

CURRICULUM VITAE

DONGKEUN LEE, Ph.D.

Assistant Professor

Department of Civil Engineering

Antalya International University, Turkey

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RESEARCH INTERESTS:

- Rehabilitation of concrete structures using FRP composites
- Advanced materials for high-performance structures
- Resilient structures under extreme event
- Sustainable infrastructure
- Structural health monitoring
- Pre-stressed concrete
- Large-scale test
- Numerical analysis

TEACHING INTERESTS:

- Statics, Structural Analysis, Reinforced Concrete Design, Design of FRP Composite Structures, Steel Structures, Mechanics of Materials, Pre-stressed Concrete Design, Bridge Design, Dynamics, Construction Materials, etc

EDUCATIONAL BACKGROUND:

University of California-Davis **9/2012**

Ph.D., Structural Engineering and Mechanics

Dissertation Advisor: Dr. Lijuan Cheng

Dissertation Title: Flexural Rehabilitation of Concrete Structures Using NSM FRP Composites

Hanyang University, South Korea **2/2006**

M.S., Structural Engineering

Thesis Advisor: Dr. Li-Hyoung Lee

Thesis Title: Experimental Study on Comparison of Structural Behavior between Reinforced Concrete and Post-Tensioned Flat Plates

Cheongju University, South Korea **2/2004**

B.S., Architectural Engineering, Admission with Four-year Full Scholarship and Graduation with Summa Cum Laude

RESEARCH EXPERIENCE:

Antalya International University, Turkey

9/2015-present

Department of Civil Engineering

Assistant Professor

Development of Effective Connection Details for Steel Structures

- Development of optimum column-base plate and beam-column connection details for small steel structures (ongoing)

3-D Nonlinear Dynamic Behavior of Long-Span Cable-Stayed Bridges under Extreme Loadings

- Development of 3-D finite element model to investigate nonlinear dynamic behavior of long-span cable-stayed bridge under extreme loadings (ongoing)

Sustainable Concrete Composite Highway with Discarded Tire Chips (PI, proposal is about to be submitted to TÜBİTAK 1001)

- Numerical modeling of concrete composite highway using LS-DYNA (ongoing)
- Design, fabrication, and test of concrete composite cylinders and beams to develop optimal composite pavement (will be conducted)

Effect of Carbon Nanotube-Modified Epoxy on Bridge Strengthened with NSM FRP Composites under Fatigue Loading (PI, proposal is being written for TÜBİTAK 1001)

- Design, fabrication, and fatigue test of specimens through condition monitoring (will be carried out)
- Life-cycle cost analysis (will be conducted)

Korea Institute of Civil Engineering and Building Technology

2/2016-present

Building and Urban Research Center

Part-Time Research Associate

Development of Efficient Concrete Building System against Vibration

- Analysis and application of new rubber pad system to reduce vibration caused by trains

Southern University-Baton Rouge

8/2013-5/2015

Department of Civil and Environmental Engineering

PI: Dr. Hak-Chul Shin

Post-doctoral Research Associate

Development of Fortified CMU Walls Using FRP Composites under Explosive Loading (supported by the U.S. Department of Defense)

- Numerical modeling of CMU walls using LS-DYNA
- Design, fabrication, and test of masonry walls strengthened with FRP

- composite materials to study structural behavior
- Providing strategies for sustainable fortified CMU walls against the intrusion of extreme loading

Development of Rapid PCC Highway Repair Materials and Construction Techniques (funded by the U.S. Federal Highway Administration)

- Design, fabrication, and test of concrete specimens to develop optimal sustainable concrete highway using re-cycled aggregate

University of California-Davis

9/2012-6/2013

Department of Civil and Environmental Engineering

PI: Dr. Lijuan Cheng

Post-doctoral Researcher

Impact Resistance of Brittle Structural Components Using Advanced Polymer Composites (funded by Saint-Gobain Corporation)

- Design, fabrication, test, and analysis of grinding wheels strengthened with FRP sheet to investigate behavior of the wheels subjected to impact force using a drop weight pendulum system
- High speed camera analysis for high strain rate loading

University of California-Davis

9/2006-9/2012

Department of Civil and Environmental Engineering

Advisor: Dr. Lijuan Cheng

Doctoral Student Researcher

Flexural Rehabilitation of Concrete Structures Using NSM FRP Composites (supported by the California Department Transportation)

- Structural level (Flexural strengthening)

- Design, fabrication, test, and analysis of 13 full-scale bridge slab overhangs strengthened with NSM FRP bars to investigate effect of various FRP bars and pre-stressing
- Development of an innovative pre-stressing unit for NSM FRP strips
- Efficient data acquisition using LabVIEW
- Numerical modeling using ABAQUS
- Design details of NSM FRP technique through nonlinear regression analysis using SPSS

- Sub-component level (Bond characteristics)

- Design, fabrication, test, and analysis of 109 concrete block specimens to assess efficiency of different adhesives, NSM FRP bars, and groove sizes
- Study on theoretical bond stress-slip models

- Material level (FRP coupon testing)

- Tensile properties of various types of FRP bars

- Development of an efficient FRP gripping method

Seismic Design Guidelines of Retaining Walls with/without Sound Wall

- Fabrication and test of full-scale retaining walls using a large shake table at the University of California, San Diego

Mechanism-Based FRP Composite Strengthened Reinforced Concrete Members

- Fabrication and test of concrete with bi-stable FRP sheets

Impact Behavior of Unreinforced Masonry Walls Strengthened with FRP Composites

- Fabrication, test, and analysis of masonry walls strengthened with FRP sheets

Hanyang University

3/2004-2/2006

Department of Architectural Engineering

Advisor: Dr. Li-Hyoung Lee

Master Student Researcher

Hysteretic Behavior of Reinforced Concrete and Post-Tensioned Flat Plates Subject to Cyclic Loading

- Design, fabrication, test, and analysis of 12 large-scale reinforced concrete and post-tensioned flat plates subjected to cyclic loading
- Field test using three-story building

TEACHING EXPERIENCE:

Antalya International University (all courses are taught *in English*)

9/2015-Present

Assistant Professor

Reinforced Concrete II

Fall 2016

- Lectures for the analysis and design of reinforced concrete members such as walls, columns, footings, etc
- Problem solving session and office hours for additional tutoring
- Grading of exams and homework assignments

Structural Analysis I

Fall 2016

- Lectures for concepts and knowledge needed for analyzing various statically determinate structures
- Office hours for additional tutoring
- Grading of exams, reports, and homework assignment

Statics

**Fall 2015 and
2016**

- Lectures to convey fundamental knowledge of Statics
- Office hours for additional tutoring

- Grading of exams, reports, and homework assignment

Reinforced Concrete I

Spring 2016

- Lectures for the analysis and design of reinforced concrete members such as beams and slabs as well as bond and lap splice
- Problem solving session and office hours for additional tutoring
- Grading of exams and homework assignments

Structural Analysis II

Spring 2016

- Lectures for concepts and knowledge need for analyzing various statically indeterminate structures
- Office hours for additional tutoring
- Grading of exams, reports, and homework assignment

Faculty Advisor

Steel Bridge Design Team (Bahar Neslişah KALE, Beril KILIÇ , Akbaraly Kambaraly UULU, Veysi ERDEMCI, Mustafa Abbas KANORWALA)

9/2015-4/2016

- Advice on students' competition

First- and second-year students (77 students)

2/2016-Present

- Advice on course registration

Research assistant (Oğuzhan Çetindemir)

9/2016-Present

- Advice on research project

Southern University-Baton Rouge

8/2013-5/2015

Adjunct Professor

Construction Materials Laboratory

**Spring 2014 and
2015**

- Lectures with regard to various construction materials
- Laboratory sessions for measuring various properties of concrete
- Office hours for additional tutoring
- Grading of exams, reports, and homework assignments

Reinforced Concrete Design

**Fall 2013 and
2014**

- Lectures for the analysis and design of reinforced concrete structures
- Office hours for additional tutoring
- Grading of exams and homework assignments

Advisor/Mentor

M.S. Student (Denita Walker)

8/2014-5/2015

- Advice on M.S. research project

Academic Advisor for Senior Design Project (Toi Bonnet, Kiera Dorsey, and Kylan Douglas) **8/2014-5/2015**

- Advice on senior design project (parking lot design)

Undergraduate Students (Marcos Da Silva, Toi Bonnet, Kiera Dorsey, and Joshua Duncan) **8/2014-5/2015**

- Advice on research projects

University of California-Davis
Teaching Assistant

Design of Fiber Reinforced Polymer Composite Structures (**graduate level**) **Fall 2008, Winter 2008, Fall 2010, and Winter 2010**

- Lectures offered for FRP composite analysis
- Lab sessions held for fabrication, test and analysis of FRP
- Office hours and grading

Advisor/Mentor

M.S. Student (Jason Hui) **2010-2011**

- Advice on M.S. research project
- Review of M.S. report

Undergraduate Students (Hyejin Lee, Humza Moonser, Ryan Ngo, Randall Gee, Norman Cheung, Brian Lee, Kevin Kuei, Debra Fong, William Yu, Rebecca Joseph, Ruwanka Purasinghe, Richard Weng, and David Szeto) **2006-2011**

- Advice on various research projects

PUBLICATIONS:

Peer-Reviewed Journal Papers

***corresponding author**

- **Lee, D.** and Shin, A. (2016). “Effective Strengthening Technique for CMU Walls Subjected to High-Velocity Impact.” *Structural Engineering and Mechanics*, Techno Press, under review. (SCIE)
- **Lee, D.**, Cheng, L., and Deleuze, C. (2016). “Dynamic Behavior of FRP-Strengthened Grinding Wheels Subjected to Pendulum Impact.” *Journal of Testing and Evaluation*, ASTM, Vol. 45, No. 4, published online. (SCI)
- **Lee, D.** and Shin, A. (2016). “Finite Element Study on the Impact Responses of Concrete Masonry Unit Walls Strengthened with Fiber-Reinforced Polymer Composite Materials.” *Composite Structures*, Elsevier, Vol. 154, pp. 256-268. (SCIE; **2nd ranked** journal among all civil and structural engineering journals, source: scimago journal ranking)
- Choi, Y. C., Choi, H. K., **Lee, D.***, and Choi, C. S. (2015). “Shear Strength of Unreinforced Masonry Wall Retrofitted with Fiber Reinforced Polymer and Hybrid

Sheet.” *International Journal of Polymer Science*, Hindawi, Vol. 2015, Article ID 863057, 13 pages. (SCIE)

- Ha, S. and **Lee, D.*** (2014) “Structural Behavior of Hollow Core Beams with GFRP Bars.” *Pacific Science Review*, Vol. 16, No. 3, pp. 12-18.
- Noh, S.-Y. and **Lee, D.*** (2014). “Assessment of Crack Width Estimation Models for RC Tension Members.” *Materials Research Innovations*, Taylor and Francis, Vol. 18, No. s2, pp. 816-823. (Scopus)
- **Lee, D.**, Cheng, L., and Hui, J. (2013). “Bond Characteristics of Various NSM FRP Reinforcements in Concrete.” *Journal of Composites for Construction*, ASCE, Vol. 17, No. 1, pp. 117-129. (SCIE; **7th ranked** journal among all civil and structural engineering journals, source: scimago journal ranking)
- **Lee, D.** and Cheng, L. (2013). “Bond of NSM Systems in Concrete Strengthening – Examining Design Issues of Strength, Groove Detailing and Bond-Dependent Coefficient.” *Construction and Building Materials*, Elsevier, Vol. 47, pp. 1512-1522. (SCIE: **18th ranked** journal among all civil and structural engineering journals, source: scimago journal ranking)
- **Lee, D.** and Cheng, L. (2011). “Assessing the Strengthening Effect of Various Near-Surface-Mounted FRP Reinforcements on Concrete Bridge Slab Overhangs.” *Journal of Composites for Construction*, ASCE, Vol. 15, No. 4, pp. 615-624. (SCIE: **7th ranked** journal among all civil and structural engineering journals, source: scimago journal ranking)
- **Lee, D.**, Ha, S., and Lee, M. S. (2005). “Experimental Study on Comparison of the Hysteretic Behavior of RC Flat Plate and PT Flat Plate Interior Joints.” *Journal of the Architectural Institute of Korea*, Vol. 21, No. 10, pp. 95-102. (KCI)

Conference Papers

- **Lee, D.**, Shin, H., and Cheng, L. (2014). “Design Issues of Strengthening Technique Using NSM FRP Rods.” *US-Korea Conference*, San Francisco, CA, August 6-9.
- **Lee, D.**, Hui, J., and Cheng, L. (2012). “Bond Characteristics of NSM Reinforcement in Concrete due to Adhesive Type and Surface Configuration.” *The 6th International Conference on FRP Composites in Civil Engineering (CICE 2012)*, Rome, Italy, June 13-15.
- **Lee, D.**, and Cheng, L. (2010). “Strengthening of Reinforced Concrete Structures using NSM FRP Reinforcement.” *The 5th North-West US-Korea Conference*, Portland, OR, Dec. 11-12.
- **Lee, D.**, and Cheng, L. (2009). “Flexural Strengthening of Reinforced Concrete Bridge Slab Overhangs using Near Surface Mounted Reinforcement.” *The 9th International Symposium on Fiber Reinforced Polymer Reinforcement for Concrete Structures (FRPRCS-9)*, Sydney, Australia, July 13-15.
- **Lee, D.**, Ha, S. S., and Lee, L.-H. (2005). “Effect of Gravity Load on the Hysteretic Behavior of Post-tensioned Flat Plate Interior Joints.” *Proceedings of the Architectural*

Institute of Korea, South Korea, October.

- Cho, J., **Lee, D.**, Ha, S. S., and Lee, L.-H. (2005). “Experimental Study on Comparison of the Hysteretic Behavior of RC Flat Plate and PT Flat Plate Interior Joints.” *Proceedings of the Architectural Institute of Korea, South Korea, October.*
- **Lee, D.**, Ha, S. S., Han, S. W., and Lee, L.-H. (2005). “Experimental Study on Comparison of Structural Behavior of PT Flat Plate and RC Flat Plate Interior Connections.” *Proceedings of the Korea Concrete Institute, South Korea, May.*

Technical reports

- **Lee, D.**, and Shin, H. (2015). “Development of Sustainable Fortified CMU Walls under Explosive Loading.” submitted to the U.S. Department of Defense, Department of Civil and Environmental Engineering, Southern University at Baton Rouge.
- **Lee, D.**, and Cheng, L. (2013). “Impact Test Method Development to Evaluate the Impact Resistance of Grinding Wheels.” submitted to Saint-Gobain, Department of Civil and Environmental Engineering, University of California, Davis.
- **Lee, D.**, and Cheng, L. (2010). “Flexural Strengthening of Reinforced Concrete Bridge Slab Overhangs using Near Surface Mounted Reinforcement.” submitted to the California Department of Transportation (Caltrans), CA/UCD-SESM-10-03, Department of Civil and Environmental Engineering, University of California, Davis.
- Lee, L., Han, S., Ha, S, Kee. S., Cho. G., Park, Y., **Lee, D.**, Cho. J., Lee, B., Moon, J., Lee, S. (2005). “Study on Utilization of Post-tensioned Flat Plate Structure.” submitted to the Korea Institute of Construction and Transportation Technology Evaluation and Planning (KICTEP), 03ISRB01-01, Department of Architectural Engineering, Hanyang University, South Korea.

INVITED SEMINARS:

- **Lee, D.** (2012). “Flexural Rehabilitation of Concrete Structures Using NSM FRP Composites.” Hanyang University at Ansan, South Korea, September 25.
- **Lee, D.** (2012). “Rehabilitation of Reinforced Concrete Structures.” Hanyang University at Seoul, South Korea, September 17.
- **Lee, D.** (2012). “Flexural Strengthening of Concrete Structures.” Kyoungnam University, South Korea, September 14.
- **Lee, D.** (2012). “Strengthening of Reinforced Concrete Structures Using NSM FRP Composites.” Cheongju University, South Korea, September 11.

SCHOLARSHIPS, AWARDS, AND HONORS:

Excellent presentation award, the 5th North-West US-Korea Conference, Portland, OR, Korean-American Scientists and Engineers Association **2010**

Travel award, the 5th North-West US-Korea Conference, Portland, OR, Korean-American Scientists and Engineers Association **2010**

Scholarship (\$10,000) , University of California, Davis	2006-2007
Scholarship for professional training by Abaris (\$1,000) , Society for the Advancement of Materials and Process Engineering (SAMPE)	2007
Ambassadorial scholarship (\$26,000) , the International Rotary Foundation	2006-2007
Summa Cum Laude (ranked 1st) , Department of Architectural Engineering, Cheongju University, South Korea	2004
Special prize , Department of Architecture, Chungbuk Art Association, South Korea	2001
Four-year full scholarship (admission with full tuition and fees exemption as well as monthly stipend for <u>four years</u>) , Cheongju University, South Korea	1996, 1997, 2002, and 2003

LANGUAGES:

English: fluent and Korean: native

COMPUTER SKILLS:

LS-DYNA, ABAQUS, SPSS, MATLAB, LabVIEW, and AutoCAD

SERVICE AND PROFESSIONAL ACTIVITIES:

Committee , Search Committee of Research Assistants at AIU	2016
<ul style="list-style-type: none"> • Service on searching new research assistants 	
Consultant , Korea Institute of Civil Engineering and Building Technology	2016
<ul style="list-style-type: none"> • Consultation on research projects 	
Chair , Balsa Wood Bridge Design Competition at AIU	2015
<ul style="list-style-type: none"> • Organization of the competition 	
Member , Search Committee of Department of Civil Engineering at AIU	2015
<ul style="list-style-type: none"> • Service on searching a new faculty member 	
Member , Knights of Columbus (International Service Club)	2014-2015
<ul style="list-style-type: none"> • Serving people in need, the sick, and disabled • Performing social and public relief works 	
Reviewer , Construction and Building Materials, Elsevier; Journal of Reinforced Plastics and Composites, SAGE; Materials Research Innovations, Taylor and Francis; Pacific Science Review, Elsevier	2011-present
<ul style="list-style-type: none"> • Review of submitted journals 	
Consultant , Kangnam University, South Korea	2013 and 2016

- Consultation on a research project related FRP composites
- Member**, Davis Korean Service Group **2011-2012**
- Serving homeless people
- Committee**, KSEA National Math and Science Competition, Korean-American Scientists and Engineers Association **2011**
- Organization of the competition and grading the examination
- Vice President**, Korean Graduate Students Association, University of California-Davis **2010-2011**
- Organization of career fairs (e.g., Samsung and LG) and social events (e.g., the first meeting event with students at the University of California, Berkeley)
- Judge**, KSEA National Math Competition, Korean-American Scientists and Engineers Association **2009**
- Proctor and grading the examination
- President**, Korean Civil and Environmental Engineering Students Association, University of California-Davis **2008-2009**
- Organization of social events
- Member**, Youth Service Group **2000-2001**
- Serving people at a rehabilitation center
 - Serving aged people

MEMBERSHIP:

Society for the Advancement of Materials and Process Engineering (SAMPE)

Architectural Institute of Korea (AIK)

Korea Concrete Institute (KCI)

Korean-American Scientists and Engineers Association (KSEA)