

Dean's Roundup: 20 April 2018

Roundup: *Ceiling function*, the mathematical operation of rounding a number up to the next higher integer.

Roundup: a term in American English referring to the process of gathering animals into an area, known as a "Muster" in Australia.

Rounding up: when a helmsman cannot control a boat and it heads into the wind

Roundup: the plan for an invasion of northern France by Allied forces during World War II (WikipediA)

Dean's Roundup: part blog, part bulletin; part honour roll, part curatorial [cu'ra-to'ri-al (kyŏ'rĕ-tŏr'ĕ-əl, -tŏr'-) n. nounised by the Dean from curator + editorial]

Dear all,

I would like to use this Dean's Roundup blog spot to shower some glory on colleagues who have helped achieve FoA's recent batch of research grant successes.

It has been literally an extraordinary few months of achievement and I take this as a sign of maturity of the Faculty's research culture and the HKUrbanLab interdisciplinary and lab-based platform. Last month we learned that FoA has two of the three winning Strategic Public Policy Research grants issued by the HK government this year. One is led by FoA (lead PI: Anthony Yeh); the other has another DUPAD colleague, Alain Chiaradia as a co-PI. Then came the news that ACP has been awarded two Architectural Conservation Thematic Research grants, newly established in HK, both led by REC PIs (Hoyin and KW Chau). REC pulled in another large grant, funded by the Innovation Technology Fund (PI: Wilson Lu). VP (Research) Andy Hor has been encouraging FoA to keep growing its GRF grant culture but also step up to larger competitive grants. We have proved that we can do this with these five grants in one academic year, totaling about 14M HKD.

In the next few months, Wilson and I will start the process of internal FoA consultation on putting together an HKUrbanLab Thematic Research Fund bid and, even more ambitious, a State Key Lab proposal (Key Labs are funded by a Mainland China Ministry). The tentative focus is Smart Pearl River Delta. I am discussing the Key Lab idea with HKU's new president when I see him in Berkeley in May.

FoA's big external research grant successes in 2017/18 are:

Funding Scheme	Title	Funding	PIs
Strategic Public Policy Research (SPPR) Funding Scheme 2017/18	In Search of New Economic Cooperation Models Between Hong Kong and the Big Bay Area	HK\$3.5m	Prof Anthony YEH (HKU), Prof LIN Chu Sheng George (HKU), Prof TAO Zhigang (HKU), Dr YANG Fan Fiona (Sun Yet-Sen University), Dr LIU Xingjian (HKU)

Funding Scheme	Title	Funding	PIs
Strategic Public Policy Research (SPPR) Funding Scheme 2017/18	Strategies for enhancing walkability in Hong Kong via smart policies	HK\$3.5m	Prof Hong Kam LO (HKUST), Prof Kai Hon Alexis LAU (HKUST), Prof Xun WU (HKUST), Mr. Alain CHIARADIA (HKU), Prof Gang WANG (HKUST), Prof Chin Pang Jack CHENG (HKUST)
Innovation and Technology Fund (ITF)	RFID-enabled Building Information Modelling (BIM) Platform for prefabrication housing production in Hong Kong	HK\$2.99m	Prof G.Q. HUANG, Co-PIs: Dr Wilson LU, Prof S.T. NG, Prof Q.P. SHEN
HKSAR BHCF - Funding Scheme for Thematic Research on Built Heritage Conservation	Harmonious Integration: the Community with Pok Fu Lam Village, Dairy Farm Company and Society of Foreign Missions of Paris in Pok Fu Lam	HK\$ 1,931,568	Dr. Lee Ho-yin
HKSAR BHCF - Funding Scheme for Thematic Research on Built Heritage Conservation	Approval-in-Principle for "Divine Powers: Historic Ecclesiastic Buildings in Central, Hong Kong"	HK\$ 1,929,268	Prof K W Chau

Competitive research grants are vital because they indicate strong performance in peer review and they are an input to the research process. Also vital is a steady stream of highly qualified PhD students. Competitive PhD fellowships are important indicators of our attraction to next generation academics and bring smart young researchers into the faculty, which helps raises our game in many ways. I am delighted to report that FEC has been awarded 7 prestigious UPF scholarships and 2 even more prestigious HKPF scholarships. Supervisors and departments are:

Name of Applicant	Dept.	Field of Study	Supervisors(s)	Status
ZHAO Ya	REC	Institutional Analysis	Primary Supervisor: Dr. Lennon Choy Co-supervisor: Prof. K W Chau	Awarded HKPF

Name of Applicant	Dept.	Field of Study	Supervisors(s)	Status
MA Yaotian	UPD	Urban Planning	Primary Supervisor: Prof. Anthony G.O. Yeh Co-supervisor: Dr. Liu Xingjian	Awarded UPF
CHU Xiaoling	REC	Real Estate and Construction	Primary Supervisor: Dr. S K Wong Co-supervisor: Prof. K W Chau	Awarded UPF
WANG, Ting	ARCH	Environmental and Resource Management, Landscape Architecture and Planning	Primary Supervisor: Dr. Cecilia Chu Co-supervisor: Dr. Eunice Seng	Awarded UPF
XIA Chang	UPD	Geographic Information Science and Big Data	Primary Supervisor: Prof. Anthony G.O. Yeh Co-supervisor: Dr. Li Weifeng	Conditional offer with a chance to receive UPF
ZHANG Anqi	UPD	Urban Planning and Geographical Modelling	Primary Supervisor: Dr. Li Weifeng Co-supervisor: Dr. Liu Xianjian	Awarded UPF
GUO Hui	REC	Construction Waste Management, Smart Construction	Primary Supervisor: Dr. Wilson Lu Co-supervisor: Prof. KW Chau	Conditional offer with a chance to receive UPF
YAN Xiang	UPD	Urban Planning	Primary Supervisor: Dr. He Shenjing Co-supervisor: Dr. Roger C K Chan	Awarded HKPF
LUO, Lan	ARCH	Engineering & Technology, Architecture, Landscape Architecture	Primary supervisor: Dr. Jiang Bin Co-supervisor: Dr. Jia Beisi	Conditional offer with a chance to receive UPF

In addition, 2 Type B place funded PhD places have been allocated to our Faculty for the following projects:

Project Title (Primary Supervisor/Department)	No. of Type B Place Awarded
Worker engagement on Hong Kong construction sites (Professor S M Rowlinson / Real Estate and Construction)	1
Isomorphic pressures to catalyse diffusion of innovations (Dr Wilson Lu / Real Estate and Construction)	1
Total:	2

A lively research-active faculty also has famous researchers spending time in it. Three years ago, I secured a university-funded Visiting Research Professor (Phil Jones) to help lead and grow DoA's Sustainable Architecture research group, following Stephen Lau's departure to NUS and to help grow this group across the Faculty. Professor Jones has recently submitted an action-packed report of his three years and I am delighted to say that Professor Chau has secured another HKU-funded Visiting Research Professor package. Chau nominated Professor Kincho H Law of the Stanford University to be appointed as Visiting Research Professor (VRP) at the Department of Real Estate and Construction under the University's VRP Scheme for a period of 3 years from 2018-19 to 2020-21. The nomination has recently been approved by the University Research Committee with a funding support of HK\$496,600.

University seed-fund small grants are a feature of good universities. In the 2017/18 session, FoA has won funding for the following projects:

Funding Scheme	Project title	Funding	Status
Seed Fund for Basic Research (201711159217)	Socioeconomic disparities and health behaviours: built environment as a mediator Dr J Zhou Dept of Urban Planning & Design	HK\$ 47,590	On-going
Seed Fund for Basic Research (201711159016)	'Find them all': A multi-modal optimization approach for automated detection of repetition in urban scenes Dr F Xue Dept of Real Estate & Construction	HK\$ 111,050	On-going

Funding Scheme	Project title	Funding	Status
Seed Fund for Basic Research (201711159269)	Vertical Factory Design in Hong Kong: Constraints and Innovation of Industrial Architecture of East Kowloon, 1950s-60s Dr MFE Seng Dept of Architecture	HK\$ 111,050	On-going
Seed Fund for Basic Research (201711159214)	Real time investigation of the influence of partnering collaborative workshop on relational behaviour: A case study of a contractor's project team. Professor SM Rowlinson Dept of Real Estate & Construction	HK\$ 47,590	On-going
Seed Fund for Basic Research (201711159270)	Development of Remote Sensing-based Spatiotemporal Model to Estimate High-resolution Distribution of Ground-level PM2.5 in Chinese cities Dr W Li Dept of Urban Planning & Design	HK\$ 79,320	On-going
Seed Fund for Translational and Applied Research (201711160002)	An i-Core-enabled tower crane management system for construction productivity and safety Dr W Lu Dept of Real Estate & Construction	HK\$ 130,000	On-going

Together, the successes above present an amazing achievement this academic year. FoA, through new HKUrbanLabs and longer-standing ones, is now functioning as a well-founded research community. This gives me confidence that we can together easily move to the next level as a leading Built Environment research hub. It also gives me confidence as we move on to develop FoA's teaching programs in the exciting ways currently under discussion.

Thank you all for your ongoing contributions (those listed above and those below). Everyone's individual contributions, large and small, matter.

With best wishes

Chris

Teaching and other Achievements

FoA Departments and Divisions

Department of Real Estate and Construction (DREC)

1. Dr. L H Li

- has been awarded the Universitas 21 Fellowship 2018-19, to visit Korea University in South Korea for 2 months in April and May 2018 (1) to examine the similarities and differences in the institutional arrangements of providing affordable housing carrying out urban regeneration programmes in Hong Kong and Seoul; (2) to examine the pros and cons of various urban approaches in providing affordable housing and carrying out urban regeneration programmes in South Korea, for lessons to be drawn for Hong Kong; (3) to explore research and teaching collaboration opportunities with researchers at the Korea University in urban issues; and (4) to strengthen teaching, academic and research links between Hong Kong and South Korea.

2. Ms. Meng Ye, a PhD student jointly supervised by Dr. Wilson Lu and Prof. K.W. Chau

- has been selected to receive the “Dr. Lo Kwee Seong Education Foundation Travel and Conference Grants (HK\$18,000)” for the academic year 2017-18, which shall be used to subsidise her research visit to the University of Reading, UK from November 2017 to February 2018.

Division of Architectural Conservation Programmes (DACP)

1. Dr. Gesa Schwantes

- was invited by the UNESCO World Heritage Institute of Training and Research for the Asia and the Pacific Region (WHITRAP) to lecture in the course: “Lime for cultural heritage conservation and restoration 石灰与文化遗产保护实践” held in Suzhou February 5-10, 2018. A training course for professionals in the WHITRAP course series: *Advances Course on Conservation and Restoration Techniques of traditional Architecture for the Asia -Pacific Region*. 亚太地区古建筑保护与修复技术高级人才研修班.

<http://www.whitr-ap.org/index.php?classid=1518&newsid=2807&t=show>

This course was co-organized by the Tongji University College of Architecture and Urban Planning(CAUP) and Oriental Cultural Heritage Sites Protection Alliance (OCHSPA) to provide training in terms of theory, methodology and applied techniques in conservation of cultural heritage with different types of lime.

Course Instructors and Lecture Topics

Dr. Dai Shi Bing (<i>Tongji University, Shanghai</i>)	<ul style="list-style-type: none">- Building lime family, ecological and cultural value of historic lime craftsmanship, e.g. windslaking- Micro-lime and Natural Hydraulic lime application case studies at Chinese cultural heritage.
Dr Gerald Ziegenbalg (<i>IBZ Salzchemie GmbH&CoKG; Dresden University, Germany</i>)	<ul style="list-style-type: none">- Nanoline – a new material for the conservation of stone, mortar and wall paintings- Combined application of nano-lime and silicic acid esters (SAE)
Dr. Jan Válek (<i>Czech Academy of Science, Institute of Theoretical and Applied Mechanics</i>)	<ul style="list-style-type: none">- Traditional lime technologies in Europe and research on historic production techniques- Replication of historic mortars from analysis to design
Dr. Gesa Schwantes (<i>The University of Hong Kong</i>)	<ul style="list-style-type: none">- Conservation of decorated and undecorated architectural surfaces – Discussion of different conservation approaches and challenges- Injection grouts on the basis of micro-lime and sieved soil for the reattachment of historic plaster on earthen support.



Research Achievements

HKUrbanLab research groups

CUSUP

1. Dr. Shenjing He

- is invited to join the Scientific Committee of *The Boletín de la Asociación de Geógrafos Españoles (AGE)*, the academic journal of the Association of Spanish Geographers. *The Boletín de la AGE* is the most prestigious geographical journal published in Spain and is indexed in SCOPUS and ISI-JCR.

2. Dr. Kyung-Min Nam

- was invited by the Korea Planning Association as one of the three main speakers at the International Journal of Urban Sciences Spring 2018 Seminar (Seoul, Korea, Feb 13-14, 2018), and delivered a lecture, titled “Spatial Distribution of China's Population: Some Unique Characteristics.”
- Regarding his ECS project on China's air pollution, Dr. Kyung-Min Nam completed his visiting scholarship at the Massachusetts Institute of Technology (February 16-21, 2018).

3. Professor Bo-sin Tang

- has published the following paper:

Tang, B.S. (2018). Leveraging property values for metro railway development in Hong Kong: experiences and lessons, in Squires, G., Heurkens, E. and Peiser, R. (eds.) *Routledge Companion to Real Estate Development*, Oxon and New York: Routledge, pp.13-27.

Abstract: *Joint development of real property and metro railway by the Hong Kong MTR Corporation (MTRC) has contributed enormously to urban growth and spatial transformation of Hong Kong over the past four decades. This “rail plus property” (R+P) development model has also made the MTRC one of the most profitable and successful railway operators by world standards. Based on the theoretical framework of new institutional economics, this chapter explains why this model is more than simply using property incomes to subsidize metro railway development. It elucidates how the R+P model embodies an institutional arrangement that can effectively coordinate action of the government, railway operator, developers and other market players in transforming the urban built environment, and properly aligns their different interests and capabilities with appropriate incentives in accomplishing a desirable use of urban space. Successful implementation of the model requires supportive government land use and transport strategy, complementary project planning and development process, and competent and responsible organizations that strive towards making the best use of urban space and producing high-quality urban infrastructure and land development in fulfilling the private needs and the public interest. This chapter will examine the experiences of Hong Kong's metro railway on urban spatial development and property.*

4. Professor Anthony Yeh

- Prof Anthony Yeh was successful in getting HK\$3.5M from the Strategic Public Policy Research Funding (SPPR) Scheme of the Central Policy Unit (CPU) of the Hong Kong SAR Government as PI in the research on “In Search of New Economic Cooperation Models Between Hong Kong and the Big Bay Area”. The research aims to examine new economic development models between Hong Kong and the Pearl River Delta under the new Chinese and global economic environment and to identify opportunities and barriers of economic development and cooperation in formulating public policies and regional development plans. This is an interdisciplinary research with Prof. Chu Sheng Lin (Department of Geography/Faculty of Social Sciences), Prof. Zhigang Tao (Faculty of Business and Economics), Dr. Fiona Fan Yang (School of Geography and Urban Planning, Sun Yat-Sen University) and Dr. Xingjian Liu (Department of Urban Planning and Design/Faculty of Architecture) as Co-Is.

Healthy^{HD}Cites

1. Mr. Alain Chiaradia

- Mr. Alain Chiaradia with a team at the Hong Kong University of Science and Technology HKUST have been awarded HK\$ 3.5M by the Hong Kong SAR Government’s ‘Strategic Public Policy Research Funding Scheme’ of the Central Policy Unit (CPU) for their project “Strategies for Enhancing Walkability in Hong Kong via Smart Policies”. The project is led by Professor Lo Hong-kam who has expertise in transportation system modeling, system reliability analysis, public transport, dynamic traffic assignment and control. This research aims to create a multi-criteria evaluation method to support policy/guidance making. It brings together transport expertise in utility econometric modelling (HKUST), walking network and walkability modelling (Alain’s role as Co-investigator) and the current interest on walkability from policy and delivery point of views (Chief Executive’s Policy Address, and on-going consultancy projects recently let by the Government). The outcomes of this project will be a valuable complement to the four-major ongoing walking consultancy studies commissioned by the various Government Departments, including a complete review of Walkability in Hong Kong, Walking Connectivity Studies from Wan Chai to Sheung Wan, Walkability and Cycling in the New Territories, and the Hillside Escalator Assessment. The project is expected to be completed within 36 months.

2. Dr. Chinmoy Sarkar

- Dr. Sarkar wrote an Editorial for Journal of Urban Design and Mental Health: **Sarkar C.**, [Editorial: Towards quantifying the role of urban place factors in the production and socio-spatial distribution of mental health in city dwellers](#), *Journal of Urban Design and Mental Health*. 2018, 4: 2.

<https://www.urbandesignmentalhealth.com/journal-4---quantifying-place-factors-in-mental-health.html>

- Dr. Sarkar published a small general piece on mental health and BE for the online Urbandesignmentalhealth journal:

<https://www.urbandesignmentalhealth.com/journal-4---quantifying-place-factors-in-mental-health.html>

- A paper by Dr. Sarkar, Dean Webster and Professor John Gallacher recently published in IJHEH (Neighbourhood walkability and incidence of hypertension: Findings from the study of 429,334 UK Biobank participants. IJHEH, 2018. <https://doi.org/10.1016/j.ijheh.2018.01.009>), has been selected for inclusion within the *Research Highlights* section of the *Nature* series journal: Nature Sustainability."

Research Highlights: Walking to better health. *Nature Sustainability*, 1(3). <https://doi.org/10.1038/s41893-018-0039-7>

- Dr. Sarkar was interviewed by *The Guardian* for the UK-wide walkable design - hypertension study and the findings were reported on 5/02/2018.

Available at: <https://www.theguardian.com/cities/2018/feb/05/walkable-cities-reduce-blood-pressure-study-finds>

<https://www.timeshighereducation.com/hub/university-hong-kong>

The screenshot shows a news article on The Guardian website. The main headline is "Walkable cities reduce blood pressure and hypertension risk, study finds". Below the headline is a sub-headline: "Research finds significant link between the walkability of a city and the blood pressure and hypertension risk of the people who live there". The article includes a photograph of a busy city street with shops and pedestrians. The text discusses a study of 429,334 UK Biobank participants, finding that more walkable cities are associated with lower blood pressure and reduced hypertension risk. It also mentions that the findings were published in the *International Journal of Hygiene and Environmental Health*. A quote from Dr. Chinmoy Sarkar is included: "Well-designed cities of today will be healthy cities of tomorrow". The article also touches upon the benefits of walking for cardiovascular health and the importance of urban planning.

3. Dr. Chinmoy Sarkar, Dean Webster and Prof. Gallacher

- Have a paper accepted in *The Lancet Planetary Health*

Chinmoy Sarkar, Chris Webster, John Gallacher (2018) Is residential greenness related to depression? Cross sectional observational study of the N=94 879 adult UK Biobank participants. *The Lancet Planetary Health*. (in-press).

Abstract

Background: Unprecedented levels and rates of urbanization and associated reduced contacts with natural environments have led to a rise in mental disorders including depression. Residential greenness, a fundamental component of urban design has been shown to reduce the public health burden of mental disorders. The present study examined the association between residential green exposure and prevalence of major depressive disorders (MDD) using a large and diverse cross sectional data from the UK Biobank.

Methods: In this cross sectional observational study, we used baseline data from the UK Biobank cohort of adult men and women aged 37-73 years. Environmental exposure data was derived from a modelled and linked built environment database. Residential greenness was assessed with 0.5-metre resolution normalized difference vegetation index (NDVI) derived from spectral reflectance measurements in remotely sensed colour infrared data and measured within geocoded dwelling catchments. Other environment metrics included street-level movement density, terrain and fine particulate exposures. A series of logistic models examined associations between residential greenness and odds of Major Depressive Disorder (MDD) after adjusting for activity-influencing environments and individual covariates. Sensitivity analyses included stratified analyses and investigation of interaction of age and sex upon neighbourhood SES and urbanicity.

Findings: Of 122 993 participants with data on MDD, the study analytic sample comprised 94 879 (77.1%) participants across 10 UK Biobank assessment centres. A protective effect of greenness on depression was consistently observed, with 4% lower odds of MDD per interquartile increment in NDVI greenness (OR=0.960; 95% CI: 0.93, 0.99; p<0.001). Interaction analyses indicated that the beneficial effects of greenness was more pronounced among female, those aged <60 years and residing in low neighbourhood SES and high urbanicity areas.

Interpretation: The results point to the benefits of well-designed green environments upon mental health. Further longitudinal studies are needed to decipher causal pathways. In the UK, policies aimed at optimizing allocation and design of green spaces may help preserve psychological ecosystem services, thereby improving mental wellbeing of populations as well as enhancing mental capital of cities.

Keywords: Major depressive disorder, UK Biobank, NDVI, residential greenness, UKBUMP, walkability.

4. Dr. Chinmoy Sarkar, Dean Webster and Professor John Gallacher

On the basis of the following paper, Chinmoy Sarkar, Chris Webster, John Gallacher (2018) Neighbourhood walkability and incidence of hypertension: Findings from the study of 429,334 UK Biobank participants. *International Journal of Hygiene and Environmental Health* <https://doi.org/10.1016/j.ijheh.2018.01.009>, were invited by *Ramblers*, a prominent UK outdoor and conservation trust, to endorse its UK walkable neighbourhood campaign, following his recent paper published by the HKU-led HKU-Oxford team in *International Journal of Hygiene and Environmental Health* (Impact Factor 4.6).

5. Dean Webster

- Has been re-appointed to serve on the Research Grant Council on the Humanities and Social Sciences Panel (Joint Research Schemes) for another two years from 1 February 2018 to 31 January 2020.

6. Dean Webster, Jingjing Ruan and Dr. Guibo Sun

- Contributed a chapter to the *Handbook of Cultural Security*:

Webster C, Ruan J, Sun G, (2018). Private gains and social costs of China's gated communities. In Yasushi Watanabe (Eds), *Handbook of Cultural Security*. Edward Elgar.

Abstract: *In this chapter, we provide a review of security and related governance in gated communities in China. We discuss physical layouts of gated communities, and the spatial segregation that gating may cause. Two empirical studies follow: one investigating private benefits of gating and the other social costs. First we report on a household survey that investigates, empirically, the sense of community security and the actual experience of crime victims amongst gated community residents in Nanchang, a medium-sized city of China. Second, we report a simulation-based study to compare the gating/ungating scenarios of Nanchang city as a response to the Chinese central government's policy of opening up gated communities.*

7. Dr. Guibo Sun, Dean Webster, Dr. Michael Ni (LKS Faculty of Medicine) and Dr. Xiaohu Zhang

- Has a paper published in *Geospatial Health*:

Title: Measuring high-density built environment for public health research: uncertainty with respect to data, indicator design and spatial scale

Author: Guibo Sun¹, Chris Webster¹, Michael Y. Ni², Xiaohu Zhang^{3*}

1. Healthy High Density Cities Lab, Faculty of Architecture, The University of Hong Kong, 4/F, Knowles building, Pokfulam, HKU, Hong Kong

2. School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, G/F, Patrick Manson Building (North Wing), 7 Sassoon Road, Pokfulam, Hong Kong

3. Singapore-MIT Alliance for Research and Technology, 1 CREATE Way, Singapore

Abstract: *Uncertainty with respect to built environment BE data collection, measure conceptualization and spatial scales is evident in urban health research, but most findings are from relatively low-density contexts. We selected Hong Kong, an iconic high-density city, as the study area as limited research has been conducted on uncertainty in such areas. We used geocoded home addresses (n=5,732) from a large population-based cohort in Hong Kong to extract BE measures for the participants' place of residence based on an internationally recognized BE framework. Variability of the measures was mapped and Spearman's rank correlation calculated to assess how well the relationships among indicators are preserved across variables and spatial scales. We found extreme variations and uncertainties for the 180 measures collected using*

comprehensive data and advanced GIS modelling techniques. We highlight the implications of methodological selection and spatial scales of the measures. The results suggest that more robust information regarding urban health research in high-density city would emerge if greater consideration were given to BE data, design methods and spatial scales of the BE measures.

Keywords: High-density, built environment, spatial scale, uncertainty, GIS, Hong Kong

iLab

1. Dr. Wilson Lu

- Was invited by the Research Grant Council (RGC) to serve the Assessment Panel for Competitive Research Funding Schemes for the Local Self-financing Degree Sector (APSF) as Member for the Engineering (E) Subject for a period of two years. According to the Dean Prof. Webster, "...This is a great honour and yet another message to the University of Hong Kong and the rest of Hong Kong that Faculty of Architecture (FoA) is a research force to be reckoned with".

Xi Chen (PhD student in REC), Dr Wilson Lu, Dr Frank Xue (RAP in REC), and Ms. Jinying, Xu (PhD student in REC) public a paper

Chen, X., Lu, W.S., Xue, F., and Xu, J.Y. (2018). A cost-benefit analysis of green buildings with respect to construction waste minimization using big data in Hong Kong. *Journal of Green Building*. Forthcoming

Abstract: *It is readily accepted that the extra construction costs involved in the construction of green buildings will result in benefits including lower operation costs, higher sale/rental prices, and better sustainability performance. However, there has been little recognition of construction waste minimization (CWM) as one of the important benefits of sustainability performance as designated in green building. This paper aims to provide a better understanding of cost benefit of green buildings with respect to CWM by using big data in the context of Hong Kong. The study is innovative in that it conducts a cost-benefit analysis specifically on CWM of green buildings by mining large-volume datasets. A surprise finding is that Hong Kong's green building rating system (GBRS), i.e. the BEAM Plus, has a negligible effect on CWM, while it generally increases construction costs by approximately 24%. Hence, the increased construction cost of green buildings cannot be offset by CWM if corresponding items in the BEAM Plus are not properly incentivized. This paper demonstrates the necessity of emphasizing CWM-related items in GBRSs and of taking appropriate measures to deal with them. It also provides better decision-support information on the increased construction costs and the attainable benefits of green building that developers may wish to take into account when initiating a green building project.*

- Wilson's proposal entitled "An i-Core-enabled tower crane management system for construction productivity and safety" has been approved for funding support from University Research Committee's "Seed Fund for Translational and Applied Research"

- Gave a talk “A tour of the construction industry in Hong Kong” to a group of North Carolina State University students via video-conferencing on 19 March 2018. This is a part of a course called “international construction practice”.



- Dr. Wilson Lu and colleagues published a paper

“Shen, L.Y., Wu, Y., Shuai, C.Y., **Lu, W.S., Chau, K.W., and Chen, X.** (2018). Analysis on the evolution of low carbon city from process characteristic perspective. *Journal of Cleaner Production*, Forthcoming.

Abstract: *Developing low carbon city is a global strategy for achieving carbon emission reduction. However, the evolution process of becoming a low carbon city remains unexplored, which is not conducive to the promotion of low carbon city. This study examines the evolution of low carbon city from process characteristic perspective. The evolution processes are analyzed by establishing the relationship between city’s economic development and carbon emission performance. By adopting Kaya Identity method, city’s emission characteristics in the process of promoting low carbon city are decomposed into energy structure, energy intensity, economic output, industrial structure and population. The performances of these five characteristics in different evolution processes are analyzed. By using the data collected from case cities of Singapore, Beijing, and New York, the evolution process and the corresponding emission characteristics of these cities have been investigated. The key findings from this study are: (1) a city successively goes through three turning points (TP) and four processes (P- I , P- II, P- III, P- IV) to shift from carbon intensive to low carbon. (2) Performances of the five emission characteristics for cities vary significantly between the four evolution processes. The findings of this study help city governments understand the process they position in and the gap between their emission performances and their goals of becoming a low carbon city. This understanding allows the decision-makers to take proper emission reduction measures which shall incorporate city’s emission characteristics in the corresponding process.*

- Dr Wilson Lu won a Seed Fund for Translational and Applied Research project (2018):

Project title: An i-Core-enabled tower crane management system for construction productivity and safety (PI: Dr Wilson Lu, HK\$130,000, 12 months).

2. Dr. Frank Xue (RAP in REC)

- was invited to give two lectures on Research Methodology, on 21st and 22nd March, for the MSc and PhD students at School of Public Administration and Policy, Renmin University of China.
- won a Seed Fund for Basic Research (2018)

Project title: 'Find them all': A multi-modal optimization approach for automated detection of repetition in urban scenes (201711159016) (PI: Frank Xue, Co-I: Wilson Lu; HK\$ 111,050; 12 months)

Sustainable^{HD}Cities

1. Dean Webster

- Invited to be a panel judge for the 2018 World Green Building Council (WorldGBC) Asia Pacific Leadership in Green Building Awards. The Awards celebrate iconic green buildings, women's leadership and inspiring companies driving change and creating a better future throughout the region. This biennial programme was first held in 2014 and this will be the 3rd run.

RCCPRR

1. Professor KW Chau, Dr. Isabelle Chan, Dr. Wilson Lu and Dean Webster

- Their co-authored paper entitled "Proceedings of the 21st International Symposium on Advancement of Construction Management and Real Estate" has been published as part of the **Business and Management** eBook Collection.

Virtual Lab of Urban Environments and Human Health

1. Dr. Bin Jiang and Dean Webster

- Submitted the following co-authored paper:

Jiang B, Mak, Larsen, Zhong and Webster. Examining impacts of environmental interventions on citizens' perceived safety of back alley in the high-density city, Society and Space.

Abstract: *Urban back alleys are common but often-neglected urban spaces in high-density cities around the world. Back alleys have long been perceived as negative public assets in part because they are often underdeveloped and in*

deteriorating condition, but also because they are hot spots for crimes such as robbery, prostitution, drug dealing, rape, or homicide (Mok, 2012; Rucki, 2014; Seymour, Wolch, Reynolds, and Bradbury, 2010; Zambito, 2010). People perceive back alleys as unsafe spaces because of frequent news reports of vicious, violent crimes. In New York City in 2010, for instance, a young woman was dragged into an alley by a man, brutally raped and killed (Zambito, 2010). In a central urban area in Hong Kong, local media reported 60 serious crimes in back alleys from January 2014 to September 2015. Similar media reports can be found throughout the world. Clearly, creating safe back alleys is a pressing and vital mission for high-density cities such as New York, San Francisco, Chicago, London, Hong Kong, and Shanghai, cities with hundreds or even thousands of back alleys. Planning and design programs have attempted to revitalize back alleys to enhance citizens' health and wellbeing and to promote economic development and neighborhood vitality. However, it is unclear whether these efforts make the citizens feel safe (Daley, 2007; Nathanson and Emmet, 2007; Newell et al., 2013). Without understanding people's safety perceptions of these alley interventions, we risk redesigning alleys in ways that will not promote safety and public use. Back alleys have rarely been examined in empirical studies in the field of environmental design, but previous studies in other urban contexts suggest that safer alley environments might be created through environmental interventions (Gladwell, 2006). We begin by describing theory and literature on environmental design and safety perceptions and use this theory to justify the back alley interventions we develop. Next, using Hong Kong as the setting for our research, we examine people's safety perceptions of existing alley conditions and of a variety of alley design interventions, including cleaning and adding green landscapes and urban functions. We discuss the results of a photograph questionnaire we conducted and make design recommendations for urban planners and landscape designers seeking to transform alleys in high-density cities into safe and vital spaces.