Sunghwan Kim, PhD, PE	
Associate Director and Research Scientist, Program for Sustainable Pavement Engineering & Research (PROSPER) at Institute for Transportation (InTrans) Adjunct Assistant Professor, Civil, Construction and Environmental Engineering (CCEE) 24 Town Engineering Bldg. Iowa State University 813 Bissell Road Ames, IA 50011-1066	515-294-4698 sunghwan@iastate.edu IOWA STATE UNIVERSITY Civil, Construction, and Environmental Engineering IOWA STATE UNIVERSITY Institute for Transportation

EDUCATION

- PhD, Civil Engineering, Iowa State University, Ames, IA, 2006
- MS, Civil Engineering, Iowa State University, Ames, IA, 2004
- BS, Civil Engineering, Korea University (Seoul, South Korea), 1998

PROFESSIONAL EXPERIENCE

- Research Scientist, InTrans, Iowa State University, Ames, IA, 2017–present
- Assistant Research Scientist, InTrans, Iowa State University, Ames, IA, 2015–2017
- Associate Director of PROSPER, InTrans, Iowa State University, Ames, IA, 2013–present
- Research Assistant Professor, CCEE, Iowa State University, Ames, IA, 2013–2015
- Postdoctoral Research Associate, CCEE, Iowa State University, Ames, IA, 2007–2012
- Construction/Civil Materials Engineer, Hyundai Development Company, Seoul, South Korea, 1998–2002

SELECTED RESEARCH PROJECTS

- *Effect of Increased Precipitation (Heavy Rain Events) on Minnesota Pavement Foundations* (Minnesota Department of Transportation and Minnesota Local Road Research Board)
- *Have Minnesota's Warmer Winters Increased the Number of FT Cycles* (Minnesota Department of Transportation and Minnesota Local Road Research Board)
- *Use of Plastics in Road Materials (Paving)* (Minnesota Local Road Research Board)
- *Quantify the Benefits of Using Geotextiles and Geogrids to Improve the Performance of Unbound Pavement Layers* (Minnesota Department of Transportation)
- *Concrete Grinding Residue: Its Effect on Roadside Vegetation and Soil Properties* (Minnesota Department of Transportation)
- *Development of Approaches to Quantify Superloads and Their Impacts on the Iowa Road Infrastructure System* (Iowa Highway Research Board)
- *Development of a Smartphone-Based Road Performance Data Collection Tool* (Iowa Highway Research Board)
- *Development of Pavement Structural Analysis Tool (PSAT) for Iowa Local Roads* (Iowa Highway Research Board)

- *Development of Iowa Pavement Analysis Technique (IPAT)* (Iowa Highway Research Board)
- *Investigation on Pavement ME Design Reflective Cracking, Faulting, IRI Prediction Models, Concrete Overlays Design Tool, and Performance Threshold Levels for Iowa Pavement Systems* (Iowa Department of Transportation)
- *Self-Heating Electrically Conductive Concrete Demonstration Project* (Iowa Department of Transportation and Iowa Highway Research Board)
- *Evaluation of Otta Seal Surfacing for Low-volume Roads in Iowa – Phase I and Phase II* (Iowa Highway Research Board)

SELECTED PUBLICATIONS

Authored/co-authored over 270 peer reviewed publications and over 140 technical presentations

- Koh, Y., H. Ceylan, S. Kim, and I. H. Cho. 2024. An Artificial Intelligence Based Approach for Predicting Structural Damages of Paved Road Systems under Superloads. *Construction and Building Materials*.
- Sourav, A., H. Ceylan, S. Kim, C. Brooks, D. Peshkin, R. Dobson, and M. Brynick. 2023. Use of Digital Elevation Model for Detecting Airfield Pavement Distress. *Proc., International Airfield & Highway Pavements Conference*, Austin, TX, June 14–17.
- Citir, N., H. Ceylan, and S. Kim. 2022. Neural Network Modeling to Forecast Critical Pavement Responses: A Synthetic Approach. *Presented at the 1st International Data Science for Pavement Symposium*, March 22–24.
- Citir, N., H. Ceylan, S. Kim, and O. Kaya. 2021. Incorporating the Effectiveness of Preservation and Rehabilitation Techniques on Flexible Pavement Service Life Predictions using Machine Learning Approach. *Proc., International Airfield and Highway Pavements Conference (Virtual)*, June 8–10.
- Rezaei-Tarahomi, A., O. Kaya, H. Ceylan, K. Gopalakrishnan, S. Kim, and D. R. Brill. 2020. ANNFAA: Artificial Neural Network-based Tool for the Analysis of Federal Aviation Administration's Rigid Pavement Systems. *International Journal of Pavement Engineering*.
- Nahvi, A., D. V. Pyrialakou, P. Anand, S. Sadati, K. Gkritza, H. Ceylan, K. Cetin, S. Kim, K. Gopalakrishnan, and P. C. Taylor. 2019. Integrated Stochastic Life Cycle Benefit Cost Analysis of Hydronic Heated Apron Pavement System. *Journal of Cleaner Production*, Vol. 224, pp. 994–1003.
- Rezaei-Tarahomi, A., H. Ceylan, K. Gopalakrishnan, S. Kim, and O. Kaya. 2019. Artificial Neural Network Models for Airport Rigid Pavement Top-Down Critical Stress Predictions: Sensitivity Evaluation. *Proc., International Airfield and Highway Pavements Conference*, Chicago, IL, July 21–24.
- Gopalakrishnan, K., A. Agrawal, H. Ceylan, S. Kim, and A. Choudhary. 2013. Knowledge Discovery and Data Mining in Pavement Inverse Analysis. *Transport*, Vol. 28, No. 1, pp. 1–10.
- Gopalakrishnan, K., and S. Kim. 2010. Support Vector Machine Approach to HMA Stiffness Prediction. *Journal of Engineering Mechanics*, Vol.137, No. 2, pp. 138–146.
- Kim, S., K. Gopalakrishnan, and H. Ceylan. 2009. Neural Networks Application in Infrastructure Materials. *Intelligent and Soft Computing in Infrastructure Systems Engineering*.

PROFESSIONAL AFFILIATIONS, HONORS, AND SERVICE

- Participated in developing new pavement structure assessment program using Falling Weight Deflectometer (FWD) deflection data for the Iowa Department of Transportation

AWARDS, RECOGNITIONS

- Professional and Scientific Excellence Award, Iowa State University, Ames, IA (2021)
- Jimenez Faculty/Researcher Award, Federal Aviation Administration (FAA) PEGASAS (2020)