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IOWA STATE UNIVERSITY
Civil, Construction, and Environmental Engineering

IOWA STATE UNIVERSITY
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

- Base Stabilization of Iowa Granular Roads Using Recycled Plastics, Iowa Highway Research Board (IHRB)
- Iowa Granular Road Structural Design Tool, IHRB
- Have Minnesota’s Warmer Winters Increased the Number of Freeze Thaw Cycles? – Phase 1, 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
- Investigation on Pavement ME Design Reflective Cracking, Faulting, IRI Prediction Models, Concrete Overlays Design Tool, and Performance Threshold Levels for Iowa Pavement Systems, Iowa DOT
- Development of Iowa Pavement Analysis Technique (IPAT), 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, Iowa DOT/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 presentations

- Chen, Y., Ceylan, H., Nlenanya, I., Kaya, O., Smadi, O. G., Taylor, P. C., **Kim, S.**, Gopalakrishnan, K., and King, D. E. 2020. Long-term Performance Evaluation of Iowa Concrete Overlays. *International Journal of Pavement Engineering*, DOI:10.1080/10298436.2020.1766687.
- Gopiseti, L. S. P., Ceylan, H., **Kim, S.**, Cetin, B., and Kaya, O. 2020. Sensitivity Index Comparison of Pavement Mechanistic-Empirical Design Input Variables to Reflective Cracking Model for Different Climatic Zones. *Road Materials and Pavement Design*, DOI: 10.1080/14680629.2020.1747523.
- Yang, B., Zhang, Y., Ceylan, H., and **Kim, S.** 2020. Evaluation of Bio-Based Fog Seal for Low-Volume Road Preservation. *International Journal of Pavement Research & Technology*, Vol. 13, pp. 303–312.
- 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.
- Yang, S., Zhang, Y., Kaya, O., Ceylan, H., and **Kim, S.** 2020. Investigation of Longitudinal Cracking in Widened Concrete Pavements. *Baltic Journal of Road and Bridge Engineering*, Vol. 15, No. 1.
- Gushgari, S. Y., Zhang, Y., Nahvi, A., Ceylan, H., **Kim, S.**, Arabzadeh, A., Jahren, C. T., and Øverby, C. 2019. Design, Construction, and Preliminary Investigation of Otta Seal in Iowa. *Transportation Research Record: Journal of the Transportation Research Board*, No. 2673, pp. 821–833.
- Luo, C., Wang, Z., Kordbacheh, F., Zhang, Y., Yang, B., **Kim, S.**, Cetin, B., Ceylan, H., and Horton, R. 2019. The Influence of Concrete Grinding Residue on Soil Physical Properties and Plant Growth. *Journal of Environmental Quality*, DOI:10.2134/jeq2019.06.0229.
- Nahvi, A., Zhang, Y., Arabzadeh, A., Satvati, S., Gushgari, S. Y., Ceylan, H., Jahren, C. T., Gransberg, D. D., and **Kim, S.** 2019. Economics of Upgrading Gravel Roads to Otta Seal Surface. *Applied Economics*.
- **Kim, S.**, Gopalakrishnan, K., Ceylan, H., and Steffes, R. F. 2014. Performance Evaluation of Roadway Subdrain Outlets in Iowa. *Transportation Research Record: Journal of the Transportation Research Board*, Vol. 2462, pp. 68–76.
- **Kim, S.**, Gopalakrishnan, K., and Ceylan, H. 2012. Moisture Susceptibility of Subgrade Soils Stabilized by Lignin-Based Renewable Energy Co-product. *Journal of Transportation Engineering*, Vol. 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