

Perry Pei-Ju Yang

Curriculum Vitae

Associate Professor and Director of Eco Urban Lab
School of City and Regional Planning + School of Architecture
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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 promoting ecological and energy performance of cities through urban design. He has been awarded 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 published in the January 2010 issue Ecological Urbanism at *WA (World Architecture)*, a leading architecture journal by Tsinghua University. He has been involved in smart city projects in Japan from 2016 to 2020, including one of Tokyo's 2020 Olympic sites at Urawa Misono, in collaboration with Global Carbon Project (GCP) and the University of Tokyo.

Yang published extensively on ecological urban design. A new book *Urban Systems Design: Creating Sustainable Smart Cities in the Internet of Things Era* that he co-edits and co-authors was published in January 2020 by Elsevier. He is the guest editor of *Environment and Planning B: Urban Analytics and City Science* for a 2019 theme issue Urban Systems Design: From Science for Design to Design in Science 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.

Yang is also a faculty fellow of the Brook Byers Institute for Sustainable Systems at Georgia Tech. He is a board member of the International Urban Planning and Environment Association (UPE), and a scientific committee member of International Conference on Applied Energy (ICAE) to chair the session on Urban Energy for ICAE from 2014 to 2019. 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.

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 Present.
5. *Bayer Chair Professor, UN Environment- 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 since joining Georgia Tech faculty)

1. *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 China.)
2. *2017 The 1st 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. (60 entries during the first round and 6 finalists during the second round, including Tsinghua University of China, Woods Bagot of Australia, HPP of Germany, Hassell of Australia and DP Architects of Singapore).
3. *2017 Finalist, *the International Competition of 2022 Asian Games Village Design*, Hangzhou, as the Chief Designer. (Eleven international design teams were invited including ARUP, Atkins, Tsinghua University and firms from China, Germany, Netherlands, Austria and the U.S. Yang's design was ranked the 3rd Place).
4. *2015 The 2nd Place, Kaohsiung Inner Harbor Revitalization Urban Design, Kaohsiung City Government, Taiwan (Other entries include AECOM and MVRDV).
5. *2012 The 1st place in planning competition: *Taipei's "Manhattan" project: Waterfront revitalization strategy along Taipei Danshui River*, organized by Bureau of Urban Development, Taipei Municipal Government.
6. *2011 The 1st prize, *the Campus Planning Competition of Beijing Information Technology University*, as the Chief Designer, in collaboration with BUE (Beijing Urban Engineering Design Institute). (Final entries include ten prestigious design institutes of the region such as Tsinghua University, Tongji University and South China University of Technology.)
7. *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.
8. *2010 The 1st 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. The other winner sharing the 1st prize was Turenscape.)
9. *2010 The 2nd Prize (out of 63 entries), international design competition of *Hangzhou Bay New District*, Ningbo City China, as the Chief Designer, in collaboration with Tongji University.

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*, ed., Henry Kelly, World Scientific Publications, in print.
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., 2019, Ecological Urban Design Driven by Energy Issues, in *Taiwan Construction News Record* (in Chinese), **438**: July, 2019: 38-45, Taiwan Construction Research Institute.
11. *Yang, Perry P. J., Yan J., 2019, Energy Performance of Resilient Urban Design, in *Taiwan Construction News Record* (in Chinese), **434**: March, 2019: 53-58, Taiwan Construction Research Institute.
12. *Yang, Perry P. J., 2019, Carbon Emission Measure for Resilient Urban Design, in *Taiwan Construction News Record* (in Chinese), **432**: January, 2019: 46-52, Taiwan Construction Research Institute.
13. *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.
14. *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.
15. ***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
16. *Yang, Perry P. J., 2018, Hydrological Issues in Resilient Urban Design, in *Taiwan Construction News Record* (in Chinese), 429: January, 2018: 43-50, Taiwan Construction Research Institute.
17. ***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.
18. *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.

19. ***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.
20. ***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.
21. *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.
22. ***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)
23. ***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)
24. ***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)
25. ***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)
26. *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)
27. *Yang, Perry P. J., Yan, Jinyue, 2016, Modeling Urban Design with Energy Performance, in *Energy Procedia* 88 (2016) 3 – 8.
28. ***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)
29. *Yang, Perry P. J., 2015, Energy Resilient Urban Form: A Design Perspective, in *Energy Procedia* 75: 2922-2927.
30. ***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)

31. *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.
32. ***Quan, Steven. J.**, Economou, Athanassios , 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)
33. *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. (in Chinese)
34. *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. (in Chinese)
35. *Yang, Perry P. J., **Li Zhengwei**, 2013, Carbon emission assessment for Central City Districts of Macau, *Planner*, Vol. 03, 08-32. (in Chinese)
36. *Yang, Perry P. J., 2012, Complexity Question in Urban Systems Design, in *Journal of Architectural Engineering Technology*, editorial, Vol. 1, Issue 2, 1-2.
37. *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. (in Chinese)
38. *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. (in Chinese)
39. *Yang, Perry P. J., 2010, Ecological Urbanism: Five Dimensions in Design, in Special Issue “Ecological Urbanism”, *WA (World Architecture)*, Tsinghua University, 01, 22-27. (in Chinese)
40. *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. (in Chinese)
41. *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. (in Chinese)
42. *Yang, Perry P. J., 2009, Questioning urban sustainability: social sufficiency, ecological efficiency and ecosystems compatibility. *Journal of Urbanism*, Vol. 2, Issue 3, 187-189.
43. 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.

44. 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.
45. 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. (in Chinese)
46. Yang, Perry P. J., 2006, Ecological design in high-density urban environment, in *Modern Urban Research*, 1, 15-24. (in Chinese)
47. 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. (in Chinese)
48. Yang, Perry P. J., 2005, Applying landscape ecology to urban planning and analysis, in *Modern Urban Research*. 09, 32-44. (in Chinese)
49. 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. (in Chinese)
50. Yang, Perry P. J., 2005, Downtown design: Asian experience of Singapore, in *City Planning Review*, Vol. 3, 2005. (in Chinese)
51. Yang, Perry P. J., 2005, Historical Evolution of Ecological Planning in Foreign Countries. In *Modern Urban Research*, 2-3, 05: 27-37. (in Chinese)
52. 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.
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. (in Chinese)

(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 16th 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. *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.
4. *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.
5. *Yang, Perry P.J., Yamagata, Yoshiki, Murayama, Akito, Mstui, 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.
6. *Yang, Perry P.J., **Tobey, Michael**, 2017, The Material Dimension of an Urban Neighborhood Design: A Holarchy Approach, *The 9th biennial conference of the International Society for Industrial Ecology (ISIE)*, June 25-29, Chicago.
7. ***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.
8. *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.
9. *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.
10. *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.

11. *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.
12. *Zhou, Yanan, 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.
13. *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.
14. ***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.
15. ***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*.
16. *Yang, Perry P. J., 2014, How does the urban block structure affect energy performance and carbon emission? Benchmarking three downtown urban districts, in *the 54th Annual Conference of ACSP*, Philadelphia, October 30 – November 2, 2014.
17. *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
18. *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.
19. *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.
20. *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 106th *National American Planning Association Conference*, Atlanta, April 26-30, 2014.

21. *Yang, Perry. P. J., 2013, Eco Area Ratio: A carbon mitigation tool for urban redevelopment in the City of Taipei, in *the 12th International Congress of Asian Planning Schools Association (APSA)*, National Taiwan University, Taipei, November 1-2, 2013.
22. *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.
23. *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.
24. ***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).
25. *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.
26. ***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.
27. *Yang, Perry. P. J., Ma, Xiangming, 2010, Ecological Urbanism: A Brief Review of Ecocity Models, in *the 9th Symposium of International Urban Planning and Environment Association (UPE9): Rapid Urbanization, Global Recession and Climate Change*, Guangzhou, August 3-6, 2010.
28. *Yang, Perry P. J., 2010, From Ecology in Urbanism to Ecology of Urbanism”, in *the 4th International Association for China Planning (IACP)*, Tongji University, Shanghai, China, June 19-21, 2010.
29. *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 3rd International Association for China Planning (IACP)* Nanjing, China, June 21-23, 2009,.
30. *Yuan, Qifeng, Yang, Perry. P. J., 2009, Transit Oriented Development of Guangzhou Mega City-- A Spatial and Institutional Analysis, in *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 21st Century Cities and Regions*, University of Kaiserslautern, Germany, March 23-26, 2009.

31. *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.
32. 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.
33. 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.
34. 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, 6th – 8th Dec 2006.
35. 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.
36. 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.
37. 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.
38. 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.
39. 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.
40. 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.

41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. 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.
47. 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.
48. 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.
49. 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).
50. 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).

51. 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.
52. 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.
53. 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 1st World Planning Schools Congress: Planning for Cities in the 21st Century, Opportunities and Challenges*, Tongji University, Shanghai, July 11, 2001.
54. 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)
55. 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.
56. 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)
57. 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 *Applied Energy*, June 1, 2020. (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.

(Creative works awarded in international design competitions) *

1. 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).
2. 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.)
3. 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.
4. 2017 The 1st 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).
5. 2005 The 1st 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".)

*Design competition work after 2010 are listed on page 1-2 and not repeated here.

D. Presentations

(Keynote addresses in international conferences)

1. *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.
2. *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.
3. *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.
4. *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.
5. *2015 Material Science for Future Urban Systems - 10KM² 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
6. *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.
7. *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.
8. *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
9. *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.
10. *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 54th Annual Conference of ACSP***, Philadelphia, October 30 – November 2, 2014.

11. *2014 Design for ecological urban systems: Two models or ways of thinking in *Eco Smart City Symposium*, Tongji University, Shanghai, October 24-25, 2014
12. *2014 Design and Planning Workshop as an Urban Laboratory in *iCities 2014: Workshop on Workshop*, National Cheng-Kung University, Tainan, October 14-15, 2014.
13. *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
14. *2011 Plenary speech "Design challenges of low energy urban systems design", *2011 World Congress on Engineering and Technology*, Shanghai, October 2011.
15. *2010 Low Carbon Ecological City: From Evaluation, Planning to Design, *U.S.-China Low Carbon City Mayors' Workshop*, Beijing, July 2010.
16. *2010 Low Carbon Ecological City: From Evaluation, Planning to Design, *Future City Forum*, New Taipei City Government, June 2010.
17. 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.
18. 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.
19. 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 Research and Innovations in Building and Construction), Guangzhou, China, December, 2006.
20. 2006 Design with the second nature: ecological development strategies in intensive urban environment, *Kaohsiung 2006 City Forum*, Kaohsiung City Government, Taiwan, November 2006.
21. 2006 Sustainable urban design in Asia, in *HPAIR 2006, The Harvard Project for Asian and International Relations 2006 Annual Academic Conference*, Singapore, August 2006.
22. 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.
23. 2004 Asian New Downtowns: The Urban Transformation of the Central City Areas of Singapore, Kaohsiung and Shanghai in *the 2nd Land Research Conference*, National Cheng Chi University, Taipei, Taiwan, September 25-26, 2004.

24. 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. *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.
2. *2019 From Japanese Metabolism to Japanese Smart Cities? In *Kyoto-Shenzhen Deep Decarbonization Project Symposium*, May 13, 2019, Kyoto.
3. *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.
4. *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.
5. *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.
6. *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.
7. *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.
8. *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.
9. *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.
10. *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.

11. *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.
12. *2013 New urbanism, landscape urbanism and beyond, in *Greenprints Conference 2013*, with Ellen Dunham-Jones, Atlanta, March 13-14, 2013.
13. *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.
14. *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.
15. *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.
16. *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.
17. *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.
18. 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.
19. 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.
20. 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.
21. 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.

22. 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.
23. 2004 Architecture and urban design education in Singapore, in *International Conference on Planning Education*, National Taiwan University, July 26-27, 2004.
24. 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.
25. 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 50th 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.)

1. *2020 Chinese University of Hong Kong, Centre for Housing Innovations, invited guest lecture, Urban Energy and Metabolism, April 24, 2020, Hong Kong (on-line).
2. *2019 Taipei City Government, invited public lecture, A framework of smart cities: urban systems design, November, 20, 2019, Taipei.
3. *2019 Shanghai Jiaotong University, School of Design, invited lecture, Urban Systems Design: Shaping new urban form of smart cities, October 14, 2019, Shanghai.
4. *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.
5. *2019 Guangdong Urban Planning Institute, invited talk: Urban systems design driven by future city visioning, with Dr. Yoshiki Yamagata, June 16, 2019, Guangzhou.
6. *2019 Tamkang University, Department of Water Resources and Environmental Engineering, invited lecture, Design for Resilient Urban Systems, June 4, 2019, Taipei.
7. *2019 University of Tokyo, Department of Urban Engineering, invited lecture, From Urban Design to Urban Systems Design, May 9, 2019, Tokyo.
8. *2018 Singapore Urban Redevelopment Authority (URA), invited lecture, "Design for smart urban systems", December 14, 2018, Singapore.
9. *2018 Hong Kong University, Faculty of Architecture, invited lecture "Data-driven Urban Design", November 8, 2018, Hong Kong.
10. *2018 Hong Kong University of Science and Technology, Division of Environment and Sustainability, "Design for Sustainable Urban Systems", December 3, 2018, Hong Kong.

11. *2018 Shenzhen City Government, R&D Center of Housing and Construction, invited lecture "Urban systems Design in IoT Era" August 20, 2018, Shenzhen.
12. *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.
13. *2016 Guangdong Urban Planning Institute, invited talk: "From Eco City to Resilient Urban Systems Design", August 3, 2016, Guangzhou.
14. *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.
15. *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.
16. *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 Stiffl), March 22, 2014, Guangzhou, China.
17. *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.
18. *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.
19. *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.
20. *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.
21. *2012 Tianjin University, School of Architecture, invited lecture "Cities as flows: scale, complexity and stochastic processes", Tianjin China, June 2012.
22. *2012 National Taiwan University (NTU), Graduate Institute of Building and Planning, invited lecture "Cities as flows: scale, complexity and stochastic processes", Taipei, June 2012.
23. *2012 National Chiao-Tung University (NCTU), School of Architecture, invited lecture "Cities as flows: scale, complexity and stochastic processes", Hsinchu, Taiwan, June 2012.

24. *2011 Tongji University, College of Architecture and Planning, invited lecture “Low energy urban systems design: scale, complexity & stochastic process”, Shanghai, October 2011.
25. *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.
26. *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.
27. *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.
28. *2009 Tongji University, Department of Urban Planning, invited lecture “Sustainable urban form and design” (with Professor Richard Dagenhart), Shanghai, December 2009.
29. *2009 National Cheng-Kung University, Department of Urban Planning, invited lecture “Ecological urbanism: scale, flow and design”, Tainan, Taiwan, November 2009.
30. 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.
31. 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.
32. 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.
33. 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.
34. 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.
35. 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 Institute of Technology: Steven French, Alan Balfour, Richard Dagenhart, Ellen Dunham-Jones, Nancey Green Leigh, Bruce Stiffler, 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

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. 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.

2. 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.

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 at Georgia Tech of the last six years)

Semester, Year	Course Number	Course Title	Number of Students
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 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	Planning Studio	12
Spring 2018	ARCH8886	Design and Research Studio	6
Spring 2017	CP6836C/ARCH6447/ARCH4803	Urban Ecological Design	19
Spring 2017	CP6052	Planning Studio	13
Spring 2017	ARCH6072	Design and Research Studio	4
Spring 2016	CP6052/ARCH6072	Planning/Architecture Studio	10
Spring 2016	CP6836C/ARCH6447/ARCH4803	Urban Ecological Design	21
Spring 2015	CP6052/ARCH6072	Planning/Architecture Studio	11
Spring 2015	CP6836C/ARCH6447	Urban Ecological Design	18
Fall 2014	CP8823PY/ARCH8823	Site Planning & Urban Simulation	11
Spring 2014	CP6052/ARCH6072.	Planning/Design & Research Studio	12
Spring 2014	CP6836C/ARCH6447	Urban Ecological Design	20

*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. 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

C. Educational Innovations and Other Contributions

(Recognitions in Teaching)

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)

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 100th 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 2017-2020, 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.

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.
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 21st 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, 2012.
3. 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 the Institute's International Committee/Globalization Task Force and International Plan Task Force, 2010 to 2012.
3. Member of Library Faculty Advisory Board, 2016 to Present.

(College of Design)

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.
4. Advisory Committee, College of Architecture, 2012 to 2015.
5. Diversity Committee, College of Architecture, 2012 to 2016.
6. Exhibition Committee, College of Architecture, 2014 to Present.
7. 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 Executive Committee, 2014 to 2018.
2. Member of Ph.D. Program Committee, 2018.
3. Member of Committee in international embrace and internal linkage, 2012 to 2013.
4. Coordinator, Dual Degrees Program of Master of Architecture and Master of City and Regional Program, 2013 to 2014.
5. Master of City and Regional Planning Program Committee, 2012 to 2013.

(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.