RESEARCH INTERESTS

- Development and design of a mobile, in-situ levee overtopping simulator
  - Contract with the U.S. Army Engineer Research Development Center (ERDC)
  -
- Application of remote sensing and machine learning in geotechnical and transportation engineering
  - SAR/InSAR, LiDAR, photogrammetry, and drones
  - Geohazard mapping, identification, and risk assessment
  - Transportation systems and infrastructure monitoring
  - GIS application
- Application of statistics & probability in geotechnical and transportation engineering
  - Probabilistic soil properties/Probabilistic site characterization
  - Optimized geomaterial use, 1ion

- Investigated the U.S. natural hazard management system for rural communities and explored ways to apply and optimize the system in Korea.
- Developed a sinkhole susceptibility mapping for central Florida using probabilistic/statistical methods.

University of Illinois at Urbana-Champaign *Fall 2010 Spring 2014*
Graduate Research Assistant
State of California Air Resources Board (CARB)
Economic and Operational Considerations in Transitioning to a Zero or Near-Zero Emission Rail System in California

- Identified and examined the operational changes and the economic challenges and opportunities required to transition to zero or near-zero emission freight rail operations in California.
- Provided an assessment of how different alternative locomotive technologies, and different deployment strategies within the North American fleet of 29,500 locomotives, may impact railway operations, economics, and logistics.

TEACHING EXPERIENCE

Instructor (Adjunct Faculty), University of Central Florida

Graduate Teaching Assistant, University of Illinois at Urbana-Champaign *Fall 2010*

- Transportation Engineering (CEE 310, undergraduate level, 60 students)
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Invited Lecturer, University of Central Florida

- Geotechnical Engineering I (CEG 4011C) *Spring 2017*
- Geotechnical Engineering II (CEG 4012) *Spring 2018*
- Seepage in Soils (CEG 5405) *Fall 2016*
- Pavement Engineering (TTE 5835) *Fall 2016*

TEACHING INTERESTS

Undergraduate Courses

Engineering Graphics, Soil Mechanics, Foundation En04C>4Ƙ5c0009ati(i)-4(on >4Ƙ5c0009at)5(i)-4((i)-4(on >4Ƙ5c0009at)5(

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Proposals Under Review

Role. **Co-PI.** Collaborative Research: Ground-truth characterization of municipal solid waste (MSW) subsidence based on InSAR deep learning framework Source: National Science Foundation (NSF CMMI - ECI-Engineering for Civil Engineering for Civil Infrastructure Program). 2021.

Role. **Co-PI.** Track I Center Catalyst: Cause, Consequence, and Communication of Topographic Change from Landslides Source: National Science Foundation (NSF 21-618: Centers for Innovation and Community Engagement in Solid Earth Geohazards). 2021.

Proposals in Preparation

Role. **Co-PI** Flood Resilience Center (FRC) for Marginalized Communities National Science Foundation (NSF) Centers of Research Excellence in Science and Technology (CREST), NSF 18-509.

Role. **Co-PI** Cumulative Health Impacts at the Intersection of Climate Change, Environmental Justice, and Vulnerable Populations/Lifestages: Community-Based Research for Solutions Environmental Protection Agency (EPA), Science to Achieve Results (STAR) program. EPA-G2021-STAR-H1.

Role. **Co-**

4. **Kim, Y.**, Nam, B. H., and Youn, H. "Development of a Probabilistic Spatio-Magnitude Sinkhole Hazard Model," *Geo-Congress 2019*, March 24-27, 2019, Philadelphia, PA.
5. **Kim, Y.**, Nam, B. H., and Youn, H. "Development of Probabilistic Spatio-Magnitude Sinkhole Hazard Analysis for East Central Florida," *Transportation Research Board 98th Annual Meeting*, January 13-17, 2019, Washington, D.C.
6. **Kim, Y.**, and Nam, B. H. (2018). "A Comparative Study of Karst Sinkhole Hazard Mapping Using Frequency Ratio and Artificial Neural Network for East Central Florida," *15th Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst*, April 2-6, 2018, Shepherdstown, WV.
7. **Kim, Y.**, Nam, B. H., Lim, C., Jung, H.-S., and Moon, J.-S. (2018). "A Decision Tree Based Hazard Assessment of Karst Sinkholes," *IFCEE 2018*, March 5-10, 2018, Orlando, FL.
8. Rajabi, A., **Kim, Y.**, Kim, S.-H., Kim, Y., Kim, B., and Nam, B. H. (2018). "A Preliminary Study on Use of LiDAR Data to Characterize Sinkholes in Central Florida," *IFCEE 2018*, March 5-10, 2018, Orlando, FL.
9. **Kim, Y.**, Nam, B. H., Lim, C.-S., Xiao, H., and Wang, D. "A Methodology for Sinkhole Geohazard Modeling and Mapping of East Central Florida," *Transportation Research Board 97th Annual Meeting*, January 7-11, 2018, Washington, D.C.
10. **Kim, Y. J.**, and Nam, B. H. (2017). "Sinkhole Hazard Mapping Using Frequency Ratio and Logistic Regressi