BUMSEOK CHUN

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PROFESSIONAL APPOINTMENTS

Associate Professor, Urban Planning and Environmental Policy   2021-Present
Texas Southern University, Houston, TX

Assistant Professor, Urban Planning and Environmental Policy   2015-2021
Texas Southern University, Houston, TX
Research area: Human-Nature Interaction, Spatial Big Data Analytics, Machine Learning Application, Spatial Econometrics

Research Scientist, Urban Climate Lab   2013-2015
Georgia Institute of Technology, Atlanta, GA

Postdoctoral Research Fellow, Center for Spatial Planning Analytics and Visualization
Georgia Institute of Technology, Atlanta, GA   2012-2014

EDUCATION

Doctor of Philosophy, City and Regional Planning   March 2012
The Ohio State University, Columbus, OH
Dissertation: Three-Dimensional City Determinants of the Urban Heat Island: A Statistical Approach

Master of City and Regional Planning, City and Regional Planning   March 2009
The Ohio State University, Columbus, OH

Master of Science, Civil and Environmental Engineering and Geodetic Science   March 2006
The Ohio State University, Columbus, OH
Thesis: Building reconstruction from feature vectors with LiDAR data

Bachelor of Engineering, Civil and Geoinformatics Engineering   March 2003
Inha University, South Korea

HONORS AND AWARDS
1. **Faculty Excellence Awards (Scholarly Research/Creative Activities)**. Texas Southern University, Houston, TX (2021)
2. **Outstanding Faculty Research Award**. School of Public Affair, Texas Southern University, Houston, TX (2021)

3. **Best Tech Transfer Project**. USDOT Tier-1 University Transportation Center, Houston, TX (2019)

4. **QEM/NASA Forum**. Bowie, MD (2019)

5. **QEM/NSF S-STEM Proposal Development Workshop**. National Science Foundation, Linthicum Heights, MD (2018)

6. **ACSP Student Travel Scholarship**. Association of Collegiate Schools of Planning, Salt Lake City, UT (2011)

7. **Pixoneer Fellowship for GIS, RS, and Spatial Statistics**. Korean-American Association for Geospatial and Environmental Sciences, Cincinnati, OH (2011)

8. **Caukins Scholarship**. Austin E. Knowlton School of Architecture, The Ohio State University, Columbus, OH (2007)

9. **Innovation Award**. The National Association of Development Organizations (2007)

10. **National R&D Scholarship**. Korean Science and Engineering Foundation (KOSEF), South Korea (2003)

PEER-REVIEWED JOURNAL PUBLICATIONS

Publications in Texas Southern University, 2015-Present

1. Majumdar, S. and Chun, B (2021). Fracking and Traffic Accidents in the Eagle Ford Shale of Texas (Under 2nd review, Submitted in Review of Policy Research)

2. Chun, B., Choi, K., and Pan, Q. (2021) Key Determinants of Particulate Matter (PM) 2.5 Concentrations in Urban Environments with Greening Scenario Analysis (Under review, Submitted in Environment and Planning B: Urban Analytics and City Science)

3. Chun, B., Hur, M., and Won, J. (2021) Impacts of Thermal Environments on Health Riak: A Case Study of Harris County, Texas. International Journal of Environmental Research and Public Health, Vol.18, 5531. DOI: 10.3390/ ijerph18115531

4. Hur, M., Didericksen, K., Chun, B., Bellamy, R., and Peralta, J. (2020). Migrant farmwokers' labor camp visibility, social well-being, and mental health (Under review, Submitted in The Journal of Behavioral Health Services & Research)

5. Chun, B. Choi, K., and Pan, Q. (2020). The Nexus between PM 2.5 and Urban Characteristics in the Texas Triangle Region. Research Part D: Transport and Environment, Vol.78. DOI: 10.1016/j.trd.2019.11.016

6. Park, T., Jang, C., Chang, S., and Chun, B. (2018). Road-traffic noise mapping by combining GIS DB and LiDAR dataset. Transaction of Korean Society for Noise and Vibration Engineering, Vol.28(4): 483-489. DOI: 10.5050/KSNVE.2018.28.4.483

7. Chun, B, and Guldmann, J-M. (2018). Seasonal variations in the impacts of greening strategies for mitigation of the urban heat island. Computers, Environment and Urban System, Vol. 71: 165-176. DOI:10.1016/j.compenvurbsys.2018.05.006

8. Ryu, H., Park, I., Chun, B., and Chang, S. (2017). Spatial statistical analysis of the effects of urban forms on road-traffic noise exposure through noise mapping of a city in South Korea. Applied Acoustics, Vol.115: 93-100. DOI: 10.1016/j.apacoust.2016.08.025

9. Chun, B. and Guhathakurta, S. (2016). Impacts of Three Dimensional Surface Characteristics on the Urban Heat Islands over the Diurnal Cycle. The Professional Geographer. DOI: 10.1080/00330124.2016.1208102.

10. Kim, T. and Chun, B. (2016). Determinants of Acquirer-Target Distance in M&A. Managerial Finance, Vol.42 (2): 95-117. DOI: 10.1108/MF-08-2014-0220

11. Chun, B. and Guhathakurta, S. (2015). Daytime and nighttime urban heat islands statistical models for Atlanta. Environment and Planning B (Published online: December 29, 2015). DOI: 10.1177/0265813515624685

Publications in Georgia Institute of Technology, 2012-2015

1. Ryu, H., Chun, B., Park, I., and Chang, S. (2015). Road Traffic Noise Simulation for Small-scale Urban Form Alteration Using Spatial Statistical Model. Transaction of Korean Society for Noise and Vibration Engineering, Vol.25 (4): 284-290. DOI: 10.5050/KSNVE.2015.25.4.284

2. Park, T., Chun, B., and Chang, S. (2014). Extraction of Three-dimensional Hybrid City Model based on Airborne LiDAR and GIS Data for Transportation Noise Mapping. Transaction of Korean Society for Noise and Vibration Engineering, Vol.25 (4): 284-290. DOI: 10.5050/KSNVE.2014.24.12.985

3. Chun, B. and Guldmann, J.-M. (2014). Spatial statistical analysis and simulation of the urban heat island in high-density central cities. Landscape and Urban Planning, Vol. 125: 76-88. DOI: 10.1016/j.landurbplan.2014.01.016

4. Ryu, H., Park, I., Chang, S., and Chun, B. (2014). The Spatial Statistical Relationships between Road-traffic Noise and Urban Components Including Population, Building, Road-traffic and Land-use. Transaction of Korean Society for Noise and Vibration Engineering, Vol.24 (4): 348-356. DOI: 10.5050/KSNVE.2014.24.4.348

Publications in The Ohio State University, 2010-2012

1. Chun, B. and Guldmann, J.-M. (2012). Spatial Analysis of the Urban Heat Island Using a 3-D City Model. Journal of the Korea Spatial Information System Society, Vol.20 (4): 1-16. DOI:10.12672/ksis.2012.20.4.001

2. Chun, B. and Guldmann, J.-M. (2012). Two- and Three-Dimensional Urban Core Determinants of the Urban Heat Island: A Statistical Approach. Journal of Environmental Science and Engineering, Vol.B1: 363-378.

3. Chun, B., Guldmann, J.-M. and Seo, W. (2011). Impacts of Multi-Dimensional Isovist on Commercial Property Values in the CBD Using GIS. Seoul Studies, Vol.9: 17-32.

4. Chun, B. and Kim, H. (2010). Analysis of Urban Heat Island Effect Using Information from a 3-Dimensional City Model. Journal of the Korea Spatial Information System Society, Vol. 18 (4): 1-11.

5. Hur, M., Nasar, J. L. and Chun, B. (2010). Neighborhood Satisfaction, Physical and Perceived Naturalness and Openness. Journal of Environmental Psychology, Vol.30: 25-59. DOI:10.1016/j.jenvp.2009.05.005

OTHER PUBLICATIONS

1. Ross, C., Chun, B., Clarke, W., Guhathakurta, S., Lee, D., & Smith, S. (2013). User Manual: Georgia SPLOST Database & Clearinghouse for Transportation Finance. Center for Quality Growth and Regional Development. Center for Geographic Information Systems, CARL Vinson Institute of Government, Georgia Institute of Technology and The University of Georgia, Atlanta, GA, U.S.

2. Lara, J. & Chun, B. (2009). Identifying and Quantifying Critical Urban Green Spaces in the Columbus Metropolitan Region. Project report to the Center for Urban and Regional Analysis, The Ohio State University, Columbus, OH, U.S.

3. Cowley, J., Gough, M., Yeager, R., Decker, B., Das, S, & Chun, B. (2006) Harrison County: Smart Growth Resource Guide. Project report to the Southern Mississippi Planning and Development District and the Mississippi Department of Environmental Quality.The Ohio State University, Columbus, OH, U.S.

MANUSCRIPTS IN PREPARATION

1. Chun, B. Hotspot Network Analysis using Hierarchical Clustering Algorithms in Machine Learning

2. Choi, K., and Chun, B. Environmental Impact of Self-Driving Cars

3. Chun, B. and Guldmann, J.-M. Optimizing Greening Space to Minimize the UHI Intensity

4. Chun, B. and Guldmann, J.-M. Geometrical Characteristics of Sky View Factor

RESEARCH GRANTS

1. **USDOT Tier-1**: Cooperative Mobility for Competitive Megaregions (CM2), University Transportation Center (PI at TSU) with Qisheng Pan (PI at UTA), $64,000. "Potential Impact Analysis of Driverless-Cars on Megaregion Traffic Flow Patterns" (2021-2022)

2. **Coalition for Environment, Equity, & Resilience**: CEER Capacity Building & Innovation 2019-2020, $9,805 (2020)

3. **USDOT Tier-1**: Cooperative Mobility for Competitive Megaregions (CM2), University Transportation Center (PI at TSU) with Qisheng Pan (PI at UTA), $177,000 (2019-2021)

4. **USDOT Tier-1**: Cooperative Mobility for Competitive Megaregions (CM2), University Transportation Center (Co-PI) with Qisheng Pan (PI), $420,000. "Develop a GIS-based Megaregion Transportation Planning Model." (2018-2019)

5. **USDOT Tier-1**: Cooperative Mobility for Competitive Megaregions (CM2), University Transportation Center (Co-PI) with Qisheng Pan (PI), $220,000. "Megareion Truck Floww Estimation Model." (2017-2018)

6. **Seed Research Grant, Texas Southern University**. "Exploring the Dynamics of Urban Heat Island (UHI) Formation Using Comprehensive 3-D Models: Developing Climate-Smart Houston." $10,000. (PI). (2016-2017)

PATENTS

1. 3D City Modeling System for Transportation Noise Mapping and method (Co-PI). Patent #: 2-2006-033481-0 (2015)

CONFERENCE PRESENTATION

1. Chun, B., Hur, M., & Won, J. (2021). Spatial Analysis of the FEMA Flood Housing Assistance for Disaster Risk Resilience in Southern Coastal Communities. Association of Collegiate Schools of Planning, Virtual Meeting.

2. Chun, B., Pan, Q., & Choi, K. (2020). Spatial Pattern Analysis of PM 2.5 Concentrations in Densely-Built Areas Using the Random Forest: A Case Study of Austin and Houston in Texas. Association of Collegiate Schools of Planning, Virtual Meeting.

3. Chun, B., Lanza, K., Choi, K., & Thapa, J. (2019). Exploring the Nexus of Surface and Atmospheric UHIs by Spatial Big Data. Urban Affair Association (UAA), Los Angeles, CA.

4. Sung, S., Chun, B., Thapa, J., & Lee, S (2019). Impact of Urbanization on Diurnal and Nocturnal Urban Thermal Environment using Air Temperature Big Data: A Case of Seoul Metropolitan Area, Korea. The Association of American Geographers (AAG) Conference, Washington D.C.

5. Pan, Q., Chun, B., & Jin, Z. (2019). Megaregion Truck Flow Estimation Model. Western Regional Science Association (WRSA), Napa, CA.

6. Pan, Q., Chun, B. & Jin, Z. (2018). Megaregion Truck Flow Estimation Model. International Association for China Planning (IACP) Annual Conference, Xi'an, China.

7. Chun, B., Hur, M. & Won, J. (2018). Urban greenery impacts on public health: utilizing an advanced 3D analysis. The Association of American Geographers (AAG) Conference, New Orleans, LA.

8. Hur, M., Chun, B. & Rocha-Peralta, J. (2017). Out of sight, out of mind: farmworker's labor camp isolation for access to resources. Association of Collegiate Schools of Planning, Denver, CO.

9. Pan, Q., Chun, B., Jin, T. & Zhou, J. (2017). Development and applications of megaregion truck flow estimation model. Association of Collegiate Schools of Planning, Denver, CO.

10. Park, T., Chun, B. & Chang, S. (2017). Build 3D urban model for noise mapping. International Congress & Exposition on Noise Control Engineering, Hong Kong.

11. Chun, B. & Guldmann, J. (2016). Seasonal impacts of green space strategies on the urban heat island. Association of Collegiate Schools of Planning, Portland, OR.

12. Chun, B. & Guldmann, J. (2015). Mitigation of the urban heat island with greening strategies: a nonlinear programming model. Association of Collegiate Schools of Planning, Houston, TX.

13. Guldmann, J. & Chun, B. (2014). Optimization of roof and ground greening strategies to mitigate the urban heat island. INFORMS Annual Meeting, San Francisco, CA.

14. Zhang, W., Guhathakurta, S., Fang, J., Zhang, G., & Chun, B. (2014). Exploring the impact of shared autonomous vehicles on urban parking demand. Association of Collegiate Schools of Planning, Philadelphia, PA.

15. Park, T., Chun, B., & Chang, S. (2014). Extraction of three-dimensional city model by utilizing airborneLiDAR data for road-traffic noise mapping. The Association of American Geographers (AAG) Conference 2014, Tampa, FL.

16. Chun, B & Kim, T. (2014). Determinants of acquirer-target distance in M&A. Southwestern Finance Association, Dallas, TX, U.S.

17. Chun, B. & Guhathakurta, S. (2013). Impacts of 2- and 3-D urban surface characteristics on daytime and nighttime UHIs. North American Meetings of the Regional Science Association International (RSAI), Atlanta, GA, U.S.

18. Chun, B. & Guldmann, J.-M. (2013). Solar energy access and complex urban cores three-dimensional morphology: a spatial statistical approach. North American Meetings of the Regional Science Association International (RSAI), Atlanta, GA, U.S.

19. Chun, B. & Guldmann, J.-M. (2013). Three-dimensional city determinants of the urban heat island. The Association of American Geographers (AAG) Conference 2013, Los Angeles, CA, U.S.

20. Hur, M. & Chun, B. (2012). Searching a network tool for pedestrian wayfinding: a proposal for the space syntax added network analysis. The Environmental Design Research Association (EDRA 43), Seattle, WA, U.S.A.

21. Chun, B. & Guldmann, J.-M. (2011). Urban core determinants of the urban heat island: spatial regression models. Association of Collegiate Schools of Planning, Salt Lake City, UT, U.S.

22. Kim, M. & Chun, B. (2010). Optimization tool for wireless network architecture based on 3D built environment. Korean Society for Internet Information Conference, Kwangju, South Korea.

23. Chun, B. & Guldmann, J.-M. (2010). Modeling the urban heat island (UHI) using the 3-D geometry of built environments. Association of Collegiate Schools of Planning, Minneapolis, MN, U.S.

24. Lara, J. & Chun, B. (2010). Identifying and quantifying critical urban green spaces in the Columbus metropolitan region. The Environmental Design Research Association (EDRA 41), Washington D.C., U.S.

25. Chun, B. & Guldmann, J.-M. (2010). Measurement of visibility with building pattern impacted by property value in urban area. The Association of American Geographers (AAG) Conference 2010, Washington D.C., U.S.

26. Chun, B.& Guldmann, J.-M. (2009). Three-dimensional city model based on data fusion for virtual environments. The 2009 US-Korea Conference on Science, Technology and Entrepreneurship, Raleigh, NC, U.S.

27. Chun, B. & Guldmann, J.-M. (2008). Textural analysis on NDVI for Land-Cover change detection. The Association of American Geographers (AAG) Conference, Boston, MA, U.S.

INVITED SEMINAR AND PRESENTATIONS

1. **Han-Yang University** (in South Korea). Planning Strategies for Extreme Heat in Urban Areas: Applications of Spatial Big Data. (2018)

2. **Houston-Galveston Area Council**. Planning Research Using the InfoUSA/Infogroup Data. (with Pan, Q. and Jin, T., 2018)

3. **GIS Expo in Houston**. Application of Geospatial Technique for Urban Heat Island Modeling. (2016)

4. **Earth and Atmospheric Science at University of Houston**. Application of Geospatial Technology. (2016)

5. **Civil and Environmental Engineering at University of Houston**. Introduction to GIS application in the world. (2015)

6. **Korea Planners Association** (in South Korea). Analysis of Land-Use and Urban Heat Island by Big Data and Data-Mining. (2015)

7. **University of Seoul & Kangwon University** (in South Korea). Urban Informatics and Environmental GIS. (2015)

8. **Beijing Forum** (in China). Solar Energy Access and Urban Morphology in Complex Central Core Urban Areas. (with Guldmann, J.-M., 2013)

TEACHING EXPERIENCE

1. Texas Southern University (2015-Present)

   - UPEP 802 Quantitative Methods in Planning
   - UPEP 804 Introduction to Site Design
   - UPEP 805 Plan Preparation Studio
   - UPEP 730 (#811 in the past) Introduction to Geographic Information System in Urban Planning
   - UPEP 705 (#813 in the past) Introduction to Land Use Planning
   - UPEP 841 Application of Geographic Information System
   - UPEP 732 (#842 in the past) Advanced Studies in GIS
   - UPEP 872 Special Topic: Remotely Sensed Data in Urban Planning (Summer I, 2019)
   - UPEP 872 Special Topic: Urban Sustainability Analysis (Summer I, 2020)
   - UPEP 902 Applied Planning Analysis I
   - UPEP 903 Applied Planning Analysis II
   - UPEP 909 Population and Development Planning
   - GEOG 833 Geographic Information System (Undergrad)

2. Georgia Institute of Technology (2013 – 2014)

   - CP 6521 Advanced GIS
   - CP 6542 Transportation and GIS

3. The Ohio State University (2009 – 2012)

   - CRP 762 Urban Planning Data and Forecasting
   - CRP 510 Plan Service Learn
   - LARCH 740 Research Methods in Landscape Architecture and Design (Teaching Assistant)

COMPUTER KNOWLEDGE

1. Computer Language/Script: Anaconda/Python, PyCharm, Matlab
2. Geographic Information System: ArcGIS series, ERDAS Imagine series, ENVI, TransCAD
3. Statistical Package: Stata, R, GeoDa, SPSS
4. Design: MiKTeX/LaTeX, Adobe Design Series

SERVICE

1. Departmental Service

   - Member, Department Chair Search Committee (2019-Present)
   - Member, Curriculum Committee, Budget Committee (2017-2019)
   - Member, Admission Committee (2017-present)
   - Member, Technology Committee (2016-2017)

2. School of Public Affair

   - Member, Associate Dean Search Committee (2019, 2021)
   - Member, Tenure and Promotion Committee (2021-2023)
   - Member, Technology Committee, Scholarship Committee (2019-2020)
   - Member, Strategic Planning Committee (2016-2017)
   - Member, Research Committee (2015-2016)

3. Community Service

   - Member, 3rd Ward Community Redevelopment Workgroup (2016-Present)

4. Professional Service

   - Board member, Korea-America Association for Geospatial and Environmental Sciences (KAGES) (2021-Present)
   - Editorial board member, International Journal of Geospatial and Environmental Research (2021-Present)
   - Executive Committee, USDOT Tier 1 UTC: Cooperative Mobility for Competitive Megaregions (CM2) (2020-Present)
   - Editorial board member, Appraisal Studies (in Korea) (2019-Present)
   - English editing committee, The Korean Regional Development Association (in Korea) (2019-Present)
   - Reviewer of Asia-Pacific Journal of Atmospheric Sciences (2019)
   - Member of Legacy Project, APATX18 Texas Chapter State Conference Planning Committee (2018)
   - Scholarship Reviewer of Korean-American Association for Geospatial and Environmental Science (2017-Present)
   - Paper Reviewer of the COTA international Conference for Transportation Professionals (2017-2018)
   - Reviewer of Sustainable Cities and Society, Computer, Environment, and Urban System, and Remote Sensing of Environment (2017)
   - Reviewer of Journal of Environmental Psychology, and International Journal of Environmental Research and Public Health (2016)
   - Reviewer of Journal of Water Supply: Research and Technology-AQUA, and Environment and Planning B (2014)

MEMBERSHIPS IN PROFESSIONAL ORGANIZATION

- Association of American Geographers (AAG), International
- The Association of Collegiate Schools of Planning, International
- Urban Affairs Association, International
- American Planning Association, Texas Chapter, State
- Korean-American Scientist and Engineers Association, National