

**Kihyun Pyo**

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## RESEARCH AREAS & TECHNICAL SKILLS

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Transportation system predictive modeling, Breakdown analysis for HCM update, Intelligent Transportation Systems, Data collection, and Statistical analysis; Highway design for Diverging Diamond Interchange, Simulation for highway system; GIS analysis including map layout and design.

## EDUCATION

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**North Carolina State University**

- Master of Science in Civil Engineering, Transportation Systems Engineering, Aug 2014 – Jul 2016
- Thesis: “Predictive Model of Breakdown for Planning Level Applications”

**Kyung Hee University**

- Bachelor of Engineering in Civil Engineering, Mar 2006 – Feb 2010
- Accreditation of ABEEK (Accreditation Board for Engineering Education Korea) equivalent to ABET

## RESEARCH PROJECTS

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- **NCHRP 03-113b**: An Assessment of Safety and Geometric Design Criteria for Diverging Diamond Interchanges, Sep 2016 – Present
  - Performing geometric study by using simulation program and provide guideline for DDI design
- **NCDOT 2017-19**: NCLOS Program Update for the HCM 6th Edition, Sep 2016 – Present
  - Update the 6<sup>th</sup> HCM edition, analyze optimal level of service and recommend new default values
- **NTC2015-MU-R-06**: Guidance for Field and Sensor-Based Measurement of HCM and Simulation Performance Measures, Aug 2015 – Present
  - Provide guidance of performance measures for freeways from various field data sources with agencies
- **NCHRP 03-115**: Production of a Major Update to the 2010 Highway Capacity Manual, Jan 2015 – Mar 2016
  - Update the 6<sup>th</sup> HCM edition, focused on new concept of capacity; “Acceptable Breakdown Rate”

## CONFERENCE PROCEEDINGS AND PAPER WORK

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- B. Aghdashi, NM. Rouphail, **K. Pyo**, B. Schroeder and R. Thomas Chase “**Stochastic Freeway Capacity: Theoretical Construct and Estimation Method**,” Presented at the Transportation Research Board Annual Meeting, Washington, D.C., January 2018.
- **Kihyun Pyo**, Thomas R. Chase and Nagui M. Rouphail, “Predictive Model of Breakdown for Planning Level Applications”, 2016.

- B. Aghdashi, NM. Roupail, **K. Pyo** and B. Schroeder, “**Freeway Capacity: Theoretical Construct and Field Estimation Method,**” Presented at the Transportation Research Board Annual Meeting, Washington, D.C., January 2016.

## COMPUTER SKILLS

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- **ArcGIS:** spatial analysis on accidents
- **VISSIM:** calibration and validation on freeway networks, evaluations of performance measures
- **AutoCAD:** drawing for highway design (Diverging Diamond Interchange)
- **FORUM 8:** 3D virtual reality simulation program for highway design and operation
- **SAS and R:** descriptive statistics, regression, ANOVA, random-effect regression modeling
- **TransCAD:** traffic assignment, sub-urban analysis
- **MATLAB:** estimation of route travel time
- **MS-Office:** solver, data analysis, functions in Excel

## AWARDS

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- KOTAA (Korean Transportation Association in American) Excellent Student Paper Award, Jan 2016
- KSEA Talent Show Award, the Best Performance (1<sup>st</sup> Place) presented at UKC 2015, Jul 2015
- Excellence of Civil Engineering Education Competition by Brigadier General in Army, Dec 2011
- Excellence of Geology Information Analysis and Strategy by Major General in Army, Oct 2011
- Excellence of Civil Engineering Information and Security by Brigadier General in Army, May 2011
- National Portfolio Championship (2<sup>nd</sup> Prize) KOFST (Korean Federation of Science & Technology Societies), Oct 2009
- Civil Engineering Bridge Design Competition (3<sup>rd</sup> Prize) Korea Expressway Corporation, Mar 2008

## CERTIFICATIONS

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- Performing Spatial Interpolation Using ArcGIS, Nov 2015
- Introduction to Surface Modeling Using ArcGIS, Nov 2015
- Deriving Rasters for Terrain Analysis Using ArcGIS, Nov 2015
- Learning ArcGIS Desktop - 24 hours of training, Sep 2015
- Basics of Raster Data, Oct 2015
- Certification of Dedicated and Outstanding Service and Contribution to the 2015 US-Korea Conference on Science, Technology, and Entrepreneurship (UKC 2015) as 44<sup>th</sup> President, Aug 2015
- Certificate of Qualification for Demolition and Blasting in Army Engineer School, Jun 2010
- Certificate of Qualification for Mine Employment and Removal in Army Engineer School, Jun 2010

## JOURNALS & ARTICLES

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- Highway Policy article from KRIHS (Korea Research Institute for Human Settlements), "Geometric Design Criterion Research for Diverging Diamond Interchange", Oct 2016
- e-interview article from KRIHS (Korea Research Institute for Human Settlements), "Efficient and Safe Transportation System to Improve Quality of Our Life", Mar 2015

## MEMBERSHIPS

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- Member of Korean-American Scientists and Engineers Association (KSEA), Sep 2014 – Present
- Member of Institute of Transportation Engineers (ITE) student chapter at North Carolina State University, Sep 2014 – Present
- Member of Korean Students Association (KSA) at North Carolina State University, Aug 2014 – Present
- Member of Korean Transportation Association in American (KOTAA), Jan 2015 – Present

## EXPERIENCE

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### **Military Service: Republic of Korea Army**

- First Lieutenant Army discharged (Intelligence Officer), Mar 2008 – Jun 2012
- ROTC (Reserve Official Training Corps) of Kyung Hee University

### **Academic Activities**

- 2016 Transportation Research Board(TRB) Annual Meeting, Jan 2016
- US-Korea Conference (UKC) 2015 in Atlanta, Aug 2015
- 2015 Transportation Research Board(TRB) Annual Meeting, Jan 2015

### **Volunteer Activities**

- 2016 North Carolina K-Pop Contest, Head judge, Aug 2016
  - Korean-American Association of Greater Greensboro
- K-Pop Dance Workshop, Instructor volunteer, May 2016
  - Global Korean Wave Federation in Carolina
- Luke Charity Clinic, Aug 2014 – Present
  - Non Profit Local Community Medical Service, Interpreter
- Red Cross Youth Activities
  - The Honorary Ambassador, The president of student, Local Community Service, Mar 2000 – Jul 2014 (A man of merit blood donation, Gold medal, 60 times)
- Conservation Volunteer Australia (CVA), Australia, Dec 2009 – Jan 2010
- ROTC Community Service in Baek-du Mountain, China, May 2009
- National Institute for international Education, Japan, Sep 2002