

Christopher R. Hart

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PROFESSIONAL PROFILE

- Thorough understanding of reinforced concrete behavior, design, and modeling from five years of large-scale reinforced concrete experimentation and being a teaching assistant for reinforced concrete design
- Creative at brainstorming, practical approach to solving engineering problems, ability to visualize entire scope of project
- Superior leadership, teamwork, and organization skills

EDUCATION

University of Illinois at Urbana-Champaign

Ph.D. Civil Engineering: Structural ■ Summer 2011 ■ Cumulative GPA: 3.77/4.00

M.S. Civil Engineering: Structural ■ May 2007 ■ Cumulative GPA: 3.62/4.00

North Carolina State University

B.S. Civil Engineering ■ May 2005 ■ Cumulative GPA: 3.95/4.00 ■ *Summa cum laude* ■ Chi Epsilon Honor Society

Engineering Intern (E.I.) ■ October 30, 2004

GRADUATE RESEARCH EXPERIENCE: Adviser Dr. Daniel A. Kuchma

Research Assistant ■ *Department of Civil and Environmental Engineering* ■ August 2005 – Present

“Seismic Behavior, Analysis, and Design of Complex Wall Systems”

- Investigating the behavior and performance of concrete shear walls under earthquake loading
- Successfully completed four large-scale experimental tests on planar walls
- Developed and effectively implemented an instrumentation plan containing over 400 instruments per test

Research Assistant ■ *Department of Civil and Environmental Engineering* ■ August 2005 – August 2009

“IDOT - Development of Standard for Lifting Loops in Precast Deck Beams”

- Examined the performance of lifting loops in shallow prestressed concrete deck members
- Completed 16 experimental pullout tests on lifting loops embedded in shallow deck beams
- Completed 10 experimental strand rupture tests on fully embedded lifting loops

Research Assistant ■ *Department of Civil and Environmental Engineering* ■ June 2006 – August 2006

“Evaluate the Capacity and Performance of Lifting Loops Which Are Fully Embedded”

- Completed over 30 experimental strand rupture tests on fully embedded lifting loops to evaluate the performance of an existing lifting loop design by a private prestressed concrete fabricator

Research Assistant ■ *Department of Civil and Environmental Engineering* ■ December 2006

“Behavior of Deep Beams Containing Perforations Using the Strut-and-Tie Method”

- Studied the behavior of deep beams containing perforations by designing them with the strut-and-tie method and then verifying NL-FEM analytical models with experimental results

TEACHING EXPERIENCE

Teaching Assistant ■ Experimental Methods ■ *University of Illinois at Urbana-Champaign* ■ Spring 2010

- Successfully taught students how to use experimental instruments and build their own data acquisition software
- Planned all aspects of a set of experiments to demonstrate simple structural engineering principles to compare with nonlinear finite element models
- Received department superlative for outstanding teaching assistant

Teaching Assistant ■ Reinforced Concrete Design I ■ *University of Illinois at Urbana-Champaign* ■ Spring 2009

- Organized and led weekly review sessions by working practice problems and answering questions
- Developed a comprehensive final project of the design of a RC floor gravity system

Grader ■ Masonry Design ■ *University of Illinois at Urbana-Champaign* ■ Summer 2009 & 2010

- Solely responsible for the grading of all assignments and answering student questions

PUBLICATIONS AND CONFERENCE EXPERIENCE

Public Report ■ *Illinois Center for Transportation – Illinois Department of Transportation* ■ August 2009
D. A. Kuchma, & C. R. Hart, “Development of Standard for Lifting Loops in Precast Deck Beams”

Conference Paper & Presentation ■ *9th US National and 10th Canadian Conference on Earthquake* ■ Toronto, 2010
C. R. Hart, et al., “Experimental Testing of RC Walls Using Extensive Instrumentation to Investigate Cyclical Nonlinear Wall Behavior”

Conference Paper & Presentation ■ *14th World Conference on Earthquake Engineering* ■ Beijing, China, 2008
C. R. Hart, et al., “Testing of RC Walls Using Advanced Load-Control and Instrumentation Methods”

Editor for Research Proposal ■ \$230,000 ■ February 2009 ■ Dr. B.F. Spencer, Dr. L.A. Bergman, Dr. D.A. Kuchma,
“Advanced Bridge Capacity and Structural Integrity Assessment”

LEADERSHIP EXPERIENCE

Project Leader and Mentor ■ *University of Illinois at Urbana-Champaign* ■ 2005 – present

- Hired, managed, and led multiple small teams of undergraduate research engineers. Taught students how to setup instrumentation, troubleshoot faulty equipment, construct test specimens, and prepare shop drawings

ASCE Steel Bridge Captain ■ *North Carolina State University* ■ American Society of Civil Engineers ■ 2005

- Successfully led the team in design, fabrication, and construction
- Delegated tasks to each team member consistent with their understanding of steel design and construction

Treasurer/Webmaster ■ *North Carolina State University* ■ American Society of Civil Engineers ■ 2003 – 2005

- Managed the budget and collaborated with other officers to expand and promote the chapter
- Maintained the ASCE chapter website while an officer

Program Director ■ Allen & O’Hara Inc., University Towers ■ January 2004 – May 2004

Resident Assistant ■ Allen & O’Hara Inc., University Towers ■ May 2002 – May 2004

- Leader, role model, and mentor of 140 North Carolina State University students
- Acting general manager of property on weekends

AWARDS

- South Eastern Transportation Undergraduate Research Grant ■ 2005
- Louis Wooten Endowed Scholarship Recipient ■ 2004 & 2005
- AASHTO Scholarship Recipient ■ 2004
- Boy Scouts of America Eagle Rank Award ■ 2000

PROFESSIONAL MEMBERSHIPS

- American Concrete Institute ■ 2006 – Present
 - Participated in the following ACI conventions: St. Louis 2008, San Antonio 2009, Chicago 2010
 - Treasurer for the student chapter ■ 2009 – Present
- American Society of Civil Engineers ■ 2006 – Present
- American Institute of Steel Construction ■ 2006 – Present
- Earthquake Engineering Research Institute ■ 2006 – Present
- Precast/Prestressed Concrete Institute ■ 2006 – Present

TECHNICAL SKILLS AND ABILITIES

3D AutoCAD 2010
SAP 2000

ABAQUS FEM
PATRAN FEM Pre/Post Processor

VecTor2: RC NL-Modeling
Adobe Dreamweaver: Web Design

RELEVANT GRADUATE CLASSES

Structural Systems II
Structural Dynamics
Structural Analysis
Structural Mechanics
Experimental Methods

Finite Element Method
Earthquake Engineering
Nonlinear Finite Element Method
Steel Structures II, III
Masonry Design

Concrete Design II, III
Prestressed Concrete
Wood Design
Welding & Joining Processes

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