

Ms. Mathias is Director of Safety and Risk Assessment at ESI. She specializes in biomedical and mechanical engineering, including the areas of human factors analyses; product safety labeling, warnings, and instructions; accident reconstruction; safety analyses; biomechanics; ergonomics; experimental design; and computational modeling and analysis.

She holds a Bachelor's Degree in Mechanical Engineering from the University of Notre Dame, a Master's Degree in Mechanical Engineering from the University of Michigan, and a Master's Degree in Biomedical Engineering from the University of Michigan.

Her work includes risk assessments for consumer products, machines, and industrial equipment. She conducts evaluations of slips, trips, and falls as well as biomechanical accident reconstruction involving interactions with elevators and stairways, industrial accidents, appliances and children's products.

## Licenses & Certifications

- State of Illinois P.E. License No. 062-062365
- State of Michigan P.E. License No. 6201055912
- State of Arkansas P.E. License No. 16640
- State of Alabama P.E. License No. PE51133

## Positions Held

### Engineering Systems Inc., Aurora, Illinois

- Principal, 2021- Present
- Director of Safety and Risk Assessment, 2018 - Present
- Senior Managing Consultant, 2018- 2020
- Senior Consultant, 2016 - 2017
- Senior Staff Engineer

### Packer Engineering, Inc., Naperville, Illinois

- Senior Staff Engineer, Biomechanics and Human Factors, 2007 – 2010

### Miller Engineering, Ann Arbor, Michigan

- Consult Project Engineer, 2005– 2007

### Anne C. Mathias

Principal, Director of Safety and Risk Assessment

**Email:** [acmathias@engsys.com](mailto:acmathias@engsys.com)

**Phone:** 630-851-3614

### ESi Aurora

4215 Campus Dr.  
Aurora, IL 60504

### Education

M.S., Biomedical Engineering,  
University of Michigan, 2005

M.S.E, Mechanical Engineering,  
University of Michigan, 2005

B.S., Mechanical Engineering,  
University of Notre Dame,  
2003

### Areas of Specialization

Safety and Risk Assessment

Biomechanics

Human Injury Analysis

Product Safety and Design

Accident Reconstruction

Warnings and Instructions

Slips and Falls

Human Factors and  
Ergonomics

## **Biomechanics Research Laboratory, University of Michigan, Ann Arbor, Michigan**

- Graduate Student Research Assistant, Department of Mechanical Engineering, 2004 – 2005

## **Zimmer, Warsaw, Indiana**

- Mechanical Engineering Intern, 2002

## **Continuing Education**

- **“Certified Playground Safety Inspector”**, National Recreation and Park Association (NRPA) 2023. Certification No. 59409-1226
- **“Walkway Auditor Certificate Holder”**, National Floor Safety Institute (NFSI) (2022)
- **“Neuroradiology 101”**, Association for the Advancement of Automotive Medicine (AAAM) (2021)
- **“Certified Playground Safety Inspector Preparation Course”**, National Recreation and Park Association (NRPA) (2020)
- **“Effectively Conducting Remote Risk Assessments,”** Human Factors and Ergonomics Society, (2020)
- **“Human Factors in Traffic Crash Reconstruction”**, Institute of Police Technology and Management, (2017)
- **“Understanding Bloodstain Pattern Analysis”**, Bevel Gardner & Associates, (2017)
- **“Driver Distraction from Electronic Devices; Insights and Implications,”** SAE (2017)
- **“Diagnostic Imaging of the Cervical Spine: Essentials for the Autonomous Physical Therapist,”** APTA, (2017)
- **Forklift Operator Safety Training and Certification**, Aurora, IL.
- **XL Tribometrist (CXLT)**, Excel Tribometers, LLC. Certification
- **Certified Ergonomics Assessment Specialist;** via The Back School of Atlanta (2013)
- **OSHA 30-Hour General Industry Safety and Health Course Completion Card**
- **“Vehicle Accident Reconstruction Methods,”** Troy, MI; Sponsored by SAE (2007)

## **Professional Affiliations/Honors**

### **ANSI B11 (Safety Standards for Machines)**

- ANSI B11 Standards Development Committee, Vice Chair
- ANSI B11.0 Working Group Vice Chair

### **American Society of Safety Professionals (ASSP)**

- Member; Alternate Representative to ANSI B11 ASC

### **American Society of Mechanical Engineers (ASME)**

- Member

### **Society of Women Engineers (SWE)**

- Member

## Pi Tau Sigma

### Human Factors and Ergonomics Society (HFES)

- Co-Chair, "Warnings and Risk Perception" Session, Human Factors and Ergonomics Society 51<sup>st</sup>
- Annual Meeting, October 2007.

### Society of Automotive Engineers (SAE)

- Member

## Publications/ Presentations

**A.C. Mathias**, G.A. Hazime, H. Chan, J.M. Roberts, M.E. Kelley. "Elevator Passenger Accelerations During Emergency Stops, Normal Elevator Travel, and Everyday Activities." Biomedical Sciences Instrumentation, 62nd Annual Rocky Mountain Bioengineering Symposium, St. George, UT. April 2025. Biomedical Sciences Instrumentation Journal, Volume 61(1), pp.23-32.

Brickman, D.B., Mohorovic, J.P., Zakutansky, K.B., **Mathias, A.C.**, Shibata, P.A., "Aboveground Swimming Pool Child Access Prevention Through Product Design," Proceedings of the XXXVIth Annual International Occupational Ergonomics and Safety Conference, Denver, CO, August 5-6, 2024.

**A. C. Mathias**, W. Wong, J. C. Smolka, J. P. Mohorovic and E. H. Knox, "Risk Assessment: When have you reached acceptable risk?," 2024 IEEE International Symposium on Product Compliance Engineering (ISPCE), Chicago, IL, USA, 2024, pp. 1-4, doi: 10.1109/ISPCE61193.2024.10541214.

Brickman, Dennis B.; Mohorovic, Joseph P.; **Mathias, Anne C.**; Knox, Erick H.; "Residential Bunk Bed Child Entrapment Hazard Safety Test Methods," Proceedings of the XXXVth Annual International Occupational Ergonomics and Safety Conference, Munich, Germany, October 9-10, 2023.

"Safety Program for Machine Safeguarding," chapter in The ASSP Study Guide for the ASP Examination: ASP10 Blueprint, American Society of Safety Professionals, 2020

Shibata P.A., **Mathias A.C.**, Light A.E., Meza-Arroyo M., Sprague J.K., Stern A.R. "Comparative Lumbar Spine Acceleration Data During Daily and Dynamic Activities, Tasks of Daily Driving, and Low Speed Lateral Vehicle Impacts." Biomedical Sciences Instrumentation, 55(2):316-323 (2019). Presented at the 56th Annual Rocky Mountain Bioengineering Symposium and 38th IEEE Great Lakes Biomedical Conference, Milwaukee, Wisconsin, April 2019

Shibata P.A., **Mathias A.C.**, Light A.E., Meza-Arroyo M., Sprague J.K., Stern A.R. "Head Acceleration Measurements During Vehicle Driving Tasks and Lateral Impacts Relative to Head Accelerations During Daily and Dynamic Activities." Biomedical Sciences Instrumentation, 55(2):277-284 (2019)

Brickman, D.B., **Mathias, A.C.**, Roberts, J.M. "Stump Grinder Accident Reconstruction and Design Testing Methodologies" Proceedings of the XXXth Annual Occupational Ergonomics and Safety Conference, Pittsburg, PA. June 7-8, 2018

**Mathias, A.C.**, Brickman, D.B. "Aboveground Swimming Pool Ladder Safety: The Application of Child Resistance to a Consumer Product Used by Children." Proceedings of the 59th Human Factors and Ergonomics Society Annual Meeting, 2015, pp. 966-970

Knox, E.H., **Mathias, A.C.**, Stern, A.R., Van Bree, M.P., Brickman, D.B. "Methods of Accident Reconstruction: Biomechanical and Human Factors Considerations," IMECE2015, Proceedings of the ASME 2015 International Mechanical Engineering Congress and Exposition. Houston, TX: November 13-19, 2015

**Mathias, A.C.**, and D.B. Brickman. "Human Factors Case Study of Child Product Safety Test Approach Through Long Term Observations of Live Infant Interaction." Proceedings of the 3rd Annual World Conference of the Society for Industrial and Systems Engineering, San Antonio, TX. October 20-22, 2014

**Mathias, A.C.**, Shibata, P.A., and Sprague, J.K. A Link Between Occupant and Vehicle Accelerations During Common Driving Tasks. Biomed Sci Instrum, 50:197-204 (2014). Presented at the 51st Annual Rocky Mountain Bioengineering Symposium, Denver, Colorado, April 2014

Brickman, Dennis B., and **Anne Mathias**. "Product Warning Label Development for Blade Strike Fire Hazard." Proceedings of the 2nd Annual World Conference of the Society for Industrial and Systems Engineering, Las Vegas, NV. November 5-7, 2013

Brickman, Dennis B., Gary Novak and **Anne Mathias**. "Crib Mattress Support Collapse Accident Reconstruction." The XXV Annual Occupational Ergonomics and Safety Conference, Atlanta, GA. June 6-7, 2013

**Mathias, Anne**, David G. Curry, Conor Donnelly and Luke Drendel. "Slip Sliding Away II – Slip Resistance of Dress Socks on Indoor Flooring." Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 2010, vol. 54: pp. 1382-1386

Curry, David G., **Anne Mathias** and Valerian A. Skawinski. "Slip Sliding Away – Slip Resistance of Athletic Socks on Indoor Flooring." Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 2009, vol. 53: pp. 568-571