

CURRICULUM VITAE



SANG HYEOK KANG

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RESIDENCE:

30 Songdogwahak-ro 27beon-gil 305-704
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EDUCATION:

Ph.D., Civil Engineering (Construction Engineering & Management):

Hanyang University, Seoul, South Korea, Aug. 2009. GPA: 4.21/4.50

Dissertation: Development of GIS-Based Haul Route Planning Methodology for Earthwork.

The dissertation work involved a geographic information system (GIS) based earthwork route planning methodology that assists construction planners in making decisions on a haul routes layout by providing an efficient haul route and associated fleet production and cost information. The methodology includes least cost path analysis on a raster surface that is combined with many single factor surfaces weighted through pair-wise comparisons. Criterion of each factor that affects the haul route layout is explained in terms of its requirements and rules of thumb widely used at construction sites. Fuzzy membership functions are applied to quantitatively reflect the criteria.

M.S., Civil Engineering (Construction Engineering & Management):

Hanyang University, Seoul, South Korea, Feb. 2005. GPA: 3.78/4.50

Thesis: Integration of Design and Construction Information Using GIS.

Work included integration of design drawing data (CAD) and construction data to automate the estimation process and help construction planners plan on space scheduling for roadway construction. Quantity-take-off procedures and data integration were automated with a graphic object oriented technique. ArcView, a geographic information system software produced by ESRI, was used.

B.S., Civil Engineering,
Hanyang University, Seoul, South Korea, Feb. 2003. GPA: 3.79/4.50

RESEARCH EXPERIENCE:

Incheon National University, Associate Professor

Feb. 2019 – present

- Geographic information system-based evaluation method for accessibility of social infrastructure facilities
- Unmanned areal vehicle and image processing applications to construction site monitoring
- Remote collaboration of construction site managers and field managers using mixed reality

Incheon National University, Assistant Professor

Feb. 2015 – Feb. 2019

- Analyzing factors affecting crash involvement of commercial vehicle drivers: Evaluation of commercial vehicles drivers' characteristics in South Korea,
- Relationship between urban built environment and severe injury traffic crashes

Construction & Economy Research Institute of Korea (CERIK), Research Fellow

Apr. 2012 – Feb. 2015

Safe Transportation Research & Education Center, UC Berkeley, Associate Specialist

Sep. 2010 – Apr. 2012

- Analyzing Spatiotemporal Trends in Traffic Collisions and Urbanization: A Case Study of the Sacramento Region, A preliminary investigation by analyzing the spatial trends in traffic collisions and urbanization at the outskirts of the Sacramento metropolitan area from 1998 to 2008, using data from the Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) and the Statewide Integrated Traffic Records System (SWITRS).
- Modification and enhancement of PLANSAFE software package for users in DOTs and MPOs. PLANSAFE is a software package which supports proactive safety planning by providing urban or infrastructure planners with a robust, defensible, and accurate analytical set of algorithms to forecast the safety impacts of engineering and behavioral countermeasure investments at the planning-level.
- Developing a GIS-based UI for crash geocoding process designed by Traffic Safety Center and developing tools to spatially select crash data inputs for the safety index functions of Highway Safety Improvement Program

Safe Transportation Research & Education Center, UC Berkeley, Visiting Scholar

Aug. 2009 – Aug. 2010

- Developing a GIS-based UI for crash geocoding process designed by Traffic Safety Center and developing tools to spatially select crash data inputs for the safety index functions of Highway Safety Improvement Program
- Research on highway design methodology for the safety performance of buffer-separated high-occupancy vehicle (HOV) lanes

PUBLICATIONS:

Journal Papers

Lee, H., Kim, S., and Kang, S. (2021) "GIS-Based Evaluation Method for Accessibility of Social-Infrastructure Facilities," *Applied Sciences*, Vol. 11, No. 12, 5581.

Yhee, H., Kim, S., and Kang, S. (2021) "A Methodology for Analysis of the Supply Status of Community Infrastructure," *KSCE Journal of Civil and Environmental Engineering Research*, Vol. 41, No. 3, pp. 267-276 (in Korean).

Lee, J., Yeo, J., Yun, I., and Kang, S. (2020) "Factors Affecting Crash Involvement of Commercial Vehicle Drivers: Evaluation of Commercial Vehicles Drivers' Characteristics in South Korea," *Journal of Advanced Transportation*, Vol. 2020.

Lee, H., Kim, S., and Kang, S. (2020) "A Method of Measuring Accessibility for Community Infrastructure Planning," *Journal of Korea Institute of Construction Engineering and Management*, Vol. 21, No. 1, pp.21-31 (in Korean).

Kang, S., Park, M-W., and Suh, W. (2019) "Feasibility Study of the UAV-RFID System for Localizing Construction Materials on Large-Scale Open Sites," *Sensors and Materials*, Vol. 31, No. 5, pp. 1449-1465.

Kang, S., Kim, S., Choi, B., Park, M-W., and Suh, W. (2019) "Development of Smart Helmet for Monitoring Construction Resources Based on Image Matching Method," *Journal of Imaging Science and Technology*, Vol. 63, No. 3, pp. 1-10.

Kang, S., Park, S., and Seo, J. (2019) "An alternative way to determine overall Performance of infrastructure - A case study of Korean infrastructure facilities -" *KSCE Journal of Civil Engineering*, Vol. 23, No. 4, pp.1466-1472.

Kang, S., Park, S., and Seo, J. (2018) "A Study on Development of Dump Truck Route Exploration System" *Journal of the Korean Society of Civil Engineers*, Vol. 38, No. 6, pp.957-965 (in Korean).

Jang, K., Kim, K., Kim, H. Y., and Kang, S. (2018) "A multi-level analysis of the relationship between urban built environment and severe injury traffic crashes," *KSCE Journal of Civil Engineering*, Vol. 22, No. 4, pp. 1427-1435.

- Lee, H. K., Kim, H. Y., and Kang, S. (2017) "An Alternative Way to Measure the Degree of Sprawl and Development Patterns in Austin, TX," *Area*, Vol. 49, No. 4, pp. 486-494.
- Yoo, W., Yang, J., Kang, S., and Lee S. (2017) "Development of A Computerized Risk Management System for International NPP EPC Projects," *KSCE Journal of Civil Engineering*, Vol. 21, No. 1, pp. 11-26.
- Kang, S., Choi, S., Kim, H., and Lee, J. (2016) "A Study on Performance Evaluation of Infrastructure Safety and Maintenance," *Journal of Korea Institute of Construction Engineering and Management*, Vol. 17, No. 2, pp.80-89 (in Korean)
- Baek, H., Kang, S., and Seo, J. (2015) "An Earthwork Districting Model for Large Construction Projects," *Journal of the Korean Society of Civil Engineers*, Vol. 35, No. 3, pp. 715-723 (in Korean)
- Jung, S., Jang, K., Yoon, Y., and Kang, S. (2014) "Contributing factors to vehicle to vehicle crash frequency and severity," *Journal of Safety Research*, Vol. 50, No. 1, pp. 1-10.
- Jang, K., Park, S. H., Kang, S., Song, K. H., Chung, S. (2013) "Evaluation of Pedestrian Safety: Pedestrian Crash Hotspots and Risk Factors for Injury Severity," *Transportation Research Record*, No. 2393, pp. 104-116.
- Jang, K., Kang, S., Seo, J., Chan, C-Y. (2013) "Cross-Section Designs for the Safety Performance of Buffer-Separated High-Occupancy Vehicle (HOV) Lanes," *Journal of Transportation Engineering*, Vol. 139, No. 3, pp. 247-254.
- Kang, S. and Seo, J. (2013) "GIS Method for Haul Road Layout Planning in Large Earthmoving Projects: Framework and Case Study" *Journal of Construction Engineering and Management*, Vol. 139, No. 2, pp. 234-246.
- Bigham, J. M. and Kang S., (2013) "Building a Highway Linear Referencing System from Pre-existing Reference Marker Measurements for Transportation Data Management," *URISA Journal*, Vol. 25, No. 1, pp. 29-37.
- Yoon, J., Kim, J., Kang, S., and Seo, J. (2013) "A Study on an Optimal Plant Design Collaboration System Using a Design Structure Matrix," *Journal of the Korean Society of Civil Engineers*, Vol. 33, No. 1, pp. 337-346 (in Korean).
- Kang, S., Spiller, M., Jang, K., Bigham, J., and Seo, J. (2012) "Spatiotemporal Analysis of Macroscopic Patterns of Traffic Safety and Urbanization: Case Study in Sacramento County, California," *Transportation Research Record*, Vol. 2318, pp. 45-51.
- Lee, M., Seo, J., Kang, S. (2011) "Improving carriage-based formwork of concrete bridge decks" *KSCE Journal of Civil Engineering*, Vol. 15, No. 5, pp. 751-759.

Kang, S., Baek, K., Baek, H., and Seo, J. (2010) "A GIS-Based Planning Methodology to Determine the Haul Route Layout in Complex Construction Projects," *Journal of the Korean Society of Civil Engineers*, Vol. 30, No. 6D, pp. 631-639 (in Korean).

Hong, S., Seo, J., Kim, Y., Kang, S. (2010) "Construction Technology Valuation for Patent Transaction" *KSCE Journal of Civil Engineering*, Vol. 14, No. 2, pp.111-122.

Seo, J. and Kang, S. (2006) "Geographic information system based roadway construction planning" *Canadian Journal of Civil Engineering*, Vol. 33, pp. 508-520.

LICENSES:

Licensed Civil Engineer in Korea.

AWARDS:

Best Paper Award, 2019 KICEM Annual Conference, Korea Institute of Construction Engineering and Management, Nov. 2019.

Academic Achievement Award, Hanyang University, Feb. 2003.

Best Paper Award, 2008 KSCE Annual Conference, Korean Society of Civil Engineers, Oct. 2008.