

**PERRY PEI-JU YANG, PH.D.**

**ASSOCIATE PROFESSOR AND DIRECTOR OF ECO URBAN LAB**

**SCHOOL OF CITY AND REGIONAL PLANNING AND SCHOOL OF ARCHITECTURE**

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Design work: Eco Systems Design Studio (ESD): <http://www.studioesd.com>

Google scholar: <https://scholar.google.com/citations?user=xgr9J9MAAAAJ&hl=en>

## Biosketch

Perry Yang is an Associate Professor and Director of Eco Urban Lab of the School of City and Regional Planning and the School of Architecture at the Georgia Institute of Technology. Perry's work focuses on incorporating data analytics into urban design to improve ecological and energy performance of cities. He has published more than fifty articles and book chapters in this area from 2009, including a new book *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era* that he co-edited and co-authored six chapters in 2020 by Elsevier. He co-edited a 2019 theme issue *Urban Systems Design: From Science for Design to Design in Science* in *Environment and Planning B: Urban Analytics and City Science*, a prestigious journal in planning to explore new urban design research agenda and applications of emerging technologies, data analytics and urban automation to placemaking in the context of smart city movement. Beyond writing, Yang has been awarded more than ten prizes in international competitions continuously from 2005 in Asian cities, including the 2009 World Games Park at Kaohsiung, Taiwan, a project opened in July 2009 and featured by CNN as an "eco-friendly" venue. His urban design work was introduced in the January 2010 issue *Ecological Urbanism* at *World Architecture (WA)*, a leading architecture journal by Tsinghua University. His recent design projects were shortlisted in *the 2022 Asian Games Village* in Hangzhou in 2017, *the Musi River Revitalization* at Hyderabad in 2018, and two water town designs in China's Yangtze River Delta region in 2020-2021 during the pandemic. From 2017 to 2021, he has been involved in smart city projects in Japan, including one of Tokyo's 2020 Olympic sites at Urawa Misono, in collaboration with the University of Tokyo and Global Carbon Project (GCP).

Yang served as the endowed Bayer Chair Professor of UNEP Institute at Tongji University from 2014 to 2018. He is also a faculty fellow of the Brook Byers Institute for Sustainable Systems at Georgia Tech. He has served as a board member of the International Urban Planning and Environment Association (UPE) from 2007. He is a scientific committee member of International Conference on Applied Energy (ICAE), in which he served as a session chair of Urban Energy at ICAE from 2014 to 2019, and as a keynote speaker for the 2021 Applied Energy Symposium in September 2021. From 2019 to 2021, he serves as an advisor to the Mayor of Taipei for the City's smart city and urban data policy. Prior to joining the Georgia Tech faculty, he was a Fulbright Scholar and SPURS Fellow at MIT from 1999 to 2000, and an Assistant Professor of Architecture and Urban Design at the National University of Singapore from 2001 to 2008.

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**Perry Pei-Ju Yang, Ph.D.**  
**Associate Professor and Director of Eco Urban Lab**  
**School of City and Regional Planning and School of Architecture**

**I. Earned Degrees**

Ph.D. (Building & Planning), National Taiwan University, 2001  
MS (Urban Studies and Planning), Massachusetts Institute of Technology (MIT), 2000  
M.Sc. (Building & Planning), National Taiwan University, 1994  
B.Sc. (Agriculture Engineering/ Bioenvironmental Systems Engineering), National Taiwan University, 1991

**II. Employment History**

Associate Professor	School of City and Regional Planning and School of Architecture, College of Architecture, Georgia Institute of Technology, 2009 to Present
Director	Eco Urban Lab, College of Design, Georgia Institute of Technology, 2014 to Present
Assistant Professor	Department of Architecture, School of Design and Environment, National University of Singapore (NUS), 2001 to 2008
Fellow	Special Program for Urban and Regional Studies (SPURS), Department of Urban Studies and Planning, Massachusetts Institute of Technology (MIT), 1999 to 2001
Planner	Moh & Associates Inc. (MAA), 1997 to 1999

**III. Honors and Awards**

1. \*Advisor to the Mayor, the City of Taipei, from December 2019 to Present.
2. \*Brook Byers Institute for Sustainable Systems (BBISS) Faculty Fellow, Georgia Institute of Technology, from 2018 to Present.
3. \*Visiting Professor, College of Architecture and Urban Planning, Tongji University, Fall 2011 and again from January 2014 to Present.
4. \*Visiting Scholar, Department of Civil and Environmental Engineering, Hong Kong University of Science and Technology, from June 2019 to 2020.
5. \*Bayer Chair Professor, UNEP (United Nations Environment Program) - Tongji Institute of Environment for Sustainable Development, from 2014 to 2018 (as Covestro Chair Professor from 2016 since Bay Material Science was renamed Covestro)
6. The Fulbright Scholarship, 1999-2000, MIT

(Awards in International Design Competitions)

1. \*2021, The 3<sup>rd</sup> Prize, *Water Town International Urban Design Competition of Jiaxing Xiushui*, as the Chief Designer, in collaboration with Alan Balfour. (The 3<sup>rd</sup> prize out of 81 submissions. Other finalists include China Academy of Urban Planning and Design, Atkins, Turenscape).  
<https://www.linkedin.com/feed/update/urn:li:activity:6763512259609153536/>
2. \*2020, Finalist, *Future Shanshui City; Dwellings in Lishui Mountains International Urban Design Competition*, as the Chief Designer, in collaboration with CAI Yongjie. (As one of the 10 finalists out of 86 submissions. Other finalists include China Academy of Urban Planning and Design, DE-SO Asia, UN Studio Netherlands, Canada GA City Planning and Landscape Architecture...etc. The jurors included Nishizawa Ryue of 2010 Pritzker Prize winner, Alan Plattus of Yale University and other renowned urban scholars in China.)  
<https://www.archdaily.com/951429/champion-announced-for-future-shanshui-city-international-urban-design-competition>.
3. \*2018, Finalist, *International Design Competition of Musi River Revitalization*, organized by Musi Riverfront Redevelopment Corporation, the Government of Telangana, Hyderabad, India. (Yang was invited among ten international design teams including ARUP, Surbana Jurong Singapore and Turenscape.)  
<https://twitter.com/MinisterKTR/status/993714290279333888>
4. \*2017, The 1<sup>st</sup> prize, *the Contemporary Art Center Urban Design Competition, Guangzhou Nansha*, China, 2017, as the Chief Designer, in collaboration with South China Technology University Architecture Design Institute.  
(As one of the 6 finalists out of 60 entries, including Tsinghua University, Woods Bagot of Australia, HPP of Germany, Hassell of Australia and DP Architects of Singapore.)
5. \*2017, Finalist, *the International Competition of 2022 Asian Games Village Design*, Hangzhou, as the Chief Designer. (Invited as one of the eleven international design teams including ARUP, Atkins, Tsinghua University and firms from China, Germany, Netherlands, Austria and the U.S. Yang's design was ranked the 3<sup>rd</sup> Place.)  
<https://www.youtube.com/watch?v=v1Lj-QuK4FA>
6. \*2015, The 2<sup>nd</sup> Place, Kaohsiung Inner Harbor Revitalization Urban Design, Kaohsiung City Government, Taiwan (Other entries include AECOM and MVRDV.)
7. \*2012, The 1<sup>st</sup> place in planning competition: *Taipei's "Manhattan" project: Waterfront revitalization strategy along Taipei Danshui River*, organized by Bureau of Urban Development, Taipei Municipal Government.
8. \*2011, The 1<sup>st</sup> prize, *the Campus Planning Competition of Beijing Information Technology University*, as the Chief Designer, in collaboration with Beijing Urban Engineering Design Institute. (The 1<sup>st</sup> prize out of 11 final entries, including prestigious design institutes of the region: Tsinghua University, Tongji University and South China University of Technology.)

August 31, 2021

9. \*2011, Finalist, urban design competition at the City West of Zhuhai, China's Special Economic Development Zone, as the Chief Designer, in collaboration with Guangdong Urban and Rural Planning Institute.
10. \*2010, The 1<sup>st</sup> Prize, *International Design Competition of Shunde Green Heart Design*, Guangdong China, 2010, as the Chief Designer.  
(As one of the two awarded winners out of 36 entries, to share the 1st prize with Turenscape.)
11. \*2010, The 2<sup>nd</sup> Prize, international design competition of *Hangzhou Bay New District*, Ningbo City China, as the Chief Designer, in collaboration with Tongji University.  
(Out of 63 entries)
12. 2008 Finalist, international competition of *Tangshan Core City District Urban Design*, as the Chief Designer, in collaboration with Sun Yet Sen University. (Other finalists include EDAW (now AECOM) and AUS, Australia).
13. 2008 Finalist, international urban design competition of *Guangzhou's White Swan Waterfront Revitalization*, as the Chief Designer, in collaboration with Guangdong Urban and Rural Planning Institute. (Other finalists include EDAW (now AECOM), Tongji University, Shanghai Urban Planning Institute, South China University of Science and Technology.)
14. 2008 The 1st prize, international design competition of *Shuidong Bay Urban Design*, Maoming, Guangdong China, as the Chief Designer, in collaboration with Guangdong Urban and Rural Planning Institute.
15. 2007 The 1<sup>st</sup> prize, *International Design Competition of Eco-City, 'Xiamen's New Downtown at Maluan Bay*, 2007, as the Chief Designer, in collaboration with Xiamen Planning and Design Institute. (Other final entries include Nikken Sekkei of Japan and Urban Design International Co Ltd of Hong Kong).
16. 2005 The 1<sup>st</sup> prize, international design competition of *the 2009 World Games Park*, Kaohsiung, Taiwan, as the Chief Planner, in collaboration with MAA (Taipei) and COX + Peter Droege (Sydney). (Other finalists include Richard Rogers Partnership, Mott MacDonald Ltd, ARUP, Taiwan Engineering Consultants Group and Jones Lang LaSalle. The Games opened in July 2009 that was featured by CNN as an "eco-friendly venue".)

#### **IV. Research, Scholarship, and Creative Activities**

##### **A. Published Books, Book Chapters, and Edited Volumes**

###### **A1. Books**

1. \*Wang, Yi, Huang, Linling, Yang, Perry P. J., 2019, *Ecological Urban Design: Strategic Thinking of Chongming Ecological Island* (in Chinese), Tongji University Press.

2. \*Yang, Perry P. J., 2010, *Ecological Urbanism: Scale, Flow and Design* (in Chinese), China Architecture and Building Press.

## A2. Refereed Book Chapters

1. \*Yang, Perry P. J., 2020, Urban Energy Systems Design: A Research Outline, in *Energy Efficiency*, edited by Henry Kelly, World Scientific Publications
2. \*Yang, Perry P. J., Yamagata, Y., 2020, Chapter One - Urban Systems Design: Shaping Smart Cities by Integrating Urban Design and Systems Science, in *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era*, Yamagata and Yang eds., Elsevier. (as the corresponding author).
3. \*Yamagata, Y., Yang, Perry P. J., **Chang, Soowon., Tobey, Michael B., Binder, Robert B.,** Fourie, P. J., Jittrapirom, P., Kobashi, T., Yoshida, T., Aleksejeva, J., 2020, Chapter Two - Urban Systems and the Role of Big Data, in *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era*, Yamagata and Yang eds., Elsevier.
4. \***Chang, Soowon.**, Yang, Perry P. J., Yamagata, Y., **Tobey, Michael B.**, 2020, Chapter Three - Modeling and Design of Smart Buildings, in *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era*, Yamagata and Yang eds., Elsevier. (as the corresponding author)
5. \***Chang, Soowon., Tobey, Michael B., Saha, Nirvik,** Yamagata, Y., Yang, Perry P. J., 2020, Chapter Four - Smart Urban Buildings of Communities, in *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era*, Yamagata and Yang eds., Elsevier. (as the corresponding author)
6. \***Binder, Robert B., Tobey Michael B.,** Jittrapirom, P., **Steidl, Paul,** Yamagata, Y., Yang, Perry P. J., 2020, Chapter Five - Integrating Mobility in Urban Design, in *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era*, Yamagata and Yang eds., Elsevier. (as the corresponding author)
7. \*Yamagata, Y., Yoshida, T., Yang, Perry P. J., **Chen, Helen W.**, Murakami, D., Ilmola, L., 2020, Chapter Twelve - Measuring Quality of Walkable Urban Environment through Experiential Modeling, in *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era*, Yamagata and Yang eds., Elsevier.
8. \*Yang, Perry P. J., **Chen, Helen W., Chang, Soowon,** 2020, A geodesign model for smart campus design in Shenzhen, in *The International Geodesign Collaboration*, Thomas Fisher, Brian Orland and Carl Steinitz eds., Environmental Systems Research Institute (ESRI).
9. \*Yang, Perry P J, **Wu, Yihan,** Peng, Z, Li, Lisha, **Tobey, Michael B.**, Yamagata, Yoshiki, 2018, Performance-based model for vertical urbanism, in *Vertical Urbanism: Designing Compact Cities in China*, Lin Z & Gamez J eds. Routledge.

10. \*Yang, Perry P J, **Quan, Steven J.**, 2016, Urban form and energy resilient strategies: A cast study of the Manhattan grid, in *Urban Resilience – A Transformative Approach*, Yoshiki Yamagata and Hiroshi Maruyama eds., Springer.
11. \***Quan, Steven. Qi, Li**, Godfried, Augenbroe, Brown, Jason, Yang Perry P. J., 2015, Urban Data and Building Energy Modeling: A GIS-based Urban Building Energy Modeling System Using the Urban-EPC Engine, in *Planning Support Systems and Smart Cities*. Stan Geertman, Joseph Ferreira, Jr. Robert Goodspeed, John Stillwell eds., Springer. (as the corresponding author)
12. \*Yang, Perry P. J., 2014, Energy resilient urban planning, in *Geodesign by Integrating design and geospatial sciences*, Lee D and Dias E, Scholten H eds., Springer.
13. \*Yang, Perry P. J., 2013, Landscape ecology and its urbanism” in *Landscape Urbanism and its Discontents: Dissimulating the Sustainable City*. Andres Duany and Emily Talen eds., Island Press.
14. \*Yang, Perry P. J., 2013, Hydrological effects of urban form and landscape change, in *Planning stormwater resilient urban open spaces*, vol. 3, F.D. Moccia and M.F. Palestino eds. Clean, Napoli.
15. \***Quan, Steven. J., Minter, John**, Yang, Perry P. J., 2013, A GIS-based performance metrics for designing a low energy urban agriculture system, in *Planning Support Systems for Sustainable Urban Development*. Stan Geertman, Fred Toppen, John Stillwell eds., Springer. (as the corresponding author)
16. \*Yang, Perry P. J., **Lew, Seng How**, 2009, An Asian model of TOD – the planning integration and institutional tools in Singapore, in *Transit-Oriented Development: Making It Happen*, edited by Carey Curtis, John Renne, Luca Bertolini, Ashgate Publishing Ltd.
17. Yang, Perry P. J., 2008, Tracking Sustainable Urban Forms and Material Flows in Singapore, in *World Cities and Urban Form: Fragmented, Polycentric, Sustainable?* edited by Mike Jenks, Daniel Kozak and Pattaranan Takkanon, Routledge.
18. Yang, Perry P. J., 2005., From central business district to new downtown: designing future downtown urban form in Singapore, in *Future Forms and Design for Sustainable Cities*, edited by Jenks, Mike. London: Architectural press.
19. Yang, Perry P. J., **Li, Ze**, 2005, Two Asian models of planning decision making: Case Studies of the Planning Process in Singapore new downtown and Kaohsiung multifunctional business district, in *Reconstructing Communities: Design Participation in the Face of Change*, edited by Jeffrey Hou, Mark Francis, Nathan Brightbill. Davis: Reprographics, University of California, Davis.
20. Yang, Perry P. J., Johnson, Marshall., 1994, Participatory Design, Project in Sanchung, Taiwan, in *Ecological Practice and Public Health: From Vision to Practice*, edited by Chu,C and Simpson, R. Toronto: University of Toronto.

### A3. Edited Volumes

1. Yamagata, Y., Yang, Perry P. J. eds., 2020, *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era*, Elsevier.

## B. Refereed Publications and Submitted Articles

### B1. Published and Accepted Journal Articles

1. \*Yang, Perry P. J., **Chang, Soowon, Saha, Nirvik, Chen, Helen W.**, 2020, Data-driven Planning Support System for a Campus Design, in *Environment and Planning B: Urban Analytics and City Science*, 2020.
2. \***Quan, Steven. J.**, Economou, Athanassios, Graslb, Thomas, Yang, Perry P. J., 2020, An exploration of the relationship between density and building energy, *Urban Design International*, **25**:92–112 (as the corresponding author)
3. \*Yang, Perry P. J., Yamagata, Y., 2019, Editorial, Urban Systems Design: From Science for Design to Design in Science, in *Environment and Planning B: Urban Analytics and City Science*, Vol. 46(8) 1381–1386.
4. \***Chang, Soowon, Saha, Nirvik**, Castro- Lacouture, Daniel, Yang, Perry P. J., 2019, Multivariate relationships between campus design parameters and energy performance using reinforcement learning and parametric modeling, in *Applied Energy* 249, 253-264. (as the corresponding author)
5. \***Tobey Michael. B., Binder, Robert. B., Chang, Soowon.**, Yoshida T., Yamagata Y., Yang, Perry P.J., 2019, Urban Systems Design: A Conceptual Framework for Planning Smart Communities, *Smart Cities* 2 (4), 522-537.
6. \***Chen J.**, Peng Z., Yang, Perry P. J., 2019, The Energy Performance Evaluation of Roof Retrofit Under Uncertainties for the Shanghai's Worker Village, *Energy Procedia* 158, 3170-3176
7. \***Lancaster Z. S., Binder R. B.**, Matsui K., Yang, Perry P. J., 2019, Developing a theory of an object-oriented city: Building energy for urban problems, *Energy Procedia* 158, 4210-4217
8. \***Chang S., Saha N.**, Castro-Lacouture D., Yang, Perry, P. J., 2019, Generative design and performance modeling for relationships between urban built forms, sky opening, solar radiation and energy, *Energy Procedia* 158, 3994-4002
9. \*Yamagata, Y., Murakami D., **Wu, Y.**, Yang, Perry P. J., Yoshida, T., **Binder, Robert. B.**, 2019, Big-data analysis for carbon emission reduction from cars: Towards walkable green smart community, *Energy Procedia* 158, 4292-4297



10. \*Yang, Perry P. J., Chi, Cheryl S. F., **Wu, Yihan.**, **Quan, Steven. J.**, 2018, A Geodesign method of human-energy-water interactive systems for urban infrastructure design: 10KM2 near zero district project in Shanghai, in *Engineering* 4 (2018) 182-189.
11. \*Yang, Perry P. J., **Quan, Steven. J.**, Castro- Lacouture, Daniel, Stuart, Ben, 2018, A Geodesign method for managing a closed-loop urban system through algae cultivation, in *Applied Energy* Vol. 231, 1372-1382.
12. \***Wu Y.**, Sharifi A., Yang, Perry P. J., Borjigin, H., Murakami D., Yamagata Y., 2018, Mapping building carbon emissions within local climate zones in Shanghai. *Energy Procedia* 152, 815-822
13. \***Pandit, Arka**, Minn, Elizabeth A., Li, Feng, Brown, Hillary, Jeong, Hyunju, James, Jean - Ann C., Newell, Joshua P, Weissburg, Marc, Chang, Michael E, Xu, Ming, Yang, Perry, Wang, Rusong, Thomas, Valerie M., Yu, Xuwei, **Lu, Zhongming**, Crittenden, John C., 2017, Infrastructure ecology: an evolving paradigm for sustainable urban development, in *Journal of Cleaner Production*: 163, S19-S27.
14. \*Peng Zhikai, Jia Lingkun, Li Lisha, **Quan, Steven. J.**, Yang, Perry P. J., 2017, How the roofing morphology and housing form affect energy performance of Shanghai's workers' village in urban regeneration. *Energy Procedia*, 142, 3075-3082.
15. \***Chang, Soowon**, Castro-Lacouture, Daniel, **Dutt, Florina**, Yang Perry P J, 2017, Framework for evaluating and optimizing algae façades using closed-loop simulation analysis integrated with BIM, *Energy Procedia*, 143, 237-244.
16. \***Quan, Steven J, Igou, Thomas K, Chang, Soowon, Dutt, Florina**, Castro-Lacouture, Daniel, Yang, Perry P J, 2017, Decentralized algal energy system design at various urban densities and scales, *Energy Procedia*, 143, 767-773.
17. \*Yang, Perry P. J., Wiedenback, Annette, **Tobey, Michael, Wu, Yihan.**, **Quan, Steven. J.**, Chauhan, Yugendra, Wu, Jiang, 2017, Material Based Urban Modeling: An Approach to Integrate Smart Materials in a Near-Zero Community Design. *Energy Procedia*, Vol 105, 3765 – 3771.
18. \***Quan, Steven. J., Dutt, Florina, Woodworth, Erik**, Yamagata, Yoshiki. & Yang, Perry P. J., 2017, Local Climate Zone Mapping for Energy Resilience: A Fine-grain and 3D Approach. *Energy Procedia*, Vol 105, 3777-3783. (as the corresponding author)
19. \***Dutt, Florina., Quan, Steven. J., Woodworth, Erik.**, Castro-Lacouture, Daniel., Stuart, Ben. J. & Yang, Perry P. J., 2017, Modeling algae powered neighborhood through GIS and BIM integration. *Energy Procedia*, Vol 105, 3830-3836. (as the corresponding author)
20. \***Tobey, Michael, Quan, Steven. J.**, Yang, Perry P. J., 2017, Multi-Disciplinary Design Optimization of Mixed-Use Structure and Energy Performance. *Energy Procedia*, Vol 105, 3791-3797. (as the corresponding author)

21. \***Li, Zhengwei, Quan, Steven J.**, Yang, Perry P. J., 2016, Energy performance simulation for planning a low carbon neighborhood urban district: A case study of Macau, in *Habitat International*, 04; 53: 206-214. (as the corresponding author)
22. \***Zhou, Yinan**, Tao, Xinyu, Yang, Perry. P. J., 2016, A simulation-based research on passive district, accepted by *Energy Procedia*, Vol 104, 257-262. (as the corresponding author)
23. \*Yang, Perry P. J., Yan, Jinyue, 2016, Modeling Urban Design with Energy Performance, in *Energy Procedia* 88 (2016) 3 – 8.
24. \***Quan, Steven J.**, Wu, Jiang, **Shi, Zhongming, Yang, Tianren**, Wang, Yi, Yang, Perry P. J., 2016, Urban Form and Building Energy Performance in Shanghai Neighborhoods, in *Energy Procedia*. Vol 88, 126-132. (as the corresponding author)
25. \*Yang, Perry P. J., 2015, Energy Resilient Urban Form: A Design Perspective, in *Energy Procedia* 75: 2922-2927.
26. \***Quan, Steven J, Qi, Li**, Godfried, Augenbroe, Brown, Jason, Yang, Perry P. J., 2015, A GIS-based Energy Balance Modeling System for Urban Solar Buildings. in *Energy Procedia* 75, 2946-2952. (as the corresponding author)
27. \*Yang, Perry P. J., **Quan, Steven. J.**, Castro- Lacouture, Daniel, Rudolph, Charles, Stuart, Ben, 2014, Performance metrics for designing an algae-powered eco urban district: A Geodesign perspective, in *Energy Procedia* 61, 1487 – 1490.
28. \***Quan, Steven. J.**, Economoua, Athanassions , Grasl, Thomas., Yang, Perry P. J., 2014, Computing energy performance of building density, shape and typology in urban context, in *Energy Procedia* 61, 1602 – 1605. (as the corresponding author)
29. \*Yang, Perry P. J., 2012, Complexity Question in Urban Systems Design, in *Journal of Architectural Engineering Technology*, editorial, Vol. 1, Issue 2, 1-2.
30. \*Yang, Perry P. J., 2009, Questioning urban sustainability: social sufficiency, ecological efficiency and ecosystems compatibility. *Journal of Urbanism*, Vol. 2, Issue 3, 187-189.
31. Yang, Perry P. J., **Putra, Simon. Y., Chaerani, Meutia**, 2007, Computing the Sense of Time in Urban Physical Environment, *Urban Design International*. 12, 115-129.
32. Yang, Perry P. J., **Putra, Simon Y., Li Wenjing**, 2007, Viewsphere: GIS-based 3D visibility analysis for urban design evaluation. *Environment and Planning B: Planning and Design*, Vol.34, 971-992.
33. Yang, Perry P. J., Ong, Boon Lay, 2004, Applying ecosystem concepts to the planning of industrial areas: a case study of Singapore's Jurong Island. *Journal of Cleaner Production*, 12, 1011-1023.

(Articles published in Chinese)

34. \*Yang, Perry P. J., 2019, Ecological Urban Design Driven by Energy Issues, in *Taiwan Construction News Record*, **438**: July, 2019: 38-45, Taiwan Construction Research Institute.
35. \*Yang, Perry P. J., Yan J., 2019, Energy Performance of Resilient Urban Design, in *Taiwan Construction News Record*, **434**: March, 2019: 53-58, Taiwan Construction Research Institute.
36. \*Yang, Perry P. J., 2019, Carbon Emission Measure for Resilient Urban Design, in *Taiwan Construction News Record*, **432**: January, 2019: 46-52, Taiwan Construction Research Institute.
37. \*Yang, Perry P. J., 2018, Hydrological Issues in Resilient Urban Design, in *Taiwan Construction News Record*, **429**: January, 2018: 43-50, Taiwan Construction Research Institute.
38. \*Yang, Perry P. J., 2014, Eco Area Ratio: Energy performance assessment and reduction approach for urban redevelopment in high-density environment, in *Urban Planning Forum*, Vol.03, 91-100.
39. \*Yang, Perry P. J., Chung, Zora Y. C., Tsai, Casey C. J., 2014, Pluralistic and Spatial Strategy of Urban Waterfront Revitalization, in *New Architecture*, **03**, 8-11.
40. \*Yang, Perry P. J., **Li Zhengwei**, 2013, Carbon emission assessment for Central City Districts of Macau, *Planner*, Vol. 03, 08-32.
41. \*Yang, Perry P. J., 2011, From ecocity Taipei to the third ecology proposition and its design approaches, in *Journal of Building and Planning*, National Taiwan University. Number 18, Dec. 2011, Research article, 1-18.
42. \*Tian, Li, Yang, Perry P. J., Dong, Hengping, Liu, Yang, 2011, Comparisons Between Planning Education of China and the USA under the Global Financial Crisis and Sustainable Development, *Urban Planning International*, 2011 Vol.26, No.2, 102-108.
43. \*Yang, Perry P. J., 2010, Ecological Urbanism: Five Dimensions in Design, in Special Issue "Ecological Urbanism", *WA (World Architecture)*, Tsinghua University, **01**, 22-27.
44. \*Yang, Perry P. J., 2010, Landscape as Flows: An Ecological Design Approach to Large-scale Urban Landscape, in Special Issue "Ecological Urbanism", *WA (World Architecture)*, Tsinghua University, **01**, 80-84.
45. \*Yi, W., Yang, Perry P. J., 2010, Urban as the Second Nature: Conceptual Urban Design of Hulunbeir New District, *WA (World Architecture)*, Tsinghua University, **09**, 143-145.
46. Yang, Perry P. J., 2006, Regional-scale Urbanization and its Ecological Effects: An Application of Geographic Information System, in *Modern Urban Research*, **4**, 27-34.

47. Yang, Perry P. J., 2006, Ecological design in high-density urban environment, in *Modern Urban Research*, 1, 15-24.
48. Yang, Perry P. J., Ong, Boon Lay, 2005, From eco-system theory to the planning of eco-industrial park, in *Modern Urban Research*, 11, 44-55.
49. Yang, Perry P. J., 2005, Applying landscape ecology to urban planning and analysis, in *Modern Urban Research*. 09, 32-44.
50. Yang, Perry P. J., Wang, Hung-Kai, 2005, Eco-city master planning: a planning framework of Taipei eco-city, in *Modern Urban Research*, 07, 16-25.
51. Yang, Perry P. J., 2005, Downtown design: Asian experience of Singapore, in *City Planning Review*, Vol. 3, 2005.
52. Yang, Perry P. J., 2005, Historical Evolution of Ecological Planning in Foreign Countries. In *Modern Urban Research*, 2-3, 05: 27-37.
53. Yang, Perry P. J., Li Z., Lin C. R. Three Asian Models of Downtown Planning Decision Making, *City Planning Review*, Urban Planning Society of China, accepted for publication.

(Book Review)

1. \*Yang, Perry P. J., 2019, review of "Changing Chinese Cities: The Potentials of Field Urbanism. By Renee Y. Chow, University of Hawaii Press, 2015". 185 pp, in *China Review International*: Vol. 24, No. 2, 2017 (A review article, printed in 2019, University of Hawaii Press)
2. Yang, Perry P. J., 2007, review of "Enduring Innocence: Global Architecture and its Political Masquerades, Author: Keller Easterling, MIT Press, 2005", *Journal of Architectural Education*, 02. 54-55.
3. Yang, Perry P. J., 2006, review of "Digital Ground: Architecture, Pervasive Computing and Environmental Knowledge, Author: Malcolm McCullough, MIT Press, 2004", *Environment & Planning B: Planning and Design*, Vol 33, 793-795.

**B2. Conference Presentation with Proceedings (Refereed)**

1. \*Yang, Perry P. J., **Chang, Soowon, Chen, Helen W.**, 2019, Data-driven Campus Design Support Systems, \*invited speaker, in *CUPUM 2019 - the 16<sup>th</sup> International Conference on Computers in Urban Planning and Urban Management*, July 8-12, 2019, Wuhan.
2. \*Yang, Perry P.J., Yoshida T., Yamagata Y., **Chen, Helen W.**, 2019, Computing Sequential Experiences of an Urban Street Using Deep Learning Technique, in *the 2nd International Conference on Urban Informatics (ICUI)*, June 24-26, 2019, Hong Kong Polytechnic University, Hong Kong.

3. \***Jia, Lingkun**, Huang Y., Yue Z., Yang, Perry P.J., 2019, Re-discussion and Correction of Shape Coefficient for Residential Buildings, *International Conference on Building Energy Conservation, Thermal Safety and Environmental Pollution Control*, E3S Web of Conferences 136, 04096. doi.org/10.1051/e3sconf/201913604096
4. \*Yang, Perry P.J., 2019, Design-driven Urban Design: a framework to integrate data visualization, modeling and design, in *the 13th annual conference of the International Association for China Planning (IACP)*, June 14-16, 2019, Chengdu.
5. \*Yamagata, Y., Yoshida, T., Matsui, H., Yang, Perry P.J., **Chen, Helen W.**, 2019, Experiential modelling of urban street: a combining approach with neural image assessment and street experiment, in the *2019 GeoComputation*, September 18-21, 2019, Queenstown, New Zealand.
6. \*Yang, Perry P.J., Yamagata, Yoshiki, Murayama, Akito, Matsui, Kanae, 2018, Transforming the social and ecological landscape of an inner-city neighborhood: A test case of Tokyo's Kyojima smart city project, in *Great Asian Street Symposium: Emerging Civic Urbanism/Designing for Social Impact*, organized by Pacific Rim Community Design Network and National University of Singapore, Singapore, December 14-16, 2018.
7. \*Yang, Perry P.J., **Tobey, Michael**, 2017, The Material Dimension of an Urban Neighborhood Design: A Hierarchy Approach, *The 9th biennial conference of the International Society for Industrial Ecology (ISIE)*, June 25-29, Chicago.
8. \***Quan, Steven J.**, Yang, Perry P.J., 2016, An exploration of the relationship between density and building energy performance, *ACSP 56th Annual Conference*, November 3-6, 2016, Portland, Oregon.
9. \*Yang, Perry P. J., Chi, Cheryl S. F., **Wu, Yihan. Quan, Steven J.**, 2016, A Geodesign model of human-energy-water interactive systems for urban infrastructure design. *INTERNATIONAL CONFERENCE ON SUSTAINABLE INFRASTRUCTURE — ICSI 2016*, Shenzhen, China, 2016.
10. \*Chi, Cheryl S. F., Yang, Perry P. J., 2016, Building a resilient and integrated urban infrastructural system through a near zero agenda, *Proceedings of the Engineering Project Organization Conference*, Cle Elum, WA, June 28-30, 2016.
11. \*Yang, Perry P J, Yamagata, Yoshiki, 2016, Modeling high-density urban form for resilient system design – A case study of Manhattan and Tokyo, in *UPE12 (the 12th International Urban Planning and Environment Association)*, *Cities for us: engaging communities and citizens for sustainable development*, Lisbon, May 30 – June 4, 2016.
12. \*Wu, Jiang., **Li, Zhenwei., Quan, Steven Jige.**, Wang, Yi. & Yang, Perry P.-J., 2016, Benchmarking Energy Performance for Historical Urban Form of Shanghai Neighborhoods. *ISUF 2016 XXIII International Conference: Urban Morphology and the Resilient City*, Nanjing, China, Aug. 2016.
13. \***Zhou, Yinan**, Chi, Cheryl S. F, Yang, Perry P. J., 2016, Energy-efficient urban design driven

by multi-disciplinary design optimization, *ISUF 2016 XXIII International Conference: Urban Morphology and the Resilient City*, Nanjing, China, Aug. 2016.

14. \*Cai, Yongjie, Man, Shan, Fan, Zijing, Johnson, Marshall, Yang, Perry P.-J., 2016, Rural settlement form under the influence of the equality policy - A Case Study of Chongming Eco-Island in Shanghai, *ISUF 2016 XXIII International Conference: Urban Morphology and the Resilient City*, Nanjing, China, Aug. 2016.
15. \***Quan, Steven J., Qi Li**, Godfried, Augenbroe, Brown, Jason, Yang Perry P. J., 2015, Urban Data and Building Energy Modeling: A GIS-based Urban Building Energy Modeling System Using the Urban-EPC Engine, in CUPUM 2015- 14th International Conference on Computers in Urban Planning and Urban Management, MIT, Cambridge, July 7-10, 2015.
16. \***Li, Qi, Quan, Steven J.**, Augenbroe, Godfried, Yang, Perry P J, Brown Jason, 2015, Building energy modeling at urban scale: integration of reduced order energy model with geographical information. *Building Simulation 2015*.
17. \*Yang, Perry P. J., 2014, How does the urban block structure affect energy performance and carbon emission? Benchmarking three downtown urban districts, in *the 54<sup>th</sup> Annual Conference of ACSP*, Philadelphia, October 30 – November 2, 2014.
18. \*Yang, Perry P. J. **Quan, Steven. J.**, 2014, Benchmarking Energy Performance of Asian Downtown Urban Blocks: Shanghai, Taipei and Tokyo, in *Inter-University Seminar on Asian Megacities (IUSAM): Smart Urbanism for Asian Mega Cities*, Hanyang University, Seoul, August 27-30, 2014
19. \*Castro- Lacouturea, Daniel, **Quan, Steven. J.**, Yang, Perry P. J., **Marshall, Tyron**, 2014, Holistic Framework for Integrating Urban Systems, Waste Stream and Algal Cultivation in Residential Construction, in *ISARC2014 – The International Symposium on Automation and Robotics in Construction and Mining*, Sydney, Australia, July 9-11, 2014.
20. \*Yang, Perry P. J., **Quan, Steven. J.**, Castro- Lacouturea, Daniel, Rudolpha, Charles, Stuart, Ben, 2014, GIS-based Planning Support System for Waste Stream and Algal Cultivation in Residential Construction in *2014 Construction Research Congress*, Georgia Institute of Technology, Atlanta, May 19-21, 2014.
21. \*Pandit, A., Bras, B., Minne, E. A., Dunham-Jones, E., Augenbroe, G., Jeong, H., James, J.-A. C., Newell, J. P., Weissburg, M., Brown, M. A., Chang, M. E., Xu, M., Begovic, M. M., Yang, Perry P. J., Fujimoto, R. A., French, S. P., Thomas, V. M., Yu, X., Chen, Y., Lu, Z., Crittenden, J. C., 2014, Infrastructure Ecology: An Evolving Paradigm for Sustainable Urban Development, in *106<sup>th</sup> National American Planning Association Conference*, Atlanta, April 26-30, 2014.
22. \*Yang, Perry. P. J., 2013, Eco Area Ratio: A carbon mitigation tool for urban redevelopment in the City of Taipei, in *the 12<sup>th</sup> International Congress of Asian Planning Schools Association (APSA)*, National Taiwan University, Taipei, November 1-2, 2013.
23. \*Yang, Perry. P. J., Lin Chin-Rong, 2013, Greening an Industrial Port City: 2009 World

- Games and Its Urban Impact, in *Olympic Legacies: International Conference, Impacts of Mega-Events on Cities*, London, September 4-6, 2013.
24. \*Yang, Perry P. J., 2013, Eco Area Ratio (EAR): An energy performance tool for densification problem in Taipei, in *Asian Urbanism and Beyond: Inter-University Seminar on Asian Megacities*, Chinese University of Hong Kong, Hong Kong, August 15-17, 2013.
  25. \***Quan, Steven. J., Minter, John**, Yang, Perry P. J., 2013, A GIS-based performance metrics for designing a low energy urban agriculture system, in *Computer for Urban Planning and Urban Management (CUPUM)*, Utrecht, Netherlands, July 2-5, 2013. (The article was also published as a book chapter, Springer).
  26. \*Yang, Perry P. J., 2012, Ecological Urbanism Studio: Global Benchmarking for Low Carbon Urban Design, peer-reviewed and selected under the category “project” and published in *Digital Aptitudes + Other Openings: the 100th ACSA (Association of Collegiate Schools of Architecture) Annual Meeting*, organized by MIT, Boston, March 1-4, 2012.
  27. \***Li, Zhengwei**, Yang, Perry P. J., 2011, Simulation Driven Low Carbon Built Environment, in *The World Congress on Engineering and Technology (CET2011)* and *The 2011 International Conference on Sustainable Development (CSD)*, Shanghai, October 2011.
  28. \*Yang, Perry. P. J., Ma, Xiangming, 2010, Ecological Urbanism: A Brief Review of Ecocity Models, in *the 9<sup>th</sup> Symposium of International Urban Planning and Environment Association (UPE9): Rapid Urbanization, Global Recession and Climate Change*, Guangzhou, August 3-6, 2010.
  29. \*Yang, Perry P. J., 2010, From Ecology in Urbanism to Ecology of Urbanism”, in *the 4<sup>th</sup> International Association for China Planning (IACP)*, Tongji University, Shanghai, China, June 19-21, 2010.
  30. \*Yang, Perry P. J., Ma, Xiangming, 2009, Eco-City Planning Hypothesis – A test case in Guangzhou’s Nansha”, *International Conference on Urban and Regional Planning in Transitional China, the 3<sup>rd</sup> International Association for China Planning (IACP)* Nanjing, China, June 21-23, 2009,.
  31. \*Yuan, Qifeng, Yang, Perry. P. J., 2009, Transit Oriented Development of Guangzhou Mega City-- A Spatial and Institutional Analysis, in *the 8<sup>th</sup> Symposium of the International Urban Planning and Environment Association (UPE8): Parallel Patterns of Urban Growth and Decline: Sustainability Issues and Challenges for Spatial Planning in 21<sup>st</sup> Century Cities and Regions*, University of Kaiserslautern, Germany, March 23-26, 2009.
  32. \*Tian, Li, Yang, Perry P. J., 2009, Dilemma between Regulatory Planning and Incentive Planning --Comparisons of Planning Education between China and USA, in *2009 CPN-ACSP Urban Planning Education Roundtable*, Beijing, June 15-17, 2009.
  33. Yang, Perry, P. J., 2008, Landscape ecology approach to new downtown design: A case study of Xiamen’s Maluan Bay. Presented at *the third International Conference on China’s Urban Development and Planning and the Second International Association for China*

*Planning (IACP) Conference: Langfang, Beijing, China, 2008.*

34. Yang, Perry P. J., 2007, Multiscale Assessment of Urban Environmental Performance -- An Approach to Measuring Sustainable Urban Forms and Material Flows, in *UPE7 - The 7th International Conference on Urban Planning and Environment*, Bangkok, Thailand. January 3-5, 2007.
35. Yang, Perry P. J., 2006, The second nature, third ecology and approaches to eco-city design, in *the 4th Great Asian Streets Symposium: Reclaiming the City*, Singapore, 6<sup>th</sup> – 8<sup>th</sup> Dec 2006.
36. Yang, Perry P. J., 2006, Tracking Sustainable Urban Form and Flow: A Landscape Ecological Analysis of Singapore's Environmental Change, in *2006 International Forum of Urbanism (IFoU)*, Tsinghua University, Beijing, October 18-29, 2006.
37. **Li, Ze**, Yang, Perry P. J., 2006, The Interplay of Institutional Changes and Urban Transformation: Case Study of Shanghai after 1978, in *2006 International Forum of Urbanism (IFoU)*, 2006, Tsinghua University, Beijing, October 18-29.
38. Yang, Perry P. J., **Putra, Simon Y.**, 2006, Design Support System for Sustainable Urban Development: Integrated framework of urban modeling, spatial-environmental analysis and decision-making, in *the Twelfth Annual International Sustainable Development Research Conference*, Hong Kong University, Hong Kong, April 6 - 8, 2006.
39. **Putra, Simon Y.**, Yang, Perry P. J., **Li, Wenjing**, 2005, GIS-based 3D visibility analysis for high-density urban living environment, in *the Fifth China Urban Housing Conference: Human Settlement and Housing Development under Urbanization Process*, Chinese University of Hong Kong, proceeding published by China Architecture and Building Press. November 24-26, 2005.
40. Yang, Perry P. J., 2005, Ecological design in high-density urban living environment, in *the Fifth China Urban Housing Conference: Human Settlement and Housing Development under Urbanization Process.*, Chinese University of Hong Kong, proceeding published by China Architecture and Building Press, November 24-26, 2005.
41. Yang, Perry P. J., **Li, Ze**, 2005, Revitalization of water edge in two Asian port cities: an investigation of the morphological changes of waterfront area in Shanghai and Singapore, in *mAAN (Modern Asian Architecture Network) the 4th International Conference: Safeguarding and Revitalizing Local Heritage*, Tongji University, Shanghai, October 28-30, 2004.
42. **Putra, Simon Y.**, Yang Perry P. J., 2005, Impacts of density on design strategies and visual quality of urban space, in *Empowering People Through Geospatial Information*, Map Asia 2005, Jakarta, Indonesia, August 22-25, 2005.
43. Yang, Perry P. J., **Li, Ze**, 2005, Two Asian Models of Downtown Planning Decision Making: Case Studies of Singapore's New Downtown and Shanghai's City Central Area, in *the 6th International Symposium on Asian Pacific Architecture: Asian Mega Project*, Tongji



University, Shanghai, June 9 - 11, 2005.

44. Yang, Perry P. J., **Putra, Simon Y.**, Heng, Chye Kiang, 2004, Computing the "sense of time" in Singapore urban streets, in *the 3rd Great Asian Streets Symposium (GASS): A Public Forum of Asian Urban Design*, National University of Singapore, Singapore, December 6-7, 2004.
45. **Li, Wenjing, Putra, Simon Y.**, Yang, Perry P. J., 2004, GIS analysis for the climatic evaluation of 3D urban geometry: the development of GIS analytical tools for sky view factor, in *the 7th International Seminar on GIS for Developing Countries (GISDECO 2004): GIS Capacity Building and Infrastructure*, UTM, Johor, Malaysia, May 10 -12, 2004.
46. Yang, Perry P. J., **Li, Ze**, 2004, Two Asian models of planning decision making - case studies of the planning process in Singapore New Downtown and Kaohsiung Multifunctional Business District, in *the 5th Pacific Rim Participatory Community Design Conference*, University of Washington, Seattle, September 2-5, 2004.
47. **Li, Wenjing, Putra, Simon Y., Li, Ze**, Yang, Perry P. J., 2004, Climatic performance of 3D urban geometry, in *the 6th Symposium of the International Urban Planning and Environment Association (UPE6): Global Pressure on Local Autonomy: Challenges to Urban Planning for Sustainability and Development*, University of Louisville, Louisville, September 4-8, 2004.
48. Yang, Perry P. J., 2004, Transformation of the waterfront settings through urban concepts- experiences of Singapore's waterfront design and development since 1960s, in *the 6th Symposium of the International Urban Planning and Environment Association (UPE6): Global Pressure on Local Autonomy: Challenges to Urban Planning for Sustainability and Development*, University of Louisville, Louisville, September 4-8, 2004.
49. **Putra, Simon Y, Li, Wenjing**, Yang, Perry P. J., 2003, Object-oriented GIS data modeling and urban design, in *Map Asia 2003*, Kuala Lumpur, Malaysia, October 13-15, 2003.
50. Yang, Perry P. J., 2003, The integration of urban living and new working environment: urban design case studies of Kallang Basin redevelopment, Singapore, in *the 3rd China Urban Housing Conference*, Chinese University of Hong Kong, Hong Kong, July 3-5, 2003. (The paper was included in proceeding but the presentation was canceled due to SARS outbreak in Hong Kong).
51. Yang, Perry P. J., **Putra, Simon Y.**, 2003, GIS analysis for urban design and redevelopment: case studies of Singapore urban space, in *the 8th International Conference on Computers in Urban Planning and Urban Management (CUPUM): Information Technologies for Urban Sustainability and Prosperity*, Sendai Mediatheque, Sendai, Japan, May 27-29, 2003 (The paper was accepted for presentation. It was not presented due to SARS outbreak in the region during the period).
52. Yang, Perry P. J., 2002, Ecological urbanism in Asian urban transformation: comparing the planning of two urban rivers in Singapore and Taipei, in *the Fifth Symposium of the International Urban Planning and Environment Association (UPE5)-- Creating Sustainable*

*Urban Environment: Future Forms for City Living*, Christ Church, Oxford, September 23-26, 2002.

53. Yang, Perry P. J., 2001, Digital Geographic Design: Looking for a New Horizon for Architecture, Landscape and Urban Design Professionals, in *Architectural Education for the Asian Century: Proceedings of the 1st ACAE Conference on Architectural Education*, ed. Milton Tan, National University of Singapore, Singapore, September 7, 2001.
54. Yang, Perry P. J., 2001, Ecological Effects of Metropolitan Form: A Landscape Ecological Analysis of 20 Years of Urban Sprawl in the Eastern-Taipei Metropolitan Fringes, in *the 1<sup>st</sup> World Planning Schools Congress: Planning for Cities in the 21st Century, Opportunities and Challenges*, Tongji University, Shanghai, July 11, 2001.
55. Yang, Perry P. J., 2001, "A Quantitative Analysis of Metropolitan Form: Applying GI Technology to the Analysis of Landscape Change of Keelung River Valley", in *the 5th National Planning Forum*, National Cheng-Kung University, Tainan, Taiwan, March 17, 2001. (in Chinese)
56. Yang, Perry P. J., Wang, Hung-Kai, 2000, The Making of Sustainable Urban Form by Landscape Ecological Planning, in *the 15th Annual Symposium of International Association of Landscape Ecology*, FT Lauderdale, Florida, April 1, 2000.
57. Yang, Perry P. J., 1998, Design with Nature, or Design with Natural Process, in *the 8th International Planning History Conference: Twentieth Century Urban Planning Experience*, ed. Robert Freestone, University of New South Wales, Sydney, Australia)
58. Yang, Perry P. J., 1995, Eco-participatory Planning: A Case Study of the Bunun Tribal Building Plan in Taitung, Taiwan, in *the First International Symposium on Asia Pacific Architecture: The East-West Encounter*, University of Hawaii at Manoa, Honolulu, March 22, 1995.

### **B3. Other Refereed Material**

N/A

### **B4. Submitted Journal Articles (with Date of Submission)**

1. \***Quan, Steven. J., Chang, Soowon, Igou, Thomas K., Dutt, Florina**, Ding, Jiaqi, Castro-Lacouture, Daniel, Chen, Yongsheng, Yang, Perry P. J., GIS-based energy performance analyses of decentralized algal system in urban contexts, submitted to *Resources, Conservation & Recycling*, May 4, 2021. (as the corresponding author)

### **C. Other Publications and Creative Products**

(As Curator of Design Exhibitions)

1. \*2015 Curator, Resilient Urban Systems: Studio, Research, Design and Image, the Stubbins Gallery, College of Architecture, Georgia Tech, August 26 – September 11, 2015.
2. \*2015 Curator, with Wang Yi of Tongji University, Shanghai Chongming Eco Island Studio Exhibition, in *2015 International Symposium on Ecological Urban Design*, College of Architecture and Urban Planning, Tongji University, June 5-6, 2015.

#### **D. Presentations**

(Keynote addresses in international conferences)

1. 2020 “Urban Systems Design for Smart Cities” in LH Smart City Forum (with two other keynote speakers including Byeon Changheum, CEO of Korean Land & Housing Corporation, Anthony Townsend, Cornell Tech), Seoul, Korea, November 19, 2020.
2. \*2018 Sustainable Urbanization, in *Covestro - Tongji Sustainable Development Forum 2018*, Covestro (Bayer Material Science) and UN Environment - Tongji Institute, June 1, 2018, Tongji University, Shanghai.
3. \*2018 Urban Systems Design: A Model of Smart Cities, in *International Workshop on Towards Green Smart Cities in the IoT Era*, Future Earth and Global Carbon Project, with Yoshiki Yamagata and Hiroaki Nishi on March 19-21, the University of Tokyo.
4. \*2017 An outline of the eco smart city project using smart materials, in *Covestro - Tongji Sustainable Development Forum 2017*, Covestro (Bayer Material Science) and UN Environment - Tongji Institute, December 14, 2017, PRDC Covestro, Shanghai.
5. \*2016 Urban carbon mapping of four global downtowns: Manhattan, Tokyo, Shanghai and Atlanta, *GCP-WUDAPT Workshop on Building Global Urban Carbon Mapping*, In collaboration with Future Earth Knowledge Networks, on 28-29 June, 2016 in Thun, Switzerland.
6. \*2015 Material Science for Future Urban Systems - 10KM<sup>2</sup> Near Zero Energy District (nZED), in *Covestro - Tongji Sustainable Development Forum 2015: Smart Materials in Sustainable Future Cities*, Covestro (Bayer Material Science) and Tongji University, December 16, 2015
7. \*2015 Energy Resilient Urban System and its Design Problem, in *Global Carbon Project (GCP) Workshop on Tools and Indicators for Assessing Urban Resilience*, the University of Tokyo, December 7-10, 2015.
8. \*2015 The Agenda of Sino-U.S. Eco Urban Lab: Reconstructing ecological urbanism in the face of the next round urbanization process of China and its global impact, in *2015 International Symposium on Ecological Urban Design*, organized by Sino-U.S. Eco Urban

Lab, Georgia Institute of Technology and Tongji University, 5-6 June 2015, Shanghai.

9. \*2015 Searching for research agenda of Urban Energy Systems Design, in *2015 International Conference on City Sciences (ICCS): New architectures, infrastructures and services for future cities*, Technical University of Madrid and Tongji University, 4-5 June 2015, Shanghai
10. \*2015 Design for urban metabolism: From 1950s–1970s Japanese metabolism to the post-oil city design theory, in *Global Carbon Project (GCP) Workshop and Toyota High-level Symposium on Sustainable Cities*, January 2015.
11. \*2014 Featured speech “Redefining Public Realm through Reconstructing Ecology of Urbanization in China and Asian Mega Cities” at **the Big Ideas Session – Design of the Public Realm in Asian Mega-Cities (with Gary Hack)**, **the 54<sup>th</sup> Annual Conference of ACSP**, Philadelphia, October 30 – November 2, 2014.
12. \*2014 Design for ecological urban systems: Two models or ways of thinking in *Eco Smart City Symposium*, Tongji University, Shanghai, October 24-25, 2014
13. \*2014 Design and Planning Workshop as an Urban Laboratory in *iCities 2014: Workshop on Workshop*, National Cheng-Kung University, Tainan, October 14-15, 2014.
14. \*2014 EAR (Eco Area Ratio): A tool of energy performance and carbon reduction assessment for ecological urban systems in *Shanghai Chongming Eco-Island International Forum*, Shanghai, September 24-26, 2014
15. \*2011 Plenary speech “Design challenges of low energy urban systems design”, *2011 World Congress on Engineering and Technology*, Shanghai, October 2011.
16. \*2010 Low Carbon Ecological City: From Evaluation, Planning to Design, *U.S.-China Low Carbon City Mayors’ Workshop*, Beijing, July 2010.
17. \*2010 Low Carbon Ecological City: From Evaluation, Planning to Design, *Future City Forum*, New Taipei City Government, June 2010.
18. 2008 Asian New Downtowns: Case Studies of Planning Decision Makings in Singapore, Taipei and Shanghai, in *International Conference on City Competitiveness*, Chonghua University, Hsinchu, Taiwan, October 2008.
19. 2007 Featured speech, “Sustainable design and development in Asian metropolis: analytical tools, design intervention and development mechanisms”, in international conference of *Town Development: Building the New Metropolitan*, Manila, September 2007.
20. 2006 Large-scale urban and landscape design as the catalyst of eco-city development, *The Second Mega-cities International Conference: Challenges in Sustainability for Asian Cities*, Hong Kong University, Guangzhou University & CIB (International Council on

August 31, 2021

Research and Innovations in Building and Construction), Guangzhou, China, December, 2006.

21. 2006 Design with the second nature: ecological development strategies in intensive urban environment, *Kaohsiung 2006 City Forum*, Kaohsiung City Government, Taiwan, November 2006.
22. 2006 Sustainable urban design in Asia, in *HPAIR 2006, The Harvard Project for Asian and International Relations 2006 Annual Academic Conference*, Singapore, August 2006.
23. 2005 Sport park: a catalyst of eco-city development, *The Main Stadium for 2009 World Games International Conference*, Kaohsiung City Government, Kaohsiung, Taiwan. 16 September 2005.
24. 2004 Asian New Downtowns: The Urban Transformation of the Central City Areas of Singapore, Kaohsiung and Shanghai in *the 2<sup>nd</sup> Land Research Conference*, National Cheng Chi University, Taipei, Taiwan, September 25-26, 2004.
25. 2002 Shaping Asian Urban Skylines: Reflections on Global Strategies and Polices of Singapore Downtown Design and Development, *National Planning Forum 2002*, National Cheng Kung University, Taiwan.

(Invited Conference Presentations, in addition to those listed under conference papers)

1. \*2021 Panelist in SMARTer Together Webinar: Autonomous Aerotropolis: A Digital Twin Model for Enhancing Smart and Connected Communities. Organized by Georgia Tech Smart Cities and Inclusive Innovation; Other panelists include: Dimitri Mavris (Georgia Tech School of Aerospace Engineering), Kirk Talbott (MARTA) and Kenneth Williams (Hartsfield-Jackson Atlanta Intl Airport), March 4, 2021.
2. \*2021 Panelist in Virtual Symposium for Journal of the American Planning Association: Special Issue on Community Design and Revitalization for Promote Health. Organized by Nisha Botchwey, Catherine Ross, Bruce Stiftel; Other panelists include: Matthew Trowbridge, Noreen McDonald, Quency Phillips, Samina Raja, Mitchell Silver, January 28, 2021.
3. \*2019 Beyond Japanese Metabolism: Urban Systems Design as a Model for Future Cities, in *Public Seminar on Urban Systems Design and Smart Cities*, May 16, 2019, organized by Department of Urban Engineering of the University of Tokyo, City Lab, Tokyo
4. \*2019 From Japanese Metabolism to Japanese Smart Cities? In *Kyoto-Shenzhen Deep Decarbonization Project Symposium*, May 13, 2019, Kyoto.
5. \*2018 Smart city - a place making of post-cyber space, in *International Smart Cities Panel at APA's 2018 National Planning Conference*, with Richard B Stephens, John Acres, Vatsal J. Bhatt and Irena Itova, April 21–24, 2018, New Orleans.

6. \*2017 A Collaborative Framework of the Eco Smart City Project Using Smart Materials, in *Covestro - Tongji Sustainable Development Forum 2017*, Tongji University, December 15, 2017.
7. \*2017 Urban Systems Design (USD) as a Design: An integrated model of smart city – Misono 2020 Olympics Site Tokyo in *the Smart City Symposium*, The University of Tokyo. March 21, 2017.
8. \*2016 Shaping Sustainable Urban Systems in *the Workshop on Practice and Research in Urban Sustainability Assessment*, Department of Urban Engineering, School of Engineering, The University of Tokyo. August 17-18, 2016.
9. \*2015 Energy resilient urban systems: a design perspective, in *2015 International Symposium on Ecological Urban Design*, organized by Sino-U.S. Eco Urban Lab, Georgia Institute of Technology and Tongji University, 5-6 June 2015, Shanghai.
10. \*2014 Eco Area Ratio (EAR): A planning approach to energy performance and carbon reduction assessment for ecological urban systems, in *Green Human Habitat Forum*, organized by UNEP and CMG, Kunming, China, November, 15, 2014.
11. \*2013 Eco Area Ratio (EAR): An energy planning tool for ecological urban revitalization and transformation, in *Wicked Problem Symposium*, organized by the Journal *Landscape and Urban Planning* and College of Environmental Design, UC Berkeley, October 26, 2013.
12. \*2013 Global benchmarking for low carbon urban design: A forward-looking modeling approach to Geodesign, invited presentation (by poster presentation due to time conflict), in *Geodesign Summit Europe 2013*, GeoFort, Herwijnen, Netherlands, September 19-20, 2013.
13. \*2013 Global waterfront models of free economic zone: London, New York, Shanghai, Singapore and Kaohsiung, in *iCities Conference 2013*, National Cheng-Kung University, Taiwan, May 24-25, 2013.
14. \*2013 New urbanism, landscape urbanism and beyond, in *Greenprints Conference 2013*, with Ellen Dunham-Jones, Atlanta, March 13-14, 2013.
15. \*2012 Cities as flows: scale, complexity and stochastic processes, in *2012 Conference on Healthy Architecture and Sustainable Environment*, National Taipei University of Technology (NTUT), Taipei, Taiwan, June 27, 2012.
16. \*2012 Cities as flows: five propositions and their design challenges, in *Sustainable Urban Infrastructure Workshop*, organized by Georgia Institute of Technology and Tianjin University, Tianjin, China, June 14-16, 2012.
17. \*2010 Design challenge of ecological urban systems: scale, complexity and stochastic process, in *the 5th International Conference on Urban and Regional Planning: The Transformation of Urban Development Model in China — Ecological, Low-carbon and*

- Digital City*, organized by Ministry of Housing and Construction of China, Chihuahua, China, June 22-23, 2010.
18. \*2010 Eco city-region planning and Eco-infrastructure for Bay Areas: Implications to PRD region, in *Forum of Guangdong-Hong Kong-Macau Regional Development of Pearl River Delta (PRD)*, organized by Guangdong Provincial Government, Guangzhou, June 9-10, 2010.
  19. \*2010 Ecological Urbanism: Scale, Complexity and Stochastic Processes in *Global Alliance of Technological Universities: First workshop on Sustainable Urban Solutions* (as one of the two representatives from Georgia Tech to speak), in Shanghai Jiaotong University, May 2010.
  20. 2008 Asian New Downtowns: Case Studies of Planning Decision Makings in Singapore, Taipei/Kaohsiung and Shanghai, in *International Symposium on Cities Competition*, Chung-Hua University, Hsinchu, Taiwan, October 24, 2008.
  21. 2007 From Taipei Eco Urban Master Plan to the Third Ecology Proposition in *International Symposium on Planning and Design Education*, National Taiwan University, Taipei. December 29, 2007.
  22. 2007 Planning the third ecology: an approach to healing ecological effects of urban transformation, in *A Quarter Century of Physical and Institutional Transformation in Urban China*, Asian Research Institute, Singapore, March 2007.
  23. 2005 Revitalizing waterfronts of Singapore's Marina Bay and Kallang Basin: A reflection on urban ecological perspective, in *International Conference of Urban River: Restoration and Vision*. Kaohsiung: National Kaohsiung Ocean University, Kaohsiung, Taiwan, December 15-16, 2005.
  24. 2004 Designing with nature in intensive urban environment: three urban ecological scenarios of Kaohsiung's Zao-Zai wetland park and the surrounding area of high-speed rail terminal, in *International Workshop on Eco-tech and Artificial Wetland*, National Sun Yat-Sen University, Kaohsiung, Taiwan, October 23-24, 2004.
  25. 2004 Architecture and urban design education in Singapore, in *International Conference on Planning Education*, National Taiwan University, July 26-27, 2004.
  26. 2002 Applying ecosystem concepts to the management of industrial areas, in *International Symposium on the Sustainable Management Mechanism for Industrial Parks*. Organized by Industrial Development Bureau, Ministry of Economic Affairs and National Cheng Kung University, Tainan, Taiwan. With Boon Lay Ong, September 20, 2002.
  27. 2001 The Integration of Landscape Ecology and City Planning: A Case Study of Eco-Taipei 2025 Master Plan, in *2001 Symposium of Landscape Ecology and Sustainable Urban and Rural Development*, with Hung-Kai Wang, National Taiwan University, Taipei, April 1, 2001.

(Invited lectures in Universities and Governmental Agencies in the U.S.)

1. \*2019 Georgia Tech Sustainability Show Case, talk on “Smart Commons: GT Shenzhen smart campus research”, October 28-30, 2019, organized by Brook Byers Institute for Sustainable Systems.
2. \*2018 MIT, SPURS 50<sup>th</sup> Anniversary Conference, Panel on “Does Technology Interfere or Facilitate Good Practice?”, MIT Media Lab, Cambridge, October 12, 2018.
3. \*2018 Georgia Tech Smart City Digital Twin Summit, Georgia Tech Smart Shenzhen Campus and Panel, November 2, 2018, Georgia Institute of Technology.
4. \*2018 Georgia Tech College of Design Research Forum, Modeling Urban Design with Energy Performance, in *the Panel of Planning Energy-Efficient Buildings and Cities*, with G Augenbroe, S Guhathakurta and E Mallen, March 3, 2018, Georgia Institute of Technology.
5. \*2018 Georgia Tech College of Design Research Forum, An Urban Design Perspective, in *the Panel of The Digital Twin: Intelligent and Responsive Environments*, with D Shelden, S Guhathakurta, P Pishdad-Bozorgi and J Sanford, January 25, 2018, Georgia Institute of Technology.
6. \*2014 Centers of Disease Control and Prevention (CDC), Design for Urban Metabolism, February 25, 2014.
7. \*2012 University of Pennsylvania, Department of City and Regional Planning, Cities as flows: scale, complexity and stochastic processes, February 13, 2012.
8. \*2009 Northeastern Session of the Mayor's Institute on City Design, invited talk as the resource team member, Ecological urbanism: four issues for policy makers, Boston 2009.
9. 2007 MIT, Department of Urban Studies and Planning, invited talk at the SPURS Seminar, The third ecology proposition: an approach to sustainable design and development in five Asian urban settings, October 2007.
10. 2007 Yale University, School of Architecture and School of Forestry and Environmental Studies, invited lecture, The third ecology proposition: an approach to sustainable design and development in five Asian urban settings, October 2007.
11. 2006 Yale University, School of Forestry and Environmental Studies, invited lecture, Planning the second nature: applying landscape ecology to analysis and planning of urban environment, April 2006.

(Invited lectures in Universities and Governmental Agencies outside of the U.S.)



August 31, 2021

1. \*2020 Gadjah Mada University (UGM, Universitas Gadjah Mada) of Indonesia, Architecture Study Program, invited lecture and panel discussion, Open Curriculum in Architecture Education System, November 26, 2020 (on line).
2. \*2020 Chinese University of Hong Kong, Centre for Housing Innovations, invited guest lecture, Urban Energy and Metabolism, April 24, 2020, Hong Kong (on line).
3. \*2019 Taipei City Government, invited public lecture, A framework of smart cities: urban systems design, November, 20, 2019, Taipei.
4. \*2019 Shanghai Jiaotong University, School of Design, invited lecture, Urban Systems Design: Shaping new urban form of smart cities, October 14, 2019, Shanghai.
5. \*2019 Hong Kong University of Science and Technology, Department of Civil and Environmental Engineering, invited lecture, Urban Energy Systems Design, June 21, 2019, Hong Kong.
6. \*2019 Guangdong Urban Planning Institute, invited talk: Urban systems design driven by future city visioning, with Dr. Yoshiki Yamagata, June 16, 2019, Guangzhou.
7. \*2019 Tamkang University, Department of Water Resources and Environmental Engineering, invited lecture, Design for Resilient Urban Systems, June 4, 2019, Taipei.
8. \*2019 University of Tokyo, Department of Urban Engineering, invited lecture, From Urban Design to Urban Systems Design, May 9, 2019, Tokyo.
9. \*2018 Singapore Urban Redevelopment Authority (URA), invited lecture, "Design for smart urban systems", December 14, 2018, Singapore.
10. \*2018 Hong Kong University, Faculty of Architecture, invited lecture "Data-driven Urban Design", November 8, 2018, Hong Kong.
11. \*2018 Hong Kong University of Science and Technology, Division of Environment and Sustainability, "Design for Sustainable Urban Systems", December 3, 2018, Hong Kong.
12. \*2018 Shenzhen City Government, R&D Center of Housing and Construction, invited lecture "Urban systems Design in IoT Era" August 20, 2018, Shenzhen.
13. \*2017 Huazhong Institute of Science and Technology, School of Architecture and Urban Planning, invited lecture "Urban Systems Design (USD): An integrated model of smart city – Misono area of Tokyo 2020 Olympics Site", May 2017, Wuhan China.
14. \*2016 Guangdong Urban Planning Institute, invited talk: "From Eco City to Resilient Urban Systems Design", August 3, 2016, Guangzhou.
15. \*2016 Tongji University, invited talk "Ecological Urban Regeneration: Connecting Eco-Performance Modeling to Design Decisions" at *2016 Tongji CAUP International Summer*

*School: Regeneration of Urban Communities with a New Spatial Paradigm*, August 11, 2016, Shanghai.

16. \*2014 National Cheng-Chi University, invited lecture "Global Waterfront Movement from 1970s': London, Shanghai, Singapore, New York, Kaohsiung and Taipei" in *Cities for the Future Symposium*, March 11, 2014, Taipei.
17. \*2014 Guangdong Provincial Government and Guangdong Urban Planning Institute, invited talk in *the Pearl River Delta Forum: "Eco Urban Design"* (with Professors Nancey Green Leigh, Richard Dagenhart, Bruce Stiftel), March 22, 2014, Guangzhou, China.
18. \*2014 Tongji University, College of Architecture and Planning, invited lecture "Renewable Urbanism: Agenda of Eco Urban Lab in U.S. and China", in (with Professor Steve French), January 2014.
19. \*2014 Shanghai Urban Planning and Design Institute, Shanghai Municipal Government, invited talk "Renewable Urbanism: Agenda of Eco Urban Lab in U.S. and China" (with Professor Steve French), January 2014.
20. \*2013 Tongji University, College of Architecture and Planning, invited lecture "Global waterfront models of free economic zone: London, New York, Shanghai, Singapore and Kaohsiung", Shanghai, June 2013.
21. \*2013 National Taipei University of Technology and Harvard GSD joint workshop on *Taiwanism*, invited lecture "Cities as flows: eco systems design studio 2005-2012", Taipei, March 23, 2013.
22. \*2012 Tianjin University, School of Architecture, invited lecture, "Cities as flows: scale, complexity and stochastic processes", Tianjin China, June 2012.
23. \*2012 National Taiwan University (NTU), Graduate Institute of Building and Planning, invited lecture "Cities as flows: scale, complexity and stochastic processes", Taipei, June 2012.
24. \*2012 National Chiao-Tung University (NCTU), School of Architecture, invited lecture "Cities as flows: scale, complexity and stochastic processes", Hsinchu, Taiwan, June 2012.
25. \*2011 Tongji University, College of Architecture and Planning, invited lecture "Low energy urban systems design: scale, complexity & stochastic process", Shanghai, October 2011.
26. \*2011 Huazhong Institute of Science and Technology, School of Architecture and Urban Planning, invited lecture "From landscape urbanism, ecological urbanism to renewable urbanism", Wuhan China. March 2011.
27. \*2010 Taipei City Government, Urban Redevelopment Authority, invited lecture "From Biophilia to high performance landscape and urban design" in *Urban Regeneration Workshop*, Taipei, October 2010.

28. \*2010 Huazhong Institute of Science and Technology, School of Architecture and Urban Planning, invited lecture "Ecological urbanism: scale, flow and design", Wuhan China, May 2010.
29. \*2009 Tongji University, Department of Urban Planning, invited lecture "Sustainable urban form and design" (with Professor Richard Dagenhart), Shanghai, December 2009.
30. \*2009 National Cheng-Kung University, Department of Urban Planning, invited lecture "Ecological urbanism: scale, flow and design", Tainan, Taiwan, November 2009.
31. 2007 Jurong Town Corporation (JTC), Singapore Government, invited lecture "The third ecology proposition: an approach to sustainable design and development in five Asian urban settings", Singapore, November 2007.
32. 2006 Kaohsiung City Government, invited lecture "Design with the second nature: ecological development strategies in intensive urban environment", in *Kaohsiung 2006 City Forum*, Taiwan, November 26 –27, 2006.
33. 2006 The Asian Coalition for Architecture and Urbanism (ACAU), Singapore Workshop of Public Waterfronts in the Asian Metropolis, as a studio leader and speaker, Singapore, July 2006.
34. 2005 Delft University of Technology (TU Delft), invited lecture "Knitting the city fabric" at the First International Join Design Workshop, European Postgraduate Masters in Urbanism, Netherlands, November, 2005.
35. 2005 Taipei City Government, Urban Development Bureau, invited lecture "Three Asian models of planning decision-making: planning downtown Singapore, Kaohsiung and Shanghai", Taipei, July 21, 2005.
36. 2002 Tainan City Government, Urban Development Bureau, invited lecture "Urban Design Experiences of Singapore Downtown Area", in *Annual Exhibition of Community Buildings*, Tainan, Taiwan, 2002.

## **E. Grants and Contracts**

### **E1. As Principal Investigator**

1. \*Smart Commons: A co-design workshop for Georgia Tech's global campus in Shenzhen  
Agency/Company: Georgia Tech Foundation (Denning Global Engagement Seed Fund)  
Total Dollar Amount: \$15,000  
Role: PI  
Collaborators: Debra Lam  
Period of Contract: 7/1/2018 – 6/30/2019

Candidate's Share: 100%

2. \*Sino- U.S. Eco Urban Lab, Georgia Tech and Tongji University

Agency/Company:

- Denning Global Engagement Seed Fund (Global FIRE), the Office of Vice-Provost for International Initiatives, Georgia Institute of Technology
- Dean's Office, College of Design, Georgia Institute of Technology
- Tongji University

Total Dollar Amount: \$205,000 (2013-2016)

- \$30,000 funded by Global FIRE, Georgia Institute of Technology
- \$15,000 funded by the Dean of College of Design, Georgia Institute of Technology
- \$160,000 funded by Tongji University (with Co-PI Yi Wang, Tongji University), 2015-2016.

Role: PI (Co-PI in Shanghai side)

Collaborators:

- Georgia Tech: Steven French, Alan Balfour, Richard Dagenhart, Ellen Dunham-Jones, Nancey Green Leigh, Bruce Stiftel, Subhrajit Guhathakurta. Catherine Ross, Daniel Castro, Charles Eastman, John Crittenden (faculty participating in exchange or visitation in Tongji University during 2013-2016)
- Tongji University: College of Architecture and Urban Planning (CAUP)

Period of Contract:

- 8/1/2013 – 6/31/2015 (Global FIRE of Georgia Institute of Technology);
- 6/2015 – 12/31/2016 (Tongji University)

Candidate's Share: 100% (as PI in the part of Georgia Tech)

3. \*Bayer Chair Professorship at United Nation Environment Program (UNEP) – Tongji Institute of Environment for Sustainable Development (2015 renamed to Covestro)

Agency/Company: Bayer Group China

Total Dollar Amount: \$450,000 EURO (2014-2017), \$150,000 EURO each fiscal year

Role: PI (as the endowed Bay Chair Professor at UNEP- Tongji Institute)

Collaborators: Jiang Wu, Tongji University

Period of Contract: 10/2014 – 12/2018

Candidate's Share: 50% for the research

4. \*2014 Shuidong Bay Waterfront City Design, Guangdong China

Agency/Company: Guangdong Urban Planning and Design Institute

Total Dollar Amount: \$40,000

Role: PI

Collaborators: Nancey Green Leigh, Richard Dagenhart

Period of Contract: 1/1/2014 – 5/1/2014

Candidate's Share: 100%

5. \*Strategic Planning of Asian New Bay Area, Kaohsiung Taiwan

Agency/Company: Kaohsiung City Government

Total Dollar Amount: \$30,000  
Role: PI  
Collaborators: Nancey Green Leigh, Richard Dagenhart  
Period of Contract: January to May 2013  
Candidate's Share: 100%

6. \*Low Carbon Urban Design for the City of Macau

Agency/Company: Macau Urban Planning Institute  
Total Dollar Amount: \$30,000  
Role: PI  
Collaborators: Nil  
Period of Contract: 3/1/2011 – 7/31/2011  
Candidate's Share: 100%

7. \*Assessing Solar Availability of Urban Form Using 3D GIS

Agency/Company: Georgia Tech Foundation (GT FIRE)  
Total Dollar Amount: \$13,800  
Role: PI  
Collaborators: Nil  
Period of Contract: 9/1/2009 – 5/31/2010  
Candidate's Share: 100%

8. Asian new downtowns: urban transformation of central city areas in Singapore, Taipei and Shanghai

Agency/Company: National University of Singapore  
Total Dollar Amount: \$135,600 (169,855 SGD)  
Role: PI  
Collaborators: Chye Kiang Heng, Jieming Zhu  
Period of Contract: 1/1/2005 to 6/30/2008  
Candidate's Share: 100%

9. GIS-based Design Support System in Tropical Urban Environment

Agency/Company: National University of Singapore  
Total Dollar Amount: \$71,800 (89,964 SGD)  
Role: PI  
Collaborators: Stephen Wittkopf  
Period of Contract: 8/22/2002 – 5/21/2006  
Candidate's Share: 100%

## **E2. As Co-Principal Investigator**

1. \*ERC Planning Grant: Engineering Research Center for Urban Agricultural Infrastructure Systems

Agency/Company: National Science Foundation

Total Dollar Amount: \$100,000

Role: Co-PI

Collaborators: Yongsheng Chen (PI), John Crittenden (Co-PI), Kaye Husbands (Co-PI), Zhaohui Tong (Co-PI)

Period of Contract: 8/1/2019 – 8/31/2020

Candidate's Share: ~20%

2. \*Use of Domestic Wastewater for Food Production

Agency/Company: USDA

Total Dollar Amount: \$4,838,263

Role: Co-PI

Collaborators: Yongsheng Chen (PI), Valerie Thomas (Co-PI), Marc Weissburg (Co-PI), Kay Husband (Co-PI)

Period of Contract: 7/1/2018 – 6/30/2023

Candidate's Share: ~5% (\$240K)

3. \*Sustainable Housing through Holistic Waste Stream Management and Algal Cultivation

Agency/Company: National Science Foundation

Total Dollar Amount: \$1,644,957 (Georgia Tech portion \$800,000)

Role: Co-PI

Collaborators: PI: Ben Stuart (Ohio University), Daniel Castro and Charles Rudolph (Georgia Tech)

Period of Contract: 8/22/2012 – 5/21/2016 (extended to 6/21/2017)

Candidate's Share: 33% of Georgia Tech portion

**E3. As Senior Personnel or Contributor**

N/A

**E4. Pending Proposals**

1. \*SCC-IRG JST: A Nexus of Carbon Neutral, Climate Resilient and Post Covid-19 Conscious (3C) Urban Systems Design of the Post-Pandemic Cities: Midtown Atlanta, USA and Nihonbashi of Tokyo, Japan

Agency/Company: National Science Foundation

Total Dollar Amount: \$749,887

Role: PI

Collaborators: Co-PI: Duen Horng Chau, Co-PI: Debra Lam (Georgia Tech); Co-PI: Soowon Chang (Purdue University); Japanese Collaborators: Akito Murayama, Yoshiki Yamagata, Takahiro Yoshida.

Period of Contract: 2021 – 2024

2. \*Improving the Sustainability and Economic Performance of Interconnected Urban and Rural Regions by Integrating Water, Energy, Carbon and Nutrient Cycles in Farming (NECTAR)

Agency/Company: National Science Foundation

Total Dollar Amount: \$14,502,315

Role: Collaborator

Collaborators: PI: John Crittenden, Co-PI Yongsheng Chen (Georgia Tech).

Period of Contract: 2021 – 2025

3. \*SCC-PG: Autonomous Aerotropolis: A Digital Twin Model for Enhancing Smart and Connected Communities

Agency/Company: National Science Foundation

Total Dollar Amount: \$150,000

Role: Co-PI

Collaborators: PI: Dimitri Mavris, Co-PI: Nancey Green Leigh, Co-PI: Michael Balchanos (Georgia Tech)

Period of Contract: 2021 – 2022

#### **E5. Proposals Submitted but Not Funded (Last Two Years)**

1. \*Atlanta and Nagoya as Climate Resilient Healthy Cities: Moving toward Zero Emission by 2050

Agency/Company: Robert Wood Johnson Foundation

Total Dollar Amount: \$600,000

Role: PI

Collaborators: Eloisa Klementich (The Atlanta Development Authority), Akito Murayama (University of Tokyo), Debra Lam (Georgia Tech)

Period of Contract: 2020 – 2022

Candidate's Share: 33%

2. \*Travel Intelligence for Airport City and Urban Navigation

Agency/Company: TravelPort

Total Dollar Amount: \$693,517

Role: PI

Collaborators: Xiaoming Huo (Co-PI), Yoshiki Yamagata (Co-PI)

Period of Contract: 2020 – 2022

Candidate's Share: 70%

3. \*ATCR Seed Grant - Autonomous Aerotropolis: A Digital Twin Model for Atlanta Airport City as Autonomous Urban Systems

Agency/Company: Georgia Tech Autonomous Transportation and Connected Roads (ATCR) and Delta Airlines  
Total Dollar Amount: \$999,100  
Role: PI  
Collaborators: Dimitri Mavris  
Period of Contract: August 2019 – December 2019  
Candidate's Share: 60%

4. \*Google AI for Social Good

Agency/Company: Google  
Total Dollar Amount: \$1,000,000.  
Role: PI  
Collaborators: Yoshiki Yamagata, Nancey Green Leigh, Subhrajit Guhathakurta  
Period of Contract (Estimated): 6/1/2019 – 5/31/2022

5. \*Sustainable Community Evolution by Revolutionizing Building Envelopes

Agency/Company: National Science Foundation  
Total Dollar Amount: \$393,138  
Role: Co-PI  
Collaborators: Daniel Castro  
Period of Contract (Estimated): 8/1/2018 – 7/31/2021

## **F. Other Scholarly and Creative Accomplishments**

\*2010 Perry Yang's urban design work was published and featured in the January 2010 Issue "Ecological Urbanism" in *WA (World Architecture)*, 54-64, 2010/01. (WA is a leading peer-reviewed architecture journal in China published by Tsinghua University.)

## **G. Societal and Policy Impacts**

Yang's scholarly work on eco urban design has been conducted through publications and design competitions. Some of them were further developed to have broader societal and policy impacts.

1. Ecological urban design for venues of international sport events

Yang was the chief planner of the 2009 World Games Park, opened in Kaohsiung in July 2009 and featured by CNN as an "eco-friendly venue". The design proposed the first solar-powered stadium of the world that accommodates 40,000 permanent and 15,000 temporary spectator seats. His eco design for *the 2009 World Games Park* led to design invitations of other international sport events, including the 2022 Asian Games Athletes Village design competition in Hangzhou, and a smart city project at Misono, one of the Tokyo 2020 Summer Olympics sites. The Tokyo project was conducted as sponsored urban



design studios for Georgia Tech’s School of City and Regional Planning and School of Architecture from 2017, in collaboration with Misono Urban Design Center of the City, University of Tokyo and Global Carbon Project.

2. Eco-city policy for the City of Taipei, evidenced by his appointment as an advisor to the Mayor

Yang was appointed an advisor to the Mayor, the City of Taipei from December 2019. It partly resulted from eco-city planning that he conducted for the city from 2013, including “Eco Area Ratio (EAR)”, an energy zoning tool to mitigate carbon emission for urban redevelopment of the city.

## H. Other Professional Activities

Member of American Planning Association, from 2009 to Present  
Registered Urban Planner, Taiwan, from 1997 to Present

## V. Education

### A. Courses Taught

(Course taught during the period since the receipt of tenure at Georgia Tech)

Semester, Year	Course Number	Course Title	Number of Students
Spring 2021	CP6053	Urban Design Studio	9
Spring 2021	ARCH6050	Architecture Design + Research Studio	4
Spring 2021	CP6836C/ARCH6447/ARCH4803	Urban Ecological Design	28
Fall 2020	CP8873 C	Smart City Workshop	10
Spring 2020	CP6053	Urban Design Studio	7
Spring 2020	CP6836C/ARCH6447/ARCH4803	Urban Ecological Design	20
Fall 2019	College of Design Course Release		*
Spring 2019	CP6053/ARCH3855/4855	Urban Design/Architecture Studio	8
Spring 2019	CP6836C/ARCH6447/ARCH4803	Urban Ecological Design	25
Fall 2018	ARCH8803/CP8873	Urban Design Workshop	8
Spring 2018	CP6836C/ARCH6447/ARCH4447	Urban Ecological Design	18
Spring 2018	CP6052	Urban Design Studio	12
Spring 2018	ARCH8886	Architecture Design + Research Studio	6
Spring 2017	CP6836C/ARCH6447/ARCH4803	Urban Ecological Design	19
Spring 2017	CP6052	Urban Design Studio	13
Spring 2017	ARCH6072	Architecture Design + Research Studio	4
Spring 2016	CP6052/ARCH6072	Urban Design/Architecture Studio	10
Spring 2016	CP6836C/ARCH6447/ARCH4803	Urban Ecological Design	21
Spring 2015	CP6052/ARCH6072	Urban Design/Architecture Studio	11
Spring 2015	CP6836C/ARCH6447	Urban Ecological Design	18

\*To receive College of Design Course Release for Research grant in Fall 2019

## **B. Individual Student Guidance**

### **B1. Ph.D. Students**

(Current Ph.D. student)

1. \*Helen W. Chen (from August 2018)

(Ph.D. Students Graduated)

1. \*Steven Jige Quan, Ph.D., August 2011 – June 2016  
Ph.D. Dissertation: *Density and Energy Performance of Solar Powered Buildings in the Urban Context*, School of City and Regional Planning, Georgia Institute of Technology  
Current Position: Assistant Professor at Graduate School of Environmental Studies, Seoul National University, South Korea, from June 2016 to Present.
2. Ze Li, Ph.D. (August 2003 – May 2007)  
Ph.D. Dissertation: *Urban Redevelopment in Changshoujie, Shanghai: An Institutional Analysis*. (Department of Architecture, National University of Singapore.)  
Primary Supervisor: Dr. Perry Yang; Co-Supervisor: Dr. Sun Sheng Han (University of Melbourne)  
Current Position: Associate Professor, Department of Urban Planning, School of Architecture, Tianjin University, China, from June 2007 to Present.
3. Archana Sharma, Ph.D. (August 2001 – May 2007)  
Ph.D. Dissertation: *Articulating the Symbiotic Construct of Eco-Industrial Park: Strengthening Through A Modified Landscape Design Strategy* (Department of Architecture, National University of Singapore.)  
Major Supervisor: Dr. Boon Lay Ong; Co-Supervisor: Dr. Perry Yang  
Current Position: Associate Professor, School of Architecture and Planning, Morgan State University, from January 2012 to Present
4. Simon Yanuar Putra, Ph.D. (August 2002 – May 2006)  
Ph.D. Dissertation: *A Perceptual Evaluation of Urban Space Using GIS-Based 3D Volumetric Visibility Analysis* (Department of Architecture, National University of Singapore)  
Primary Supervisor: Dr. Perry Yang  
Current Position: Senior GIS Specialist, Abu Dhabi Ports Company (ADPC), United Arab Emirates
5. Kuo-Wei Chiu, Ph.D. (August 2007 – January 2013)

Ph.D. Dissertation: *An Intelligible Urban Form of Structural Syncretism: Physical Transcendence and Cosmological Motif in Spatial Datum of Northeast Taiwan*  
(Department of Architecture, National University of Singapore)

Primary Supervisor: Dr. Johanna Widodo; Co-Supervisor: Dr Chye Kiang Heng  
(as his previous Ph.D. supervisee from August 2007, transferred to Dr. Widodo in 2008 during my transition to Georgia Tech)

Current Position: Assistant Professor, Department of Architecture, Tunghai University, Taiwan, from June 2013 to Present

## **B2. M.S. Students (Indicate Thesis Option for Each Student)**

(\*MCRP Students Graduated from Georgia Institute of Technology)

1. Andrew Dunham (August 2019 – May 2021)  
Option Paper: Hidden Hydrology: The reclamation and reacquaintance of post-industrial habitats and landscape in urban contexts through design at Lake Calumet
2. Sanjana Zahin (August 2019 - )  
Option Paper: An Exploratory Research on Urban Economy and Industrial Land Suitability in Aerotropolis Atlanta
3. Charles Stickels (August 2019 – May 2020)  
Option Paper: *Autonomous Vehicle Technology: Best Practices, Implications, and Preparedness*
4. Michael Tobby (August 2015 – May 2018)  
Dual degree students of Georgia Tech and Tongji University  
Thesis: *Linking MPBN and System of System Thinking: To Improve Outcomes in Urban Environments*  
Current Position: Ph.D. student at University of Washington, Seattle
5. Zach Lancaster (August 2016 – May 2018)  
Option Paper: *Information Theory as a Measure of Sociodemographic Change*  
Current Position: Ph.D. student at Georgia Tech
6. Yanlin Wu (August 2016 – May 2018)  
Option Paper: *Extending the Geodesign Framework for Small-scale Urban Ecological Design Project*
7. Andyan Diwangkari (August 2016 – May 2018)  
Option Paper: *Urban Form and Neighborhood Vulnerability to Climate Change: Case Study of Jakarta, Indonesia*
8. Yihan Wu (August 2014 – May 2016)  
Option paper: *A New Geodesign and Parametric Design Paradigm for Human-Energy-Water Interactive System Planning*  
Current Position: Ph.D. student at Wuhan University
6. Dzung Nguyen (August 2011 – December 2012)  
Option paper: *Size, shape and connectivity: The impacts of urban development on hydrological regime in Ho Chi Minh City*  
Current Position: Senior planning, CPG Consultants Pte Ltd., Singapore
7. Mike Cutno (August 2009 – May 2011)  
Option paper: *Experiencing Mu: Urban Agriculture for the Peaceful Dissolution of the City in Japan*

Current Position: Sustainability consultant, Tokyo

(Master Students Graduated from National University of Singapore)

1. Shubhalaxmi Agrawal, 2008, Master of Art in Urban Design, Dissertation in Urban Design, Department of Architecture, National University of Singapore
2. Faysal Kabir Shuvo, 2008, Master of Environmental Management Thesis: *Morphological And Physiological Analysis for Measuring Urban Environmental Performance* (School of Design and Environment, National University of Singapore)
3. Ong Qi Rong, 2008, Master of Architecture Dissertation, Department of Architecture, National University of Singapore
4. Lew Send How, 2008, Master of Architecture, Dissertation, Department of Architecture, National University of Singapore
5. Tan Wan Hui, 2007, Master of Architecture, Dissertation, Department of Architecture, National University of Singapore
6. Chen Sin Mei, 2007, Master of Architecture, Dissertation, Department of Architecture, National University of Singapore
7. Sam Wei Yee, 2007, Master of Architecture, Dissertation, Department of Architecture, National University of Singapore
8. Pang Mung Ching, 2007, Master of Architecture, Dissertation, Department of Architecture, National University of Singapore
9. Andrei Johandiputra, 2007, Master of Architecture, Dissertation, Department of Architecture, National University of Singapore
10. Wang Mou Lin, 2007, Master of Art in Urban Design, Dissertation, Department of Architecture, National University of Singapore
11. Subashini Kulothungan, 2007, Master of Art in Urban Design, Dissertation, Department of Architecture, National University of Singapore
12. Maung Ngwe Soe, 2007, Master of Art in Urban Design, Dissertation, Department of Architecture, National University of Singapore
13. Chua Kwan Seng Christopher, 2006, Master of Architecture, Dissertation, Department of Architecture, National University of Singapore
14. Foo Siew Mun, 2006, Master of Architecture Dissertation, Department of Architecture, National University of Singapore
15. Li Yu Zhou, 2006, Master of Architecture Dissertation, Department of Architecture, National University of Singapore
16. Ritu Verma, 2006, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore
17. Sembian Vijay, 2006, Master of Art in Urban Design MAUD Dissertation, Department of Architecture, National University of Singapore
18. Woon Chung Yen, 2005, Master of Architecture Dissertation, Department of Architecture, National University of Singapore
19. Austin Chandrasekaran, 2005, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore
20. Hannah B M Gonzalez, 2005, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore
21. Wenjing Li, 2004, Master of Science in Architecture Thesis: GIS-based Evaluation of Climatic Performance on Three-Dimensional Urban Geometry. National University of Singapore

22. Anandan Karunakaran, 2004, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore
23. Bharathy Govindasamy, 2004, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore
24. Habib Raja Mohd Nagoor, 2004, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore
25. Chiam Ming Lee, 2003, Master of Architecture Dissertation, Department of Architecture, National University of Singapore
26. Goh Wee Ping, 2003, Master of Architecture Dissertation, Department of Architecture, National University of Singapore
27. Rustam Tan, 2003, Master of Architecture Dissertation, Department of Architecture, National University of Singapore. NUS
28. Sivakumar Kumaresan, 2003, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore
29. Xie Yi, 2003, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore. NUS
30. Odita Bin Ibrahim, 2002, Master of Art in Urban Design Dissertation, Department of Architecture, National University of Singapore

### **B3. Undergraduate Students**

N/A

### **B4. Service on Thesis or Dissertation Committees**

(Ph.D. Dissertation Committee Member)

1. \*Nirvik Seha (August 2018 – July 2020), as his minor supervisor  
Ph.D. Dissertation: The Space Allocation Problem  
School of Architecture, Georgia Institute of Technology  
Current Position: NA
2. \*Soowon Chang, Ph.D. (August 2016 – June 2020), as her minor supervisor  
Ph.D. Dissertation: Investigation of Transforming Urban Buildings at Multiple Scales  
School of Building Construction, Georgia Institute of Technology  
Current Position: Assistant Professor at School of Construction Management Technology (from July 2020), Purdue University
3. \*Alya Hashim, Ph.D. (August 2016 – June 2020)  
Ph.D. Dissertation: Rational Decision Making in Early Urban Design Based on Uncertain Performance Predictions.  
School of Architecture, Georgia Institute of Technology.  
Current Position: NA
4. \*Fei Zhao, Ph.D. (June 2011)  
Ph.D. Dissertation: *Agent-based Modeling of Commercial Building Stocks for Energy Policy and Demand Response Analysis.*  
School of Architecture, Georgia Institute of Technology

5. \*Deborah Middleton, Ph.D. (June 2009)  
Ph.D. Dissertation: *Growth and Expansion in Post-War Urban Design Strategies: C.A. Doxiadis and the First Strategic Plan for Riyadh, Saudi Arabia (1968-1972)*,  
School of Architecture, Georgia Institute of Technology.
6. Jingnan Huang, Ph.D. Department of Geography, National University of Singapore, 2008
7. Liu Xuan, Department of Real Estate, National University of Singapore, 2006
8. Yeo Kang Shua, Ph.D. Department of Architecture, National University of Singapore, 2006
9. Cam Chi Ngyuen, Ph.D. Department of Architecture, National University of Singapore, 2005
10. Ji Zhang, Ph.D. Department of Architecture, National University of Singapore, 2003

## **B5. Mentorship of Postdoctoral Fellows or Visiting Scholars**

### (Visiting Graduate Students)

1. Lingkun Jia (November 2017– February 2019)  
Lead Advisor: Professor Yiru Huang, Department of Architecture, Tongji University  
Ph.D. Research Topic: Energy performance of housing typology
2. Yinan Zhou (January 2015 – December 2015)  
Lead Advisor: Professor Changfu Wu, Department of Architecture, Tongji University  
Ph.D. Research Topic: Energy performance of urban district and neighborhood in Beijing and Shanghai
3. Aaron Yulong Luo (January 2014 – December 2015)  
Lead Advisor: Dr. Jien Zhou, Department of Urban Planning, Tongji University  
Ph.D. Research Topic: Performance assessment of urban redevelopment in Shanghai

### (Visiting Scholars)

1. Wei Gan (March 2016 – March 2017)  
Assistant Professor, Huazhong University of Science and Technology, China  
Research Topic: Urban design
2. Huifen Zou, Ph.D. (August 2014 – August 2015)  
Professor, Shenyang Architecture University, China  
Research Topic: Wind simulation in urban environment.
3. Yang Chen, Ph.D. (October 2013 – Present)  
Senior Planner, Guangdong Urban Planning and Design Institute, Guangzhou  
Research Topic: Ecological urban design for waterfront environment, Maoming, Guangdong.
4. Bin Gong (October 2013 – Present)  
Senior Planner, Guangdong Urban Planning and Design Institute, Guangzhou  
Research Topic: Ecological urban design for waterfront environment, Maoming, Guangdong.

### (Individual Graduate Research/ Individual Credited Research)

1. Suzhi Wang, Master of Industrial Design student (Spring 2017)  
Research topic: Interactive design and Internet of Things for Tokyo smart city
2. Florina Dutt, Ph.D. student (Fall, 2016)

- Research topic: Cities perceived as Human sensing Interactive Built Environment: Exploring the use of IOT and ICT in developing co-design strategies for Smart Cities
3. Jiawen Wang and Yigong Zhang, MSUD students (Spring 2014)  
(To co-supervise with Professor Alan Balfour)  
Research topic: Future Shanghai: A review of waterfront design and development of Shanghai since 1979
  4. Huafei Xing, MSUD students (Spring 2013)  
Research topic: How Watershed Basin Hierarchy Influences LID Strategies: Comparison between Two Urban LID Cases in Atlanta
  5. Joseph Goodman, Ph.D. student, (Fall 2011)  
Research topic: A University to Community Net-Zero Energy Urban Agriculture System.
  6. Jong Il Park, Ph.D. (former Ph.D. student), (Fall 2010)  
Research topic: Algae powered house: planning parameters for urban, suburban and rural settings

### **C. Educational Innovations and Other Contributions**

(Recognitions in Teaching)

In 2021, Yang was a faculty supervisor (with Ellen Dunham-Jones) to co-supervise a Georgia Tech student team for 2021 ULI Hines Student Competition that was selected as one of four finalists out of 105 submissions from schools of architecture and planning of the nation.

In 2011, 2020, Yang was awarded “Thank a Teacher” certificates from The Center for the Enhancement of Teaching and Learning of Georgia Institute of Technology, in recognition of “excellence in teaching” and “dedication to helping students learn in design studio”.

(New Courses Developed)

(Course development)

Having a joint appointment in both School of City and Regional Planning and School of Architecture, Yang developed courses to bridge the two Schools to focus on urban design. All courses developed and taught are cross-listed in both Schools. Three courses were developed from 2009:

1. International Urban Design Studio (2009 – Present): CP6053/ARCH6072, Faculty led Study Abroad Program approved by Office of International Education (OIE), Georgia Institute of Technology

The International Urban Design Studio is an on-going initiative in the College of Design and a faculty led study abroad program managed by Office of International Education (OIE) of the Georgia Institute of Technology. This program provides an ongoing platform for faculty and students in the College of Design and collaborating schools and institutions abroad, to develop common intellectual interests and explore collaborative teaching, learning and research opportunities, especially in the area of ecological urban design. The primary

objective of the International Urban Design Studio is to engage graduate students in interdisciplinary and collaborative ways for real-world experiences in support of global professional practices in urban design, city planning and architecture. In addition, the intention is to focus the studios on problems that lead to future research and practices.

The studio brings together students from both the School of City and Regional Planning and the School of Architecture who specialize in urban design. The studios are part of the professional curricula in the Master of City and Regional Planning, the Master of Architecture and/or the Master of Science in Urban Design. The International Urban Design Studio began in 2009 and occurs intermittently as opportunities arise from international urban settings. Each studio is designed for its specific context, the project situation and the host institutional objectives.

- December 2009 and Spring 2010, *Shanghai Pudong Waterfront Revitalization* (with Dagenhart), joint studio with Tongji University, Shanghai.
  - Spring 2011, *Ecological Urbanism Studio: global benchmarking for low carbon urban design*, a project selected and exhibited at *the 100<sup>th</sup> ACSA (Association of Collegiate Schools of Architecture) Annual Meeting*, March 2012, MIT and Boston.
  - Spring 2012, *Agrarian Urbanism Studio: A low energy agriculture system in Wheat Street Garden at Atlanta*, with Georgia Tech's School of Biology, Arkfab group and Truly Living Well.
  - Spring 2013, *Waterfront Revitalization Studio: Asian New Bay Area* in Kaohsiung Taiwan.
  - Spring 2014, *Waterfront Revitalization Studio: Shuidong Bay* in Maoming, Guangdong China.
  - Spring 2015, *Shanghai Chongming Eco Island Studio: Design for Urban Metabolism*, a joint studio with College of Architecture and Urban Planning and School of Construction Management of Tongji University.
  - Spring 2016, *near Zero Energy District Studio, Disney* in Pudong, Shanghai. The studio project was in collaboration with Disney Research China, a laboratory of Walt Disney Imagineering.
  - Spring 2017-2021, *Tokyo smart city project* investigated Urawa-Misono, Kyojima-Sumida and Shinagawa at the Tokyo Bay. It was sponsored by the Global Carbon Project (GCP), in collaboration with the University of Tokyo.
2. Urban Ecological Design (2010 – Present): CP6836-C/ARCH6447-PY/ARCH4803-PY

Direct design of cities is often regarded as impossible owing to the fluidity, complexity, and uncertainty entailed in urban systems. And yet, we do design our cities, however imperfectly. Cities are created objects, intended landscapes, that are manageable, experienced and susceptible to analysis (Lynch, 1984). Urban design as a discipline has been focusing on “design” in its professional practices. It is analytically distinct from “science” related research that tends to ask positive questions such as how cities function, or what properties emerge from interactive processes of urban systems. The course introduces how urban design integrates urban ecology and emerging urban systems science. Cities can be regarded as an urban metabolism or complex systems, in which the metabolic processes, or flows and fluxes of energy, matter, water, organisms, transportation and human movement as well as social and economic activities, determine the physical forms and spatial configurations of cities (Baccini and Brunner, 2012). Once we connect properties of urban form and their ecological processes, we would better know how a city should be designed to contain flows in sustainable and resilient ways. New technologies have also changed the way we



understand cities. Technologies enable urban designers and planners to digitally think of the non-digital aspects of cities by using computer simulation and modeling (Batty, 1997). Empowered by new tools and technologies, cities are now far more designable than ever before. Urban design is becoming data-driven. An ability to handle massive data captured in cities or arising from people, devices, buildings and infrastructures, is critical to address problems occurring in places, streets, neighborhoods and cities. The course is structured by four topics. Students will learn principles of cities as ecologically sustainable systems, and how design as a transformative approach makes our cities greener, resilient, energy efficient and more adaptable to unpredictable future changes.

3. Site Planning and Urban Simulation (2012 – Present): CP8823 PY/ARCH8823 PY

Site planning has been seen as one of fundamental professional skills for city planners, urban designers and architects. There is an intellectual legacy from the works of Kevin Lynch, Donald Appleyard, Carl Steinitz and Gary Hack who defined site planning as “an art of arranging structure on the land and shaping the spaces between” (Lynch and Hack, 1983), a system approach to planning urban and natural settings over a defined spatial and temporal environment in context. The course introduces literature in site planning and the foundation of skill development through a series of workshops. It provides visual-based analytical techniques and simulation tools. The course also aims to extend the knowledge of site planning to new challenges of post-oil city by integrating emerging technologies and performance-based design tools for mapping flows in cities including energy, carbon, material, water, human movement and informational flows across spatial territories over time. The representation, analysis and design of sites and urban systems are to be driven by questions behind the shaping of high performance, renewable and resilient urban environment, focusing on urban ecology, renewable energy, carbon offset strategies and the making of sustainable site and urban systems.

4. Smart City Workshop - Aerotropolis (2020 – Present): CP8873 C/ AE8803-SCW (Cross-listed with School of Aerospace Engineering)

Airport cities are emerging as a global city landscape. Many global cities are turning their “city airport” to “airport city”, in which city centers are built around globally significant airports (Kasarda, 2013). The airport city is a transportation interchange, a complex urban system that contains flows of people, goods, energy, water and information. Airports and airlines have been in bad shape due to Covid-19. How will the airport city system be redesigned to become safer, cleaner, nimbler and more resilient to mitigate the impact, and adapt to future shocks? The Smart City Workshop aims to develop a smart city digital twin concept model of airport city around Hartsfield-Jackson Atlanta International Airport and surroundings. The workshop applies a method of smart city digital twin including four enablers: 1) urban sensing system, 2) urban data analytics, 3) mobility modeling and 4) digital twin. It is an approach to designing a smart urban system from its sensing, data capturing, analytics and modeling to systems design. The core area of Aerotropolis Atlanta is seen as a living laboratory for research. Georgia Tech’s Smart City Workshop in 2020 collaborated with Atlanta Airport City CIDs (AACIDs), Hartsfield Jackson International Airport of Atlanta, MARTA and city authorities connecting to AACIDs. The

project will develop common goals of performance criteria, including but not limited to the follows:

- Post Covid-19 airport city environment to be safer, resilient and socially inclusive.
- Fixing spatial mismatch between jobs and housing affordability of the ATL airport surrounding communities
- Smart mobility
- Near-zero energy and emission urban systems

## VI. Service

### A. Professional Contributions

(Editorial Services)

1. Guest editor, *Environment and Planning B: Urban Analytics and City Science*, the theme issue: Urban Systems Design: From Science for Design to Design in Science, 2019.
2. Editorial board member, *Modern Urban Research*, (in Chinese language, core journal), 2005 to Present.
3. Editorial board member, *Progress in Industrial Ecology - An International Journal*, 2003 to Present.

(Conference, Workshop Chair and Organizer)

1. Session chair, Urban Energy Systems, *2019 International Conference on Applied Energy (ICAE)*, August 12-15, 2019, in Västerås, Sweden.
2. Session chair, Urban Energy Systems, *2018 International Conference on Applied Energy (ICAE)*, August 22-25, 2018, Hong Kong
3. Session chair, Urban Energy Systems, *2017 International Conference on Applied Energy (ICAE)*, August 21-24, 2017, Cardiff
4. Session chair and panel organizer, Energy resilient urban systems, *2016 International Conference on Applied Energy (ICAE)*, October 9-11, 2016, Beijing
5. Program track chair, Low-carbon Cities and Urban Energy systems, *Applied Energy Symposium and Summit 2015 (CUE2015)*, Nov 15-17, 2015, Fuzhou, China
6. Session chair and panel organizer, Urban Energy Systems Design, *2015 International Conference on Applied Energy (ICAE)*, March 28-31, 2015, Abu Dhabi
7. Co-Chair of the Conclusion Session (With Dr. Yamagata), *Global Carbon Project (GCP) Workshop on Tools and Indicators for Assessing Urban Resilience*, the University of Tokyo, December 7-10, 2015.
8. Co-chair of the special session (With Dr. Yamagata) "Energy resilient urban planning" in *2014 International Conference of Applied Energy (ICAP)*, meeting to be in Taipei, March 31 – June 2, 2014.
9. Session chair, *2014 Construction Research Congress*, Georgia Institute of Technology, Atlanta, May 19-21, 2014.
10. Session chair, *Wicked Problem Symposium*, organized by the Journal *Landscape and Urban Planning* and College of Environmental Design, UC Berkeley, October 26, 2013.

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11. Co-chair of Organizing Committee (with Qifeng Yuan and Nancey Green Leigh), *the 9th Symposium of the International Urban Planning and Environment Association (UPE9): Rapid Urbanization, Global Recession and Climate Change*, Guangzhou, China, 2010.
12. Session chair, *the 8th Symposium of the International Urban Planning and Environment Association (UPE8): Parallel Patterns of Urban Growth and Decline: Sustainability Issues and Challenges for Spatial Planning in 21<sup>st</sup> Century Cities and Regions*, University of Kaiserslautern, Germany, March 23-26, 2009.
13. Chair of the Organizing Committee, *the 3rd Great Asian Streets Symposium (GASS): Asian Urban Design Forum*, Singapore, December, 2004.

(Professional Organization Service and Affiliation)

1. International Scientific Committee Member, *International Conference on Applied Energy (ICAE)*, 2015 to Present.
2. Board Member, *International Urban Planning and Environment Association (UPE)*, 2007 to Present.
3. Member, *the Pacific Rim Community Design Network*, 2003 to Present.
4. Acting member of steering committee, *the Habitat Partner University Initiative* at UN Habitat London meeting (to represent GPEAN from May to July 2011).
5. Resource team member, Northeastern Session of *the Mayor's Institute on City Design*, Boston, October 7-9, 2009.

(Invited Jury Member for Urban Design Competitions)

1. 2012, invited jury member, International Competition of Pedestrian Bridge Design for Kaohsiung Weiwuying Park, Taiwan

## **B. Public and Community Service**

1. Advisor to the Mayor, the City of Taipei, from December 2019 to Present.
2. Jury member, Development of Excellence Award, Atlanta Regional Commission, 2020.
3. Jury member, Development of Excellence Award, Atlanta Regional Commission, 2012.
4. Member of LCI (Livable Centers Initiative) Review Committee, Atlanta Regional Commission, 2010.

## **C. Institute Contributions**

(Georgia Institute of Technology)

1. Campus Planning Committee for Georgia Tech's Shenzhen campus, 2018 to Present.
2. Member of Library Faculty Advisory Board, 2016 to Present.
3. Member of the Institute's International Committee/Globalization Task Force and International Plan Task Force, 2010 to 2012.

(College of Design)

August 31, 2021

1. Lead, Georgia Tech – Tongji Sino U.S. Eco Urban Lab, 2014 to Present.
2. Lead, Georgia Tech – Tongji University exchange program for degrees, 2011 to Present.
3. Coordinator, International China Summer Internship, 2009 to Present (tentatively stopped due to Pandemic.)
4. Advisory Committee, College of Design, 2020 to Present.
5. Exhibition Committee, College of Architecture, 2014 to Present.
6. Advisory Committee, College of Architecture, 2012 to 2015.
7. Diversity Committee, College of Architecture, 2012 to 2016.
8. Member of Strategic Planning Committee of Expanding our Footprint: National, International and Online, College of Architecture, 2014.

(School of City and Regional Planning)

1. Member of Master of Science in Urban Analytics (MSUA) program proposal committee, 2018 to Present. (The degree program was approved by the Board of Regents in May 2021.)
2. Member of Executive Committee, 2014 to 2018.
3. Member of Ph.D. Program Committee, 2018.
4. Member of Committee in international embrace and internal linkage, 2012 to 2013.
5. Coordinator, Dual Degrees Program of Master of Architecture and Master of City and Regional Program, 2013 to 2014.
6. Master of City and Regional Planning Program Committee, 2012 to 2013.
7. Committee of application for the Master of Science in Urban Analytics Program, 2019-2020

(School of Architecture)

1. Master of Science of Urban Design Admission Committee, 2012 to Present.
2. Coordinator, Dual Degrees Program of Master of Architecture and Master of City and Regional Program, 2013 to 2014.