

# Bumseok Chun, Ph.D

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## RESEARCH INTEREST

Environmental Planning/Policy, Environmental Impact Analysis, Climate Change, Image Processing (RS/LiDAR), 3D Simulation/Modeling, Numerical Analysis, Spatial Data Analysis, GIS

## EDUCATION

- Ph.D** (City & Regional Planning). The Ohio State University, Columbus, OH. 03/2012  
- Advisor: Professor Jean-Michel Guldmann  
Dissertation: *Three-Dimensional City Determinants of the Urban Heat Island: A Statistical Approach*
- Master's** (City & Regional Planning). The Ohio State University, Columbus, OH. 03/2009
- Master's** (Civil and Environmental Engineering and Geodetic Science). The Ohio State University, Columbus, OH. 03/2006  
- Advisors: Professor Anton F. Schenk, Dr. Beata M. Csatho  
- Concentrations: LiDAR, Image Processing, Photogrammetry  
Thesis: *Building reconstruction from feature vectors with LiDAR data*
- Bachelor's** (Civil and Geoinformatics Engineering). Inha University, South Korea. 08/2003

## EMPLOYMENT

- Lecturer.** City and Regional Planning, Georgia Institute of Technology, Atlanta, GA. 01/2013-
- Post-Doctoral Researcher.** Center for Geographical Information System, Georgia Institute of Technology, Atlanta, GA. 10/2012-
- Invited Researcher.** Department of City and Regional Planning, The Ohio State University, Columbus, OH. 07/2012-09/2012
- Adjunct Faculty.** Department of City and Regional Planning, The Ohio State University, Columbus, OH. 01/2012-06/2012
- Graduate Research Associate.** Ohio Supercomputer Center, The Ohio State University, Columbus, OH. 2010-2011
- Graduate Research Associate.** Department of Landscape Architecture, The Ohio State University, Columbus, OH. 2008-2009
- Teaching Assistant.** Department of Landscape Architecture, The Ohio State University, Columbus, OH. Spring 2009
- GIS Analyst,** Bennet & Williams, Environmental Consultants, Inc. Columbus, OH. 2007
- GIS Analyst,** City and Regional Planning, The Ohio State University, Columbus, OH. Fall 2006

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### RESEARCH & GRANT PROPOSALS

**In Preparation- “Minimizing building carbon emissions through photovoltaic systems”.** Role: Principal Investigator. This research explores (1) how to predict the amount of solar radiation available for potential photovoltaic energy, (2) how to minimize building energy consumption by minimizing carbon emissions from urban environments and (3) the impact of urban characteristics and building energy on UHI.

**2011- “Cloud-based velocity profile optimization for everyday driving”.** Role: Preliminary study to implement 3-D traffic network system to optimize vehicle energy consumption. This research explores effective fuel management strategies for hybrid electric vehicles.

**2008- “Identifying and quantifying critical urban green spaces in the Columbus metropolitan region”.** Role: Preliminary study to identify urban green spaces with topological characteristics and to define future potential green space. This research (1) explores current knowledge on the benefits of green urban spaces and their impact on mental, physical and community health, (2) assesses the quantity and quality of green open spaces and their accessibility as measures of the social capital of a community through a Columbus, Ohio, case study, and (3) establishes a framework for future research in this area.

**2007- “Harrison County: Smart growth resource guide”.** Role: Coordinate GIS data and design maps. This research is to assist government officials, planners, developers, and citizens in thinking about how Smart Growth principles can be applied to achieve land use goals throughout the county. This Resource Guide provides a review of community opinion surveys, existing planning documents, and policies in both municipalities and unincorporated areas of the county. This information is used to determine the current and desired future conditions. Next, given these conditions, the Resource Guide includes land use policy tools that can be used to achieve the desired future conditions in each community.

### TEACHING EXPERIENCE

**Spring 2013, CP 6542 *Transportation and GIS.***

- City and Regional Planning, Georgia Institute of Technology

**Spring 2012, CRP 762 *Urban Planning Data and Forecasting.***

- City and Regional Planning, The Ohio State University
- Support the Instructor by grading and tutoring students

**Winter 2012, CRP 510 *Plan Service Learn (Cost-Benefit Analysis).***

- City and Regional Planning, The Ohio State University
- Develop a comprehensive understanding of the urban design process with cost-benefit analysis

**Spring 2009, LARCH 740 *Research Methods in Landscape Architecture and Design.***

- City and Regional Planning, The Ohio State University
- Coordinate GIS data and guide students

### PEER-REVIEWED PAPERS

- Chun, B. & Guldman, J.-M. (2012). The Urban Heat Island in High-Density Central Cities: A Multi-Scale Spatial Statistical Analysis (Submitted to *Geographical Analysis*)
- Chun, B. & Guldman, 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): pp1-16.
- Chun, B. & Guldman, 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.
- Chun, B., Guldman, J.-M. & Seo, W. (2011). Impacts of Multi-Dimensional Isovist on Commercial Property Values in the CBD Using GIS. *Seoul Studies*, Vol.9: 17-32.

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### PEER-REVIEWED PAPERS (Con't)

- Chun, B. & 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.
- Hur, M., Nasar, J. L. & Chun, B. (2010). Neighborhood Satisfaction, Physical and Perceived Naturalness and Openness. *Journal of Environmental Psychology*, 30: 25-59.

### WORKING PAPER IN PROGRESS

- Chun, B. (2012). Analysis of vegetation impacts on the UHI using Landsat TM images and LiDAR dataset
- Chun, B. & Guldmann, J.-M. (2012). Urban Morphology and Visibility Impacts on Commercial Property Values: A Spatial Regression Analysis.
- Chun, B. & Guldmann, J.-M. (2012). Urban Morphology and Solar Energy Availability: A Spatio-Temporal Regression Analysis.

### OTHER PUBLICATIONS

- 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.A
- 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.A.

### CONFERENCE PRESENTATIONS

- 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.
- 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.A.
- 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.
- 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.A.
- 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.A.
- 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.A.
- 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.A.
- 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.A.

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### OTHER PRESENTATIONS

- Chun, B. (2011). *3-D city determinants of the Urban Heat Island with geospatial data*. Geography Awareness Week and GIS Day, The Ohio State University, Columbus, OH, U.S.A. - Poster
- Chun, B. (2011). *Application of 3-D GIS: Environmental Planning*. Guest lecturer in CRP 608 GIS in Professional Planning on January 11, 2011, The Ohio State University, Columbus, OH, U.S.A.
- Chun, B. (2010). *Modeling the urban heat island (UHI) using the 3-D geometry of built environments*. CRP Research Seminar Series on November 12, 2010, The Ohio State University, Columbus, OH, U.S.A.
- Lara, J. & Chun, B. (2009). *Identifying and quantifying critical urban green spaces in the Columbus metropolitan region*. Geography Awareness Week and GIS Day, The Ohio State University, Columbus, OH, U.S.A. - Poster
- Hur, M. & Chun, B. (2006). *Neighborhood satisfaction, physical and perceived naturalness and openness*. CRP Research Seminar Series on April 7, 2006, The Ohio State University, Columbus, OH, U.S.A.

### AWARDS

- ACSP Student Travel Scholarship, *Association of Collegiate Schools of Planning*, Salt Lake City, UT. (2011)
- Pixoneer Fellowship for GIS, RS, and Spatial Statistics, *Korean-American Association for Geospatial and Environmental Sciences*, Cincinnati, OH. (2011)
- Caukins Scholarship, Austin E. Knowlton School of Architecture, The Ohio State University, Columbus, OH. (2007)
- Innovation Award, The National Association of Development Organizations, U.S.A. (2007)
- National R&D Scholarship, Korean Science and Engineering Foundation (KOSEF), South Korea (2003-2005)

### COMPUTER KNOWLEDGE

- Language/Script: C, Matlab
- Geographic Information System: ArcGIS series, ArcIMS, ArcGIS Explorer, ArcView
- Image Processing: ERDAS Imagine series, ENVI
- Life-Cycle Assessment: Gabi 4, Athena
- Statistical Package: Stata, R, GeoDa, SPSS
- Design: Adobe Design CS3/CS4, LaTeX/MikTeX/TeXnicCenter

### PROFESSIONAL AFFILIATIONS

- Association of American Geographers (AAG)
- Korean-American Association for Geospatial and Environmental Sciences (KAGES)