

# MOOCHUL SHIN

1503 S. Cottage Grove Ave, Urbana IL, 61801  
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**Objective** Seeking a full-time position as a structural engineer specializing in bridge engineering and earthquake engineering

**Education** University of Illinois at Urbana-Champaign GPA: current 3.90/4.0  
Doctoral degree in civil engineering (structural engineering) Aug. 2011

University of Illinois at Urbana-Champaign GPA: 3.94/4.0  
Master's degree in civil engineering (structural engineering) Oct. 2008

Hanyang University, Seoul, South Korea GPA: all 3.64/4.0, major 3.66/4.0  
Bachelor's Degree in Civil engineering Feb. 2006

**Work Experience** Research Assistant Aug. 2007 ~ present

- Development of an innovative retrofitting and repair technique on reinforced concrete (RC) column using shape memory alloy (SMA) spirals  
Aug. 2007~ present

- Development of a framework for analytical RC column models retrofitted with SMA spirals  
May 2010 ~ present

- Seismic analysis of RC columns retrofitted with SMA spirals and fiber reinforced polymers (FRP) under main shock and after-shock sequences  
May 2010 ~ present

- Large scale testing of damaged RC columns after repair using SMA spirals  
Oct. 2009 ~ Apr. 2010

- Large scale testing of RC columns retrofitted with SMA spirals and FRPs  
Jan. 2009 ~ Sep. 2009

- Three point bending testing of full-scale prestressed concrete I girders and box girders using self-consolidating concrete  
Oct. 2008 ~ Sep. 2010

- Assessment of transfer length and development length of a prestressed concrete girder using self-consolidating concrete funded by Illinois Department of Transportation  
Aug. 2007~ Oct. 2008

- Material testing of the thermo-mechanical behaviors of SMAs  
Feb. 2008 ~ Nov. 2008

- Development of numerical models of concrete confined with SMA spirals and FRPs  
Jul. 2007 ~ Feb. 2008

Teaching Assistant Jan. 2011~ present

- Reinforced Concrete II (CEE463): Two-way slab design of buildings, yield line method, deep beam theory, footing design

**Honors and Awards** Travel grant for Earthquake Engineering Research Institute (EERI) annual meeting  
2011

Chester P. Siess Award (University of Illinois) 2010

Merit-based scholarship (Hanyang university) Fall 2000 Fall 2004

Wooduk foundation full tuition scholarship Spring 2005 Fall 2005

**Computer Skills** Proficient: OPENSEES, MATLAB, SAP2000,

Proficient: Microsoft Excel, Powerpoint, Word

Skillful: Abaqus, Patran, Labview, Microstation, C++, Google Sketch-up

**Professional** Safety Assessment Program (SAP) Evaluator Training, California Emergency  
**Trainings** Management Agency March 2011

**Language** Proficient: English and Korean

## Publications

### Journal articles (4)

- Shin, M. and Andrawes, B. (2011), "Lateral cyclic behavior of reinforced concrete columns retrofitted with shape memory spirals and frp wraps." *J. Structural Eng., ASCE*, doi:10.1061/(ASCE)ST.1943-541X.0000364 (accepted)
- Shin, M. and Andrawes, B. (2010), "Experimental investigation of actively confined concrete using shape memory alloys." *Engineering Structures*, 32(3)
- Andrawes, B., Shin, M., and Wierschem N. (2010), "Active Confinement of Reinforced Concrete Bridge Columns Using Shape Memory Alloys." *J. Bridge Eng., ASCE*, 15(1)
- Shin, M. and Andrawes, B. (2011), "Emergency repair of severely damaged RC columns using active confinement with shape memory alloys." *Smart Mater. Struct.* (in review).

### Conference papers (5)

- Shin, M. and Andrawes, B. (2010), "Experimental study of concrete columns confined with shape memory alloys." *9th U.S. National and 10th Canadian Conference on Earthquake Engineering Toronto*, July 25-29, 2010, Toronto, Canada
- Andrawes, B. and Shin, M. (2009), "Experimental investigation of concrete columns wrapped with shape memory alloy spirals." *Proceedings of the 2009 ATC & SEI Conference*
- Shin, M. and Andrawes, B. (2009), "Uniaxial compression behavior of actively confined concrete using shape memory alloys." *ASCE Structures Congress*, April 30 – May 2, 2009, Austin, TX
- Andrawes, B. and Shin, M. (2008), "Seismic retrofitting of bridge columns using shape memory alloys; active and passive smart structures and integrated systems." *Proc. SPIE*, 6928 69281K
- Andrawes, B. and Shin, M. (2008), "Active confinement of reinforced concrete bridge columns using shape memory alloys." *The 14th World Conference on Earthquake Engineering*, October 12-17, 2008, Beijing, China

### Technical report(1)

- Andrawes, B., Shin, M. and Pozola, A. (2009), "Transfer and development length of prestressing tendons in full-scale AASHTO prestressed concrete girders using self-consolidating concrete." *Research Report ICT-09-038*
- Shin, M. and Andrawes, B. (2010), "Experimental study of concrete columns confined with shape memory alloys." *9th U.S. National and 10th Canadian Conference on Earthquake Engineering Toronto*, July 25-29, 2010, Toronto, Canada

## Presentations

## Dissertations

### Ph.D.

- Seismic Rehabilitation of Reinforced Concrete Bridge Columns Using Shape Memory Alloy Spirals

### M.S.

- Study of Transfer and Development Length of Prestressing Tendons in Prestressed Concrete Girders Using Self-Consolidating Concrete

## Affiliations

American Concrete Institute

American Society of Civil Engineers

Earthquake Engineering Research Institute

President of Korean Student Association in Civil Engineering 2011-present

President of Deeper Roots in Christ 2007-2009