age-friendliness of outdoor spaces and buildings. No direct association was found between the built environment and health outcomes, although age-friendly outdoor spaces were associated with better mental health. Sense of community mediated 14% of the total effect between outdoor spaces and mental health and 44.8% of the total effect between buildings and physical health, underscoring the importance of accommodating the social needs of middle-aged and older people in urban development in high-density cities.


Abstract: This paper contributes to the comparative housing literature and the policy transfer discourse by analysing Shenzhen’s processes of importing Hong Kong’s subsidised housing policy and the subsequent mutations between 1988 and 2020, and explaining the transfer trajectory and policy outcome from Hong Kong’s liberal-interventionist housing regime to Shenzhen’s marketised-socialist regime. Based on data collected from in-depth interviews, published policy documents and site visits, and by framing the analyses with policy transfer concepts, this study reveals that the transfer processes involved three phases, moving incrementally from almost wholesale transplant to self-policy development, with some signs of re-convergence in welfare housing policy appearing lately. Overall, Shenzhen utilises market resources more and operates a much smaller public housing sector than Hong Kong. Such a trajectory and
policy outcomes owe to incompatibility and changes in policy contexts – social and economic functions of housing policy and directives from central government; and different strengths and weaknesses in policy environment – land supply and planning governance under different spatial and jurisdictional scales affecting housing availability, tenure and housing finance model. The temporal dimension is found to be essential in understanding transfer processes and policy transferability.

4. Dr. Derrick Ho, Professor Rebecca Chiu and Dean Webster

- co-authored a paper that has been accepted for publication:


**Abstract:**

**Objective:** Neighbourhood built environments (BEs) are increasingly recognised as being associated with late-life depression. However, their pathways are still understudied. This study investigates the mediating effects of physical, social activities (PA & SA) and functional ability (FA) in the relationships between BEs and late-life depression.

**Method:** We conducted a cross-sectional analysis with data from 2,081 community-dwellers aged 65 years and above in Hong Kong in 2014. Two road-network-based service area buffers (200- and 500-metre buffers) adjusted by terrain and slope from participants’ residences were created to define the scope of neighbourhoods. BEs comprised population density in District Council Constituency Areas (DCCAs), urban greenness, land use diversity, and neighbourhood facilities within 200- and 500-metre buffers. Multilevel path analysis models were used.

**Results:** More urban greenness within both buffers and more commercial facilities within a 500-metre buffer were directly associated with fewer depressive symptoms. SA mediated the relationship between the number of community facilities and depressive symptoms within a 200-metre buffer. Neighbourhood urban greenness and the number of commercial facilities had indirect associations on depressive symptoms within a 500-metre buffer, which were mediated by FA.

**Conclusion:** Our findings have implications for the ecological model of aging. The mediating effects of SA and FA underscore the importance of promoting active social lifestyles and maintaining FA for older adults’ mental health in high-density cities. Policy implications on how to build age-friendly communities are discussed.
5. Dr Derrick Ho and Dean Webster

- co-authored a paper that has been accepted for publication:


**Abstract:**

**Background**

Increasing studies reported increased mortality risk associated with exposure to lower-than-standard air pollution. This study aimed to investigate mortality burden and life expectancy loss due to lower-than-standard particulate matter air pollution in Hong Kong, China.

**Methods**

We obtained 17-year (2000–2016) daily time-series data on mortality, particulate matters with aerodynamic diameters <2.5 μm (PM2.5) and <10 μm (PM10). We applied a distributed lag non-linear model to fit the association of years of life lost (YLL) with PM2.5 and PM10. Total YLL attributable to PM2.5 and PM10 concentrations below ambient air quality standards were estimated.

**Results**

We estimated 5.2% of total YLL due to PM2.5, of which, 33.5%, 52.8% and 94.5% occurred in concentrations not exceeding the criterion of WHO, the USA, and China, corresponding to 0.3, 0.4 and 0.7 years loss in life expectancy, respectively. There was 6.9% (annual 34434.4 YLL) of total YLL due to PM10, of which, 50.7%, 50.7%, 99.5% and 99.5% occurred in concentrations below the criterion of WHO, Europe, the USA, and China, which corresponded to 0.5, 0.5, 1 and 1 year loss in life expectancy, respectively. Assuming that PM2.5 and PM10 concentrations had met stricter standards, more gains in life expectancy
could be expected in women than in men, in people aged up to 64 years than those of 65 years or older, and in those with respiratory disease than those with cardiovascular disease.

Conclusions

Exposure to lower-than-standard particulate matters air pollution could shorten life expectancy and incur massive mortality burden in Hong Kong.

Keywords

Air pollution; YLL; Life expectancy; Hong Kong

6. Dr Derrick Ho

- has published the following articles:

(i) Xu Wang, Zhiwei Xu, Hong Su, Hung Chak Ho, Yimeng Song, Hao Zheng, Mohammad Zahid Hossain, Md Alfaazal Khan, Daniel Bogale, Jing Wei, Jian Cheng. “Ambient particular matters (PM1, PM2.5, PM10) and childhood pneumonia: the smaller particle, the greater short-term impact?” Science of the Total Environment, 772, 145509.

Abstract:

Background: Smaller sizes of ambient particulate matter (PM) can be more toxic and can be breathed into lower lobes of a lung. Children are particularly vulnerable to PM air pollution because of their adverse effects on both lung functions and lung development. However, it remains unknown whether a smaller PM has a greater short-term impact on childhood pneumonia.

Aims: We compared the short-term effects on childhood pneumonia from PM with aerodynamic diameters ≤1 μm (PM1), ≤2.5 μm (PM2.5), and ≤10 μm (PM10), respectively.

Methods: Daily time-series data (2016–2018) on pneumonia hospitalisations in children aged 0–17 years, records of air pollution (PM1, PM2.5, PM10, and gaseous pollutants), and weather conditions were obtained for Hefei, China. Effects of different PM were quantified using a quasi-Poisson generalised additive model after controlling for day of the week, holiday, seasonality and long-term time trend, and weather variables. Stratified analyses (gender, age, and season) were also performed.

Results: For each 10 μg/m3 increase in PM1, PM2.5, and PM10 concentrations over the past three days (lag 0–2), the risk of pneumonia hospitalisations increased by 10.28% (95%CI: 5.88%–14.87%), 1.21% (95%CI: 0.34%–2.09%), and 1.10% (95%CI: 0.44%–1.76%), respectively. Additionally, both boys and girls were at risk of PM1 effects, while PM2.5 and PM10 effects were only seen in boys. Children aged ≤12 months and 1–4 years were affected by PM1, but PM2.5 and PM10 were only associated with children aged 1–4 years. Furthermore, PM1 effects were greater in autumn and winter, while greater PM2.5 and PM10 effects were evident only in autumn.

Conclusion: This study suggests a greater short-term impact on childhood pneumonia from PM1 in comparison to PM2.5 and PM10. Given the serious PM pollution in China and other rapid developing countries due to various combustions
and emissions, more investigations are needed to determine the impact of different PM on childhood respiratory health.

(ii) Changchang Li, Michael S Bloom, Shao Lin, Meng Ren, Shakoor Hajat, Qiong Wang, Wangjiang Zhang, Hung Chak Ho, Qingguo Zhao, Yan Lin, Cunrui Huang. “Temperature variation and preterm birth among live singleton deliveries in Shenzhen, China: a time-to-event analysis”. Environmental Research, 110834.

Abstract

Objective: Ambient temperature extremes due to heat exposure was an established risk factor for preterm birth (<37 gestational weeks). However, there is insufficient epidemiological evidence on the effects of temperature variation (TV), although TV is also associated with heat exposure and can influence human health risk. This study aimed to investigate the relationship between inter- and intraday TV and preterm birth (PTB).

Method: A total of 1,388,994 live singleton births were collected from January 2003 to December 2012, from the Shenzhen Birth registry system. Daily temperature range (DTR) was defined as the difference between the highest and lowest recorded daily temperature. Intraday TV was defined as the maximum daily diurnal temperature range in a given week (Max-DTR). Inter-day TV was defined as the maximum increase or decrease in daily mean temperature between days t and t-1 in a given week; either an increase (Temp-inc) or a decrease (Temp-dec). We used Cox proportional hazards models to estimate TV-related PTB risks during the first trimester, the second trimester, and in late pregnancy.

Results: The maximum values for DTR, Temp-inc, and Temp-dec were 17°C, 8°C and 11°C, respectively. The greatest TV-related PTB risk occurred in the second trimester, with 5.8% (95%CI: 3.3%, 8.3%), 23.7% (95%CI: 19.6%, 27.9%), and 4.4% (95%CI: 1.8%, 7.1%) differences per 1°C increase in Max-DTR, Temp-inc, and Temp-dec, respectively. Greater TV was associated with elevated PTB risk during the warm season. The association between TV and PTB was modified by seasons, maternal education and chronic conditions.

Conclusions: Sharp TV is a likely risk factor for PTB. Policy makers and clinicians should recognise the potential role of TV in the etiology of PTB so that interventions can be designed to protect pregnant women and their fetuses against extreme temperatures.

7. Dr Roger Chan

- has published the following article:


Abstract

The uneven geography of economic resilience is generally considered to be dependent on local-specific attributes such as economic structure, human actions, and institutional arrangements. Going beyond these internal attributes, this study draws insights from Harvey’s spatial fix concept and explores the impact of the
(re)production of space on economic resilience across 285 prefectural-level cities in China in relation to the economic crisis of 2008. Economic resilience was measured by the cities’ resistance to decline during the crisis period (2007–2009) and its recoverability in the period immediately afterwards (2009–2016). For each period, we used regression models to assess the relative impact of fixed-asset investment, economic structure, and local government spending on the cities’ economic resistance or recoverability. The (re)production of space, as measured by fixed-asset investment in urban space, was found to have a consistently positive and significant effect on economic resilience across the cities. In addition, the manufacturing sector showed a positive and significant effect on the cities’ resistance to decline whereas the service sector was key to their recoverability during the post-crisis period. Our analysis extends the perception of space in regional resilience by corroborating the proposition that the built environment can serve as a resource system for sustained and resilient growth. The robustness test confirmed that the spatial-fix effect on economic resilience was consistently significant across Chinese cities regardless of spatial and temporal variations in local contexts.

8. Professor Bo-sin Tang

- has published the following article:


Abstract

This study uses three machine learning algorithms including support vector machine (SVM), random forest (RF) and gradient boosting machine (GBM) in the appraisal of property prices. It applies these methods to examine a data sample of about 40,000 housing transactions in a period of over 18 years in Hong Kong, and then compares the results of these algorithms. In terms of predictive power, RF and GBM have achieved better performance when compared to SVM. The three performance metrics including mean squared error (MSE), root mean squared error (RMSE) and mean absolute percentage error (MAPE) associated with these two algorithms also unambiguously outperform those of SVM. However, our study has found that SVM is still a useful algorithm in data fitting because it can produce reasonably accurate predictions within a tight time constraint. Our conclusion is that machine learning offers a promising, alternative technique in property valuation and appraisal research especially in relation to property price prediction.
1. Professor Shenjing He

- Together with Dr Kenneth Tang and Dr Jin Zhu, Professor He (PI) has been awarded a research grant from the **Countryside Conservation Funding Scheme (CCFS)**, offered by the Environmental Protection Department of the HKSAR Government, for their project entitled “Towards Sustainable and Inclusive Conservation and Revitalisation in Hing Chun Yeuk Seven Villages, Kuk Po and Fung Hang, Hong Kong”, under the funding category of **Research Activities on Countryside Conservation and Revitalisation** (Project No. EP86/27/24/11-7; funding amount: HK$ 1,982,040; project period: September 2021-August 2022).

- has published two co-authored papers:


**Abstract:** Homeowner associations (HOAs), the emergent neighbourhood-based organisations, spawn new modes of neighbourhood governance in post-reform China, meanwhile are profoundly influenced by state power. Aiming to unpack the complexity and hybridity of neighbourhood governance, this research presents a detailed examination of how the local state exerts institutionalised control over HOAs through three critical mechanisms of infrastructural power: (1) the establishment of regulatory institutions to formalise the state influence on HOAs; (2) the enforcement of registration projects to make HOAs legible and governable; (3) the cultivation of clientelist ties with participants of HOAs. The uneven state reach owing to fragmentally organised local authorities is purposively designed to facilitate political control on urban neighbourhoods. This study enriches Mann’s conceptual framework of infrastructural power through the scrutiny of fragmented state apparatus, and renews our understanding of the dynamic state–society interactions at the conjuncture of economic liberation and political domination in post-reform China.
Abstract: Real estate premium associated with landscape amenities is a well-studied topic with a primary focus on housing prices. Presumably, the willingness-to-pay for landscape amenities should be very different between homeowners and tenants. Thus far, how landscape amenities affect residential rental prices is not well understood. This paper takes advantage of the big data of online housing advertisements to unravel how landscape amenities are capitalised into rental prices across five Chinese megacities (Beijing, Shanghai, Shenzhen, Hangzhou and Wuhan). Natural language processing, the latent Dirichlet allocation in particular, is first employed to semantically analyse the geo-textual advertisements. It reveals that ‘landscape amenities’ is a typical topic and ‘park’ is a typical component for housing advertisements in the five megacities. The lexicon-based sentimental analysis further shows that the strength of the sentiments associated with the ‘landscape amenities’ varies with cities. A series of hierarchical hedonic models based on the extracted semantic and sentimental aspects are then established for each megacity after segmenting the rental market into submarkets. The capitalisation effect of landscape amenities is significant in Beijing, Hangzhou and Wuhan, while it is not significant in Shanghai and Shenzhen. Finally, variance decomposition analysis and marginal implicit price calculation unveil to what extent landscape amenities contribute to residential rental prices. Based on these findings, we discuss several major implications for urban planning. Our study unsettles the popular presumption that landscape amenities are key determinants of real estate values. It renews our understanding of the economic values of landscape amenities theoretically and methodologically.