

Dean's Roundup: 15 September 2017

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 (kyŏr'ə-tŏr'ē-əl, -tŏr'-) n. nounised by the Dean from curator + editorial]

Dear all,

I have had discussions with two industrial/commercial partners in the last few weeks, about the idea of urban planning and architecture for an age of cities when personal transport involves pods that can switch from wheels to drone-props – call them d-cars.

At an architectural planning/urban design level, this raises issues of how to design for a new type of transport interchange and how this interfaces with the local and wider city structure. At an urban scale, it raises the question: what is the equivalent to the highway? Clearly, just as early transport planners realised that different kinds of road traffic needed to be graded, sorted and channelled, something equivalent needs to happen. What does this mean for landuse-transport interaction? For landuse patterns and land values? What does it mean for urban sprawl?

At Nasrine's recent symposium on 'The imminent commons', in my talk, I made the statement that theory and practice shows that if you reduce travel costs (spatial transactions costs, for REC readers), you can expect greater concentration *not* greater dispersion. This is because of the economies of scale that are the most basic driver of city formation and growth. If there were no economies of scale in production (larger firms generally make larger returns) and in consumption (a greater number of consumers makes for more efficient and diversified city services and liveability), then reducing the cost of traversing distance (as d-cars will), would tend to disperse people. All kinds of interesting urban planning propositions arise from these insights.

For example, if the terminals for d-cars are on the *edge* of the city and are regulated only for *ex-urban* use, you can expect a standard density profile from the city centre to the suburbs and thence a new kind of ex-urbia. The new ex-urbia can be expected to grow into high density sub-centres around the d-car hubs and have a very different falling density, morphology and land value profile over a much greater distance than the conventional city. This space would be organised around the new d-car highway and distribution channels, which will be more like the no-build tracks under high tension electricity lines than highways. Just like the margins of motorways, expressways and autobahns, they will become a new network of eco-wildlife corridors. On the other hand, d-car hubs might be located in inner suburbs and flight paths carved out along existing highways (the early 20th century sci-fi and modern dystopian fictional images of road and air-based vehicles flowing along the same

corridors). This will have quite a different effect in terms of morphology and the spacing of people and firms. It will tend to densify the whole city as commuters from a much wider catchment come into the city to enjoy urban employment and services.

If anyone is interested in pursuing this fascinating research and design agenda, let me know and I'll organise a meeting to extend this beyond the current iLab and Healthy City group of researchers talking to the two potential partners. One of the partners is interested in funding research into this in the context of future planning of a Chinese province. The other is already talking to a major European car company and an aero-space company about co-investment. This is very exciting and requires analytics and design thinking and research to become credible partners.

Congratulations to all those who have contributed in the ways described below. Particular congratulations to Olivier Ottevaere, for being appointed as our second Associate Professor in Practice in FoA. We are all glad we were able to keep you in HKU and I am personally excited to see a design-focused professoriate become established, to allow people with world-class architectural design credentials to build a secure career in FoA and keep us moving towards the top of the universal rankings of architecture schools.

Chris

Teaching and other Achievements

FoA Departments and Divisions

Department of Architecture (DARCH)

1. Ms. Yanessa Wong (MArch graduate, Class of 2017)

- Has been awarded the Hong Kong Institute of Architects (HKIA) Student Medal for 2017. A presentation ceremony which will be held in HKIA Annual Dinner on **18 November 2017, Saturday, at 6:30-11:00pm** at Chancellor Room, L4, Hong Kong Convention and Exhibition Centre, Wanchai. During the ceremony, the **Medal** will be presented to Yanessa in recognition of her best overall performance during both years of Master degree of Architecture in the University.

2. Ms. Juan Du

- Awarded the University's Experiential Learning Fund 2017-18 (First Round) to support student participation in a Pilot Project of "Cost-Sharing Flats", in collaboration with Hong Kong NGO- Society for Community Organization.

Department of Real Estate and Construction (DREC)

1. Professor K W Chau

- Has been appointed by the Chief Executive of the government of HKSAR as one of the 22 non-official members to the Task Force on Land Supply (Task Force) for a term of one and a half years from September 1, 2017 to February 28, 2019. The Development Bureau said the task force will build on the Government's multi-pronged land supply strategy and review and evaluate other land supply options.

<http://www.info.gov.hk/gia/general/201708/29/P2017082900286.htm>

Department of Urban Planning and Design (DUPAD)

1. Professor Rebecca Chiu

- Professor Chiu and team members – Professor Bo Sin Tang; Professor Terry Yat Sang Lum and Dr. Ernest Wing Tak Chui of Department of Social Work and Social Administration have won the Faculty of Architecture Knowledge Exchange Awards 2017 for their project entitled 'Improving Livability in Ageing Hong Kong'.

The Faculty Knowledge Exchange (KE) Awards were introduced in 2011 in order to recognise each Faculty's outstanding KE accomplishment that has made demonstrable economic, social or cultural impacts to benefit the community, business/industry, or partner organisations.

Nominations in each Faculty were considered by an Ad Hoc Faculty KE Award Selection Committee chaired by the Dean, and members included the Faculty representative serving on the KE Working Group, one of the Associate Directors of the Knowledge Exchange Office (KEO), and a member from outside the University.

The selection criteria include evidence of the KE project's link with excellence in research or in teaching & learning of HKU; evidence of an effective engagement process with the non-academic sector(s); and evidence of demonstrable benefits to the community, business/industry, or partner organisations.

2. Dr. Xingjian Liu

- Dr. Liu's entry to the RTP award received a commendation award in the New Researchers category. Please join me to congratulate Xingjian for this outstanding achievement. In fact, as the RTP CE said, getting shortlisted from over 80 entries is no small achievement.

Research Achievements

HKUrbanLab research groups

Architecture, Urbanism and the Humanities Initiatives (AUHI)

1. Dr. Ying Zhou

- Published the following book:

Urban Loopholes - Creative Alliances for Spatial Production in Shanghai's City Center 《城中之隙 上海城市中心地带空间发展中的创意性合作》(2017, Birkhäuser, ISBN 978-3035611045)

<http://www.arch.hku.hk/researchcentre/architecture-urbanism-and-the-humanities-initiative/publications/>

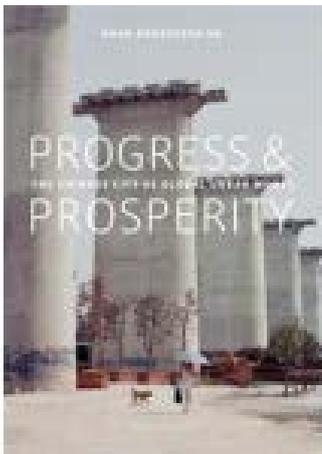


Abstract: Taking cases from the until-now little-analyzed un-demolished remains of city center neighborhoods in Shanghai, the book *Urban Loopholes: Creative Alliances of Spatial Production in Shanghai's City Center* by Dr. Ying Zhou will unpack the seemingly anarchic and opportunistic urban spatial production system of the contemporary Chinese city to address what has perplexed Western public as well as scholars alike. Going behind the scenes in neighbourhoods that increasingly appear like trend quarters in the West, it will divulge how the effortless vibe that is experienced today were imagined, constructed, and then scripted. The constellation of actors, from the expanding global network of multilingual cosmopolites to the dialect-speaking local party officials, form the malleable public-private alliances that are producing the newest forms for urban reuse, creative production, consumption, and heritage protection. Under an institutional framework that remains uniquely Chinese, how the ambiguous property rights and the institutional vestiges from planned economy could harbour an entrepreneurial prowess and creative potential that is a remarkable manifestation of globalisation in the context of its changing local institutions reveals the logic behind a 'China Dream.' The urban loophole is a concept that the author has developed for the mechanism that has mediated the evolving institutions of the transitional economy through spatial production, serves as a red thread through the cases to corroborate the adaptive governance that expedited the appropriation of global knowhow.

Pliable and redundant, the urban loophole offers a means of rethinking the presumed stasis and the necessity of urban resilience in face of globalization's impact for change. They not only mediate between the persistent coexistence of planned and market economies, but also balance economic efficiency for political stability, sustaining the success of what David Harvey called neoliberalism with Chinese characteristics.

- Published a book chapter entitled "Gentrification with Chinese Characteristics? City Centre Transformations in Shanghai." In *Progress & Prosperity The Chinese City as Global Urban Model*, 68–83. Amsterdam: NAI Publishers, 2017.

<https://www.naibooksellers.nl/progress-and-prosperity-the-new-chinese-city-as-global-urban-model-daan-roggeveen.html>



Centre for Chinese Architecture and Urbanism (CCAU)

1. Professor Weijen Wang

- Has secured a donation from Tzu Shan Temple at a total amount of HK\$ 2.5M (100K earmarked for publication) to launch the common core course and other research projects.

1. Scott Jennings Melbourne

- Has recently secured a publishing commitment from Birkhäuser Verlag for his in-progress manuscript, *Refining Nature: The Landscape Architecture of Peter Walker*. The hardcover book will have a 21 x 27 cm format with approximately 180 pages, and be included in Birkhäuser's landscape and urbanism list for spring 2019.

Abstract: *What might one learn from a careful examination of Peter Walker's built works, developed across a range of conditions and geographies over the past six decades? Structured according to landscape systems (i.e. topography, vegetation, water) rather than chronology or project type, Refining Nature: The Landscape Architecture of Peter Walker includes cross-sectional examinations of the designer's working with these elements, followed by more in-depth case studies of seminal projects that trace Walker's significant contributions to contemporary landscape design. Analytical diagrams illustrate design strategies and are paired with site photographs and original design drawings, advancing methods for the shaping of inhabited outdoor environments.*

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

- Have their joint paper accepted for presentation in the Lancet Public Health Science conference held in London 24th November.

Sarkar C, Gallacher J and Webster C (2018) Residential density and adiposity: Findings from the UK Biobank.

Manuscript Number: THELANCET-D-17-04013R1

Abstract:

Background

Obesity has emerged as a global pandemic, however the evidence for identifying the optimum residential density in relation to obesity has been far from compelling. High residential density may be hypothesized to constitute leptogenic multi-functional environments promoting active living. We examine the association between adiposity and housing unit density.

Methods

This cross-sectional study involved 450,433 adults from the UK Biobank aged 38-73 years with full data. Residential unit density was objectively assessed within one-kilometer street catchment of participants' residence. Other activity-influencing built environment included density of retail, public transport and street movement density modelled from network analyses of through-movement of street links within the defined catchment. Adiposity is expressed in-terms of measured body mass index (BMI; Kg/m²), waist circumference (WC; cm), whole body fat (WBF; Kg), and obesity as defined by WHO. We fitted linear and non-linear (restrictedcubic-spline) models after adjusting for activity-influencing built

environment, neighbourhood deprivation, socio-demographics, lifestyle and co-morbidities and investigated effect modification by gender, age, and physical activity.

Findings

Restricted-cubic-spline model with three knots best fitted the data identifying two inflexion points at residential densities of 1600 and 3400 units/Km². Below a density of 1600 units/Km², increment of 1000 units/Km² was significantly associated with higher BMI ($\beta_{\text{BMI}}=0.24$, 95% CI: 0.19 to 0.30), WC ($\beta_{\text{WC}}=0.55$, 0.40 to 0.69), WBF ($\beta_{\text{WBF}}=0.57$, 0.46 to 0.68) and odds of obesity (OR_{Obesity}=1.13, 1.09 to 1.13). Between 1600-3400 units/Km², it was associated with lower BMI ($\beta_{\text{BMI}}=-0.13$, -0.18 to -0.08), WC ($\beta_{\text{WC}}=-0.19$, -0.32 to -0.07), WBF ($\beta_{\text{WBF}}=-0.20$, -0.30 to -0.10) and obesity (OR_{Obesity}=0.96, 0.94 to 0.99). Above 3400 units/Km², each increment of 1000 units/Km² was leptogenic, being associated with lower BMI ($\beta_{\text{BMI}}=-0.15$, -0.19 to -0.11), WC ($\beta_{\text{WC}}=-0.50$, -0.60 to -0.40), WBF ($\beta_{\text{WBF}}=-0.26$, -0.34 to -0.18) and obesity (OR_{Obesity}= 0.93, 0.91 to 0.95). Stronger leptogenic effects of housing density were observed among younger, female and participants doing higher physical activity.

Interpretation

High residential density is associated with lower adiposity in a large and diverse population sample. The evidence point to the value of housing-level policy related to densification as an upstream-level candidate for public health intervention against adiposity. Further longitudinal evidence are needed to establish causality.

1. Dr. Wilson Lu

- Has recently secured a contract for his new book. Details are as follows:

Book Title: Building Information Modelling (BIM) and Big Data for Construction Cost Management

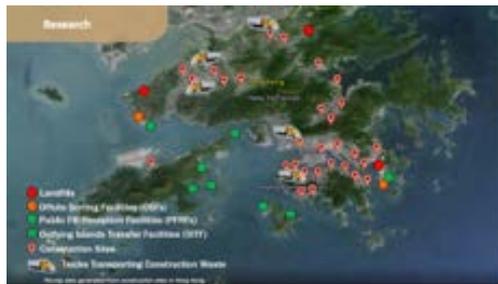
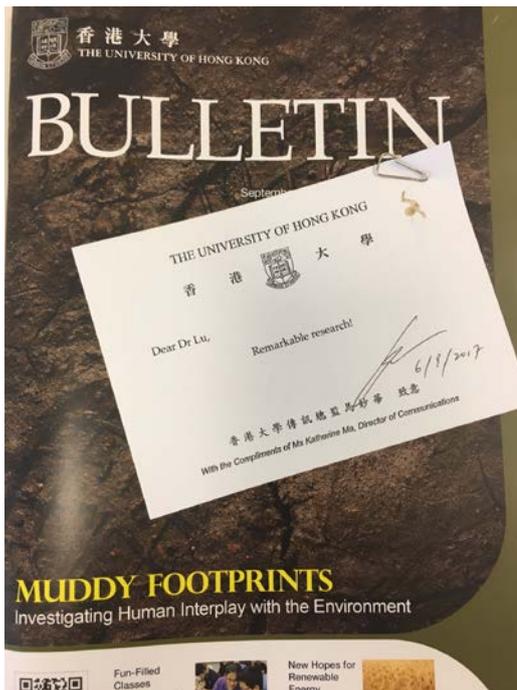
By Weisheng Lu, C.C. Lai, and Anthony T. Tse

Publisher: Routledge, Taylor & Francis Group

Abstract: *More than a decade has fast gone after building information modelling (BIM) firstly mooted in the construction industry around the world. During these years, daily and hourly, BIM has been exercising a visible, formative influence on the roles stakeholders play in construction projects and the ways they do their work. These years also have witnessed a sheer increase in the complexity of construction projects, where the information has become much higher in volume and more difficult to comprehend. For better decision making in the increasing complex construction contexts, stakeholders greedily desire the big data analytics that can be formed by BIM and other information technologies. Many clients, business executives, quantity surveyors, professionals, project managers and the like are considering the fusion of BIM and the big data analytics as a strategic development and try to embed it as an indispensable part of their professional competence.*

This book is designed to help practitioners and students in the quantity surveying profession, as well as in a wide range of construction project management professions, understand what BIM and big data could mean for them, and how they prepare to work successfully on BIM-compliant projects and maintain their competencies in their professions. In this book, the state-of-the-art information technologies that support high-profile BIM implementation are introduced. Case studies show how BIM have integrated core quantity surveying responsibilities. This book also introduces how big data can enable informed decision-making for cost control and cost planning. In addition, implications for project management, facilities management, contract administration and dispute resolution are also explored through these case studies.

- Wilson's research on construction waste management is featured at the University Bulletin 19(1), 2017:



THE TROUBLE WITH RUBBLE

Construction waste in Hong Kong is a major problem. As the city continuously builds and rebuilds itself, it is running out of space for its building waste. Dr Wilson Lu has been using big data to investigate.

To understand the scale of Hong Kong's waste problem, Wilson Lu, a senior research fellow at the Center for Environmental Policy, has been using big data to investigate. He has analyzed the waste management records of the Environmental Protection Department (EPD) for the past 10 years, and found that the city is producing 1.5 million tonnes of construction waste annually, which is expected to increase to 2 million tonnes by 2025.

Wilson Lu is also looking at the waste management records of the EPD to see how the city is handling its construction waste. He found that the city is producing 1.5 million tonnes of construction waste annually, which is expected to increase to 2 million tonnes by 2025.

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“Hong Kong landfill space is extremely valuable, but the one single industry is taking up about one-quarter of the capacity. This is really a burning issue.”

Dr Wilson Lu

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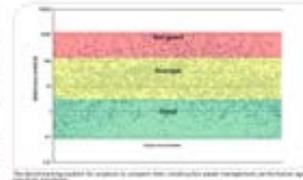
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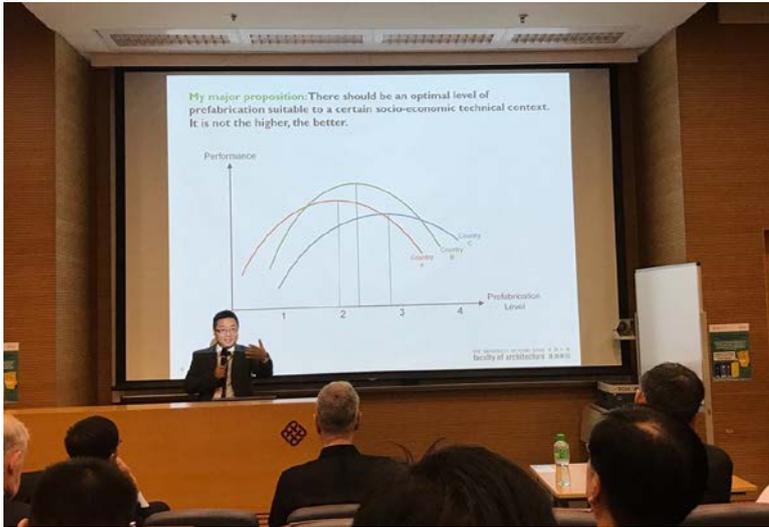
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- delivered an invited talk “Design for ‘X’, not for a high index: The proposition of an optimal level of prefabrication construction for different socio-economic technical contexts” RISUD Annual International Symposium 2017 (RAIS 2017), Hong Kong Polytechnic University, 25 Aug 2017.



- Dr. Wilson Lu, Dr. Xue Fan, Mr. Ke Chen (Ph.D. Candidate of Dr. Wilson Lu), and Mr. Diandian Liu (Ph.D. Candidate of Dr. Wilson Lu) published a research paper:

Chen, K., Xu, G., **Xue, F.**, Zhong, R. Y., **Liu, D.**, and **Lu, W.** (2017). A Physical Internet-enabled Building Information Modelling System for Prefabricated Construction. *International Journal of Computer Integrated Manufacturing*. In Press. (SCI, IF=1.949)

Abstract: Prefabricated construction is believed to be energy conserving though opportunities for achieving higher energy efficiency have yet to be fully harnessed. From investigation of a prefabricated construction project in Hong Kong, two main problems have been revealed relating to energy consumption, including: i) inefficient management of resources such as labours and machines, and ii) inefficient production, transportation, and on-site assembly of prefabricated components. These problems are primarily caused by lagged information communication and human errors. This paper seeks to offer a solution by developing a Physical Internet-enabled Building Information Modelling System (PI-BIMS) that integrates Auto-ID technologies, BIM, and cloud computing. The PI-BIMS enables real-time collection, communication, and visualization of information across the processes of production, transportation, and on-site assembly. Practical issues of the system implementation are provided through a pilot prototype. It is found that the PI-BIMS helps enhance the resource allocation efficiency and decrease human errors. Thus, an alternative opportunity to improve energy efficiency in prefabricated construction has become possible.

1. Ms. Juan Du

- Invited Speaker at the Asia Pacific Housing Forum 6, September 2017, Organized by Habitat for Humanity. Topic of presentation is on Informal Housing in Hong Kong and Shenzhen, and Urban Ecologies Design Lab's research and community design "Project Home Improvement".
- Interviewed and quoted in Hong Kong newspaper Wen Hui Po, "Promoting Transformation of Subdivided Units - Enabling Dwellers to Become the Source of Urban Vitality", 31 July 2017. A18, by Chan Timchun. Article Featured Juan's research on Hong Kong's informal housing, and the Urban Ecologies Design Lab's research and community design "Project Home Improvement" (<http://pdf.wenweipo.com/2017/07/31/a18-0731.pdf>).



- Interviewed and quoted in CNN article of "Construction in China's 'Skyscraper Capital' Shows Little Sign of Slowing", 24 Jul 2017, by Christopher DeWolf. Article featured Juan's research on the history of tall building planning, design and construction in Shenzhen (<http://edition.cnn.com/style/article/shenzhen-skyscraper/index.html>).