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


## EDUCATION

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

## PROFESSIONAL EXPERIENCE

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

## SELECTED RESEARCH PROJECTS

- Performance Monitoring of Clinton County Cape Seal Demonstration, Iowa Highway Research Board (IHRB)
- Small Unmanned Aircraft System (sUAS) for Pavement Inspection, Federal Aviation Administration, (FAA)
- Effect of Increased Precipitation (Heavy Rain Events) on Minnesota Pavement Foundations, MnDOT and LRRB
- Have Minnesota's Warmer Winters Increased the Number of Freeze Thaw Cycles? MnDOT and LRRB
- Development of a Smartphone-Based Road Performance Data Collection Tool, IHRB
- Development of Pavement Structural Analysis Tool (PSAT) for Iowa Local Roads, IHRB
- Self-Heating Electrically Conductive Concrete Demonstration Project, Iowa DOT/IHRB
- Concrete Grinding Residue: Its Effect on Roadside Vegetation and Soil Properties, MnDOT
- Investigation into the Feasibility of Using Electrically Conductive Asphalt Cement Concrete for Heated Airport Pavements, FAA Center of Excellence (COE)

- Evaluation of Otta Seal Surfacing for Low-volume Roads in Iowa – Phase I and Phase II, IHRB
- Impact of Curling and Warping on Concrete Pavement – Phase I and Phase II, IHRB
- Prevention of Longitudinal Cracking in Iowa Widened Concrete Pavement, IHRB
- Evaluating Roadway Subsurface Drainage Practices – Phase I and Phase II, IHRB

## SELECTED PUBLICATIONS

- **Authored/co-authored more than 200 peer reviewed publications and more than 100 technical presentations.**
- Sourav, A., Ceylan, H., **Kim, S**., Brooks, C., Peshkin, D., Dobson, R., Brynick, M., and DiPilato. M. (2022). "Small Uncrewed Aircraft Systems-based Orthophoto and Digital Elevation Model Creation and Accuracy Evaluation for Airfield Portland Cement Concrete Pavement Distress Detection and Rating," the ASCE International Conference on Transportation & Development, Seattle, WA, May 31-June 3, 2022.
- Yang, S., Alhasan, A., Ceylan, H., **Kim, S.,** and Yang, B. (2022). "Accuracy Assessment of Light Detection and Ranging System Measurements for Jointed Concrete Pavement Surface Geometry," the Journal of Road Materials and Pavement Design, https://doi.org/10.1080/14680629.2022.2093262
- Gopisetti, L. S. P., Ceylan, H., Cetin, B., and **Kim, S.** (2021). "Assessment of Satellite-based MERRA Climate Data in AASHTOWare Pavement Mechanistic-Empirical Design," the Journal of Road Materials and Pavement Design, https://doi.org/10.1080/14680629.2021.2009010.
- Kaya, O., Ceylan, H., **Kim, S.**, Waid, D., and Moore, B (2020). "Statistics and Artificial Intelligence Based Pavement Performance and Remaining Service Life Prediction Models for Iowa Flexible and Composite Pavement Systems," Transportation Research Record: Journal of the Transportation Research Board, No. 2674, pp. 448–460.
- Kaya, O., Rezaei-Tarahomi, A., Ceylan, H., Gopalakrishnan, K., **Kim, S.**, and Brill, D. R. (2018). "Neural-Network Based Multiple-slab Response Models for Top-Down Cracking Mode in Airfield Pavement Design," ASCE Journal of Transportation Engineering, Part B: Pavements, 144(2), 04018009.
- Yang, S., Shen, K., Ceylan, H., **Kim, S.**, Qiao, D., and Gopalakrishnan, K. (2015). "Integration of A Prototype Wireless Communication System with Micro-Electromechanical Temperature and Humidity Sensor for Concrete Pavement Health Monitoring," the Cogent Engineering, Vol. 2, Issue. 1: 1014278.
- **Kim, S**., Ceylan, H., and Gopalakrishnan, K. (2014). "Finite Element Modelling of Environmental Effects on Rigid Pavement Deformation," Frontiers of Structural and Civil Engineering Journal, Volume 8, Issue 2, pp. 101-114.
- **Kim, S.**, Ceylan, H., Ma, D., and Gopalakrishnan, K. **(**2014). "Calibration of Pavement ME Design and Mechanistic-Empirical Pavement Design Guide Performance Prediction Models for Iowa Pavement Systems," ASCE Journal of Transportation Engineering, Volume 140, Issue 10, pp. 04014052-1 - 04014052-13.
- **Kim, S**., Gopalakrishnan, K., and Ceylan, H., (2009). "Neural Networks Application in Pavement Infrastructure Materials". In Soft Computing Techniques in Pavement and Geomechanical Systems, Ed: K. Gopalakrishnan, H. Ceylan, and N. Attoh-Okine, Springer-Verlag, Inc., 2009.
- Gopalakrishnan, K., **Kim, S.**, and Ceylan, H. (2009). "Hot Mix Asphalt Dynamic Modulus Prediction Using Kernel Machines," ANNIE 2009, ANNs in Engineering, St. Louis, Missouri, November 2-4, pp. 131-138.

## PROFESSIONAL AFFILIATIONS, HONORS, AND SERVICE

- Participated in developing new pavement structure assessment program using FWD deflection data for Iowa DOT

## AWARDS, RECOGNITIONS

- Professional and Scientific Excellence Award, Iowa State University, Ames, Iowa, 2021.
- Jimenez Faculty/Researcher Award, FAA PEGASAS, 2020