

ANGELA K. THOMPSON, PHD, PE

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Department of Engineering Fundamentals
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I. PERSONAL

Education

- 2011 Ph.D. in Mechanical Engineering, University of Louisville
Dissertation Title – *“Biomechanics and Injury Assessment of Household Falls in Children: Clinical, Anthropomorphic Surrogate, and Computer Simulation Studies”*
Advisor – Gina Bertocci
- 2007 M.Eng. in Mechanical Engineering, University of Louisville
Thesis Title – *“Investigation of Head and Neck Injury Risk Associated with Short-Distance Falls in 12-Month-Old Children”*
Advisor – Gina Bertocci
- 2005 B.S in Mechanical Engineering, University of Louisville

Experience

- 8/11 – Present Assistant Professor
Department of Engineering Fundamentals, University of Louisville
- 5/11 – 8/11 Postdoctoral Research Assistant
Injury Risk Assessment and Prevention Lab, University of Louisville
- 8/05 – 5/11 Graduate Research Assistant
Injury Risk Assessment and Prevention Lab, University of Louisville
- 5/05 – 8/05 Undergraduate Research Co-op
Injury Risk Assessment and Prevention Lab, University of Louisville
- 6/04 – 5/05 Undergraduate Researcher
Bioengineering Department, University of Louisville

Non-Academic Positions

1/03 – 1/04 Technology Engineer Co-op
GE Consumer Products, Louisville, KY

Professional Affiliations

2012 American Society of Engineering Education, Member
2007 Society of Women Engineers, Member
2005 Biomedical Engineering Society, Member
2004 Pi Tau Sigma, Member
President, University of Louisville Student Chapter, 2006-2007
Secretary, University of Louisville Student Chapter, 2005-2006

Honors and Awards

2008 Hsing Chuang Award for Excellence in Graduate Study, University of
Louisville
2007 ASME - Pi Tau Sigma Award, University of Louisville
2006 University of Louisville Fellowship
2006 J.B. Speed School of Engineering Outstanding Student, University of
Louisville
2006 Lewis Streng Award – Highest academic honor for M.Eng. graduate at
J.B. Speed School of Engineering, University of Louisville
2005 Alfred T. Chen Award – Merit-based award given to student pursuing
M.Eng. degree at J.B. Speed School of Engineering, University of
Louisville
2001 – 2006 University of Louisville Provost Hallmark Scholarship
2002 – 2004 Mechanical Engineering Academic Achievement Award, University of
Louisville
2002 – 2003 Tau Beta Pi Outstanding Freshman/Sophomore Award, University of
Louisville

II. RESEARCH

Publications

Peer Reviewed Journal Articles

- **Thompson A**, Bertocci G, Smalley C, Kaczor K, Pierce MC. Biomechanical Investigation of the Classic Metaphyseal Lesion using an Immature Porcine Model. *American Journal of Roentgenology*. In press. July 2014.
- **Thompson A**, Bertocci G. Pediatric Bed Fall Computer Simulation Model: Parametric Sensitivity Analysis. *Medical Engineering and Physics*. 2014; v36(1): 110-118.
- **Thompson A**, Bertocci G, Pierce MC. Assessment of Injury Potential in Pediatric Bed Fall Experiments using an Anthropomorphic Test Device. *Accident Analysis and Prevention*. 2013; v50: 16-24.
- **Thompson A**, Bertocci G. Paediatric Bed Fall Computer Simulation Model Development and Validation. *Computer Methods in Biomechanics and Biomedical Engineering*. 2013; v16(6): 592-601.
- **Thompson A**, Bertocci G, Pierce MC, Rice W. Pediatric Short-Distance Household Falls: Biomechanics and Injury Severity. *Accident Analysis and Prevention*. 2011; v 43: 143-150.
- **Thompson A**, Bertocci G, Pierce MC. Assessment of Head Injury Risk Associated with Feet-First Free Falls in 12-Month-Old Children using an Anthropomorphic Test Device. *Journal of Trauma*. 2009; v 66: 1019-1029.

Conference Proceedings

- **Thompson A**, Bertocci G, Pierce MC, Smalley C. Biomechanical Investigation of the Classic Metaphyseal Lesion using a Porcine Model. *Fourteenth International Conference on Shaken Baby Syndrome/Abusive Head Trauma*, Denver, CO. Sept 2014.
- **Thompson A**. Peer Assessment of Design Reports in a First-Year Introduction to Engineering Course. *ASEE Annual Conference*, Indianapolis, IN. Jun 2014.
- Pierce MC, **Thompson A**, Bertocci G. Biomechanical Investigation of the Classic Metaphyseal Lesion using a Porcine Model. *Ray E. Helfer Society Annual Meeting*, Annapolis, MD. Apr 2014.
- **Thompson A**, Bertocci G, Pierce MC. Investigation of Injury Potential in Pediatric Short-Distance Falls using Computer Simulation. *Twelfth International Conference on Shaken Baby Syndrome/Abusive Head Trauma*, Boston, MA. Sept 2012.
- **Thompson A**, Bertocci G, Smalley C, Dennison E, Corey T, Pierce MC. Biomechanical investigation of the Classic Metaphyseal Lesion. *Research Louisville*, Louisville, KY. Sept 2012.
- **Thompson A**, Hieb J, Ralston P. Engaging Freshman Engineers using the Paul-Elder Framework for Critical Thinking. *ASEE Annual Conference*, San Antonio, TX. Jun 2012.
- **Thompson A**, Bertocci G, Rice W, Pierce MC. Pediatric Short-Distance Household Falls: Biomechanics and Associated Injury Severity. *Eleventh International Conference on Shaken Baby Syndrome/Abusive Head Trauma*, Atlanta, GA. Sept 2010.

- Rice W, Pierce MC, **Thompson A**, Kim IK, Bertocci G. Investigation of Injury Risk Associated with Common Household Falls in Young Children. National Pediatric Academic Society Conference, St. Louis, MO, Mar 2010.
- **Thompson A**, Bertocci G, Pierce MC, Rice W. Biomechanics of Pediatric Short-Distance Household Falls: Relationships with Injury Severity. *Research Louisville*, Louisville, KY. Oct 2009.
- Rice W, **Thompson A**, Pierce MC, Kim IK, Bertocci G. Investigation of Injury Risk Associated with Common Household Falls in Young Children. *Research Louisville*, Louisville, KY. Oct 2009.
- Sison S, **Knight A**, Bertocci G. Assessing Kinematics of Pediatric Falls using an Anthropomorphic Test Device. *Society of Women Engineers National Conference*, Nashville, TN. Oct 2007. **Collegiate Poster Competition Finalist.**
- **Knight A**, Bertocci G, Pierce MC, Campbell-Kyureghyan N. Head Injury Risk Associated with Falls from Standing in Children and the Influence of Joint Stiffness. *Injury Biomechanics Symposium*, Columbus, OH. May 2007. **Travel Award Recipient.**
- **Knight A**, Bertocci G, Pierce MC. Effect of Joint Stiffness on Head Injury Risk in Pediatric Falls. *University of Louisville Engineering Expo*, Louisville, KY. Mar 2007.
- **Knight A**, Bertocci G, Pierce MC, Bialczak K. Head Injury Risk Associated with Feet-First Free Falls in Children and Influence of Impact Surface Type. *ASME Summer Bioengineering Conference*, Amelia Island, FL. Jun 2006. **2nd Place in Masters Level Student Paper Competition.**
- Bialczak K, Bertocci G, Pierce MC, **Knight A**. Pediatric Bed Fall Computer Simulation Model Development and Validation. *ASME Summer Bioengineering Conference*, Amelia Island, FL. Jun 2006. **1st Place in Masters Level Student Paper Competition.**
- Bertocci G, Pierce MC, **Knight A**, Bialczak K, Kaczor K, Deemer E. Head Injury Risk Associated with Free Falls from Varying Heights in Children. *Pediatric Academic Society Conference*, San Francisco, CA. May 2006.
- **Knight A**, Bertocci G, Pierce MC, Bialczak K, Deemer E. Head Injury Risk Associated with Free Falls in Children. *Research Louisville*, Louisville, KY. Oct 2005.
- Bialczak K, Bertocci G, **Knight A**, Deemer E, Spivack B. A Child Abuse Investigation: Evaluation of Exersaucer Accelerations Attained During Spinning. *Research Louisville*, Louisville, KY. Oct 2005.
- **Knight A**. Formation of Stable Lipid Bilayers on MEMS Devices. *University of Louisville Engineers Days*, Louisville, KY. Mar 2005.

Invited Presentations

- Thompson A. Biomechanical Analysis of the Classic Metaphyseal Lesion. BE 639 Injury Biomechanics, University of Louisville, Louisville, KY. Apr 2014.
- Thompson A. Active Learning in the Engineering Classroom: What Every Instructor Should Know, University of Louisville SpeedLEAD Seminar Series, Sept 2013.
- Thompson A. Using Biomechanics to Aid in the Detection of Child Abuse. HSS 387 Biomechanics, University of Louisville, Louisville, KY. Dec 2009.

- Thompson A. Using Physics Principles to Aid in the Detection of Child Abuse. Summer Medical and Dental Education Program, University of Louisville, Louisville, KY. 2008-2013.
- Knight A, Bertocci G, Pierce MC, Bialczak. Head Injury Risk Associated with Feet-First Free Falls in Children. ASME-ASHRAE Local Chapter Meeting, Louisville, KY. Mar 2006.
- Knight A, Bertocci G, Pierce MC, Bialczak. Head Injury Risk Associated with Feet-First Free Falls in Children. University of Louisville Pediatric Research Luncheon, Louisville, KY. Mar 2006.

Funded Research

- National Institutes of Health Small Research Grants, Eunice Kennedy Shriver National Institute of Child Health & Human Development. 1R03HD078491-01. Biomechanical Assessment of Femur Fracture Potential in Pediatric Falls. Role: Principal Investigator. Apr 2014-Mar 2016. \$153,192
- Department of Justice Grant. Oct 2009 – Sept 2013. Development of Scientific and Objective Methods to Detect Physical Child Abuse. Role: Graduate Student Researcher/ Postdoctoral Researcher.

Grant Proposals Submitted

- Biomechanical Investigation of the Effect of Bone Disorders on Pediatric Femur Fracture Potential. National Institute of Justice Grants for Applied Research and Development in Forensic Science for Criminal Justice Purposes. Role: Principal Investigator. Submitted Apr 2014. Status – under review.
- Biomechanical Assessment of Femur Fracture Potential in Short-Distance Falls. National Institute of Justice Grants for Applied Research and Development in Forensic Science for Criminal Justice Purposes. Role: Principal Investigator. Submitted Apr 2013. Status - Not funded.
- Biomechanics and Injury Assessment of Household Falls in Children. Submitted for Centers for Disease Control (CDC) Public Health Dissertation Grant. Role: Principal Investigator. Sept 2009. Priority Score = 254. Status - No grants were awarded due to lack of funding.

III. TEACHING.

Courses at the University of Louisville

- ENGR 307: Numerical Methods for Engineers – Spring 2013, Summer 2013
- ENGR 102: Engineering Analysis II – Summer 2013
- ENGR 101: Engineering Analysis I – Spring 2013
- ENGR 205: Differential Equations for Engineers – Spring 2012, Summer 2012, Fall 2013
- ENGR 100: Introduction to Engineering – Fall 2011, 2012, 2013
- ME 251: Thermodynamics I – Instructor (Spring 2009, Summer 2009, Fall 2009)
- ME 675: Injury Biomechanics - Teaching Assistant (Spring 2008), Instructor (Spring 2011)

BE 423: Bioengineering Measurements – Taught lab on Head Injury Biomechanics,
Spring 2008

Dissertation Committees

Niko Hachenberg. “Prediction of NO_x Emissions in Pulverized Coal Combustion.” Department of Industrial Engineering, University of Louisville. Completed Mar 2014.

MEng Thesis Committees

Eli Wilborn. “Nanofluid Enhancement of Mineral Oil and Thermal Properties Instrument Design” Department of Chemical Engineering, University of Louisville. Completed June 2014.

Greg States. “Development of a Neuromusculoskeletal Computer Model to Quantify Functional Recovery Following Intervertebral Disc Herniation in a Chondrodystrophic Dog.” Department of Bioengineering, University of Louisville. In progress.

IV. SERVICE

University of Louisville

Fall 2014	Faculty Council, J.B. Speed School of Engineering
Spring 2014	Engineering Fundamentals Faculty Search Committee
2012-present	Tau Beta Pi Student Chapter Advisor
Spring 2008	Mechanical Engineering Department Chair Review Committee