

Dr. Siddharth (Sid) Bhandari

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**ACADEMIC BACKGROUND**

- PhD.
 (May 2019) University of Colorado at Boulder
 Department of Civil, Environmental, and Architectural Engineering
Dissertation: Leveraging Emotional Engagement Techniques and Adult Learning Principles to Transform Safety Training
- M.S.
 (May 2017) University of Colorado at Boulder
 Department of Civil, Environmental, and Architectural Engineering
Specialization track: Construction Engineering and Management (GPA: 3.8)
- B.S.
 (December 2014) University of Colorado at Boulder
 Department of Civil, Environmental, and Architectural Engineering
Specialization track: Environmental Engineering (GPA: 3.0; Major GPA: 3.3)

PROFESSIONAL EXPERIENCE

- Assistant Professor
 (Fall 2019 – Present) **Western Michigan University**
 Department of Civil and Construction Engineering
Research Focus: Safety Training, Human Factors, Safety Climate, Leading Indicators, and Learning.
Courses: Life Cycle Cost Management Analysis (CCE 6360), Construction Project Management (CCE 4380), Construction Planning and Scheduling (CCE 4310) and Design of Construction Systems (CCE 6330).
- Research Associate
 (Summer 2019) **University of Colorado Boulder**
 Department of Civil, Environmental, and Architectural Engineering
Research Focus: Safety Training, Behavioral Psychology, Adult Learning, Safety Climate, Leading Indicators, and Precursor Analysis.
- Graduate Research Assistant
 (Spring 2015 – Spring 2019) **University of Colorado Boulder**
 Department of Civil, Environmental, and Architectural Engineering
Research Focus Developing and testing a new safety training program that uses multimedia learning techniques, adult learning principles, and prominent behavioral psychological theories to improve knowledge retention and safety decision-making skills among construction workers.
- Co-Instructor
 (Spring 2018 & Spring 2019) **University of Colorado Boulder**
 Course: Construction Equipment and Methods.
- Instructor on Record
 (Fall 2017 & Fall 2018) **University of Colorado Boulder**
 Course: Construction Equipment and Methods.
- Teaching Assistant **University of Colorado Boulder**

(Spring 2017)	Course: Introduction to Construction <u>Lead Instructor for Modules:</u> Safety Management and Multi-Factor Engineering Economics.
Teaching Assistant (Fall 2016)	University of Colorado Boulder Course: Construction Equipment and Methods. <u>Lead Instructor for Modules:</u> Designing Blasting Operations, Techniques on Driving Sheet Piles, Risk Overview and Analysis, and Bias in Engineering.
Undergraduate Research Assistant (Fall 2013 – Fall 2014)	University of Colorado Boulder Department of Civil, Environmental, and Architectural Engineering Responsibilities included developing hyper-realistic replicas of human hands, delivering safety training, data collection, entry, and analysis, and authoring papers for academic publications.
Summer Study Program Instructor (Summer 2014)	Lead instructor in pre-college summer study program for high-school students to encourage them to join a STEM field. For the workshop, responsibilities included developing syllabus, delivering lectures, organizing a project, preparing, and grading exams and homework for 70 high-school students.
Teach for Sustainability (Fall 2011)	Columbine Elementary School Interned in a CLACE' project funded by NASA as a facilitator to teach students about sustainability, energy and conservation of environment. Responsible for making and delivering lesson plans to a class of 20 students.
Tutor (Spring 2012)	University of Colorado Boulder Courses: Applied Math Calculus Level 1 & 2 and Business Statistics

EXTERNALLY FUNDED RESEARCH

- [1]. Bhandari, Siddharth (co-PI) with received \$24,000 to work on the project “Predictive Analytics” from Construction Safety Research Alliance at University of Colorado Boulder. [October 2019 – September 2020]
- [2]. Bhandari, Siddharth (PI) received the Early Career Award of \$9,000 to work on the project “Measuring Situational Awareness Among Electric Transmission & Distribution Line Workers” from ELECTRI International. [August 2019 – June 2020]

PROFESSIONAL WORKSHOPS AND PRESENTATIONS

- [3]. Keynote Presentation: Using safety climate to reduce risk tolerance levels and propensity to break rules among workers. **OTIS Elevator Company** Southeast Asia Safety Summit, Ho Chi Minh, Vietnam, June 21-22, 2018.
- [4]. Part of team organizing and presenting simulation-based safety training and hazard recognition workshop to over 5000 construction workers over a week on an **Enbridge** project in Regina, Canada, October 2018.
- [5]. Part of team organizing, designing, and presenting simulation-based safety training and hazard recognition workshop to over 1200 construction workers over a week on a **ConocoPhillips's** Eagle Ford project in Kenedy, Texas, October 2014.
- [6]. **Bhandari S.**, and Hallowell M. R. (2016). “*Live Safety Demos.*” **Construction Industry Institute** (CII), Washington D.C., MA, August 1-3, 2016. [Invited Poster Presentation]

- [7]. Successfully worked a project funded by **Construction Industry Institute (CII)** as a Graduate Research Assistant that aimed to quantify the financial returns of building investments in collaboration with **Kaiser Permanente, Smithsonian Institute, Autodesk, National Aeronautics and Space Administration, Deloitte, and Continuum Advisory Group.**

PUBLICATIONS

#Bhandari's Ph.D. Advisor

✓ ***Peer Reviewed Journal Papers Published***

- [1]. **Bhandari, S.**, Hallowell, M. R.#, Boven, L. V., Welker, K. M., Golparvar-Fard, M., & Gruber, J. (2020). Using Augmented Virtuality to Examine How Emotions Influence Construction-Hazard Identification, Risk Assessment, and Safety Decisions. *Journal of Construction Engineering and Management*, 146(2), 04019102.
- [2]. **Bhandari, S.**, Hallowell, M. R.#, & Correll, J. (2019). Making Construction Safety Training Interesting: A Field-Based Quasi-Experiment to Test the Relationship between Emotional Arousal and Situational Interest Among Adult Learners. *Safety Science*, 117, 58-70.
- [3]. Hallowell, M. R.#, **Bhandari, S.**, & Alruqi, W. (2019). Methods of Safety Prediction: Analysis and Integration of Risk Assessment, Leading Indicators, Precursor Analysis, and Safety Climate. *Construction Management and Economics*, 1-14. DOI: 10.1080/01446193.2019.1598566.
- [4]. **Bhandari S.**, & Hallowell M. R.# (2017). Emotional Engagement in Safety Training: Impact of Naturalistic Injury Simulations on the Emotional State of Construction Workers. *Journal of Construction Engineering and Management*, 143(12), 04017090.

✓ ***Peer Reviewed Journal Papers Accepted***

- [1]. Salas R., Hallowell M. R.#, Balaji R., and **Bhandari S.** Risk Tolerance in the Construction Industry: Cross-Cultural Analysis. (**Accepted @** *Journal of Construction Engineering and Management*).

✓ ***Peer Reviewed Journal Papers Submitted***

- [1]. **Bhandari S.**, & Hallowell M. R.# Identifying and Controlling for Biases in Expert-Opinion Research: Guidelines for Variations of Delphi, Nominal Group Technique, and Focus Groups. (**Under Review @** *Journal of Construction Engineering and Management*).
- [2]. **Bhandari S.**, Hallowell M. R. #, Alruqi W. and Salas R. Does Personal Risk Tolerance Predict Work-related Risk Tolerance: Cross-cultural Examination. (**Under Review @** *Journal of Construction Engineering and Management*)
- [3]. **Bhandari S.**, Hallowell M. R. #, Alruqi W. and Salas R. Does Safety Climate Predict Risk Tolerance and Rule-Breaking Decisions. (**Under Review @** *Safety Science*)
- [4]. **Bhandari S.**, and Molenaar K. Cognitive Biases in Construction Risk Management: Recommendations for Practice and Future Research. (**Under Review @** *Journal of Construction Economics and Management*)

✓ ***Peer-Reviewed Conference Proceeding Published***

- [1]. **Bhandari S.**, and Hallowell M. R. # (2015) New multimedia safety education program: impacts on emotions, risk perceptions, and learning. *Proceedings of the Canadian Society for Civil Engineering Construction Specialty Conference, Vancouver, Canada, June 7- June 10, 2015. [Best Paper Award]*
- [2]. **Bhandari S.**, Hallowell M. R. #, Salas R., and Alruqi W. (2019). Global differences in Risk Tolerance Levels Among Construction Workers. *Proceedings of Canadian Society for Civil Engineering Construction*

Specialty Conference/ Construction Research Congress, Laval (Greater Montreal), Canada, June 12 – June 15, 2019.

- [3]. Patil K. R., **Bhandari S.** #, Ayer S. K., Hallowell M. R. (2018). Potential for Virtual Reality and Haptic Feedback to Enhance Learning Outcomes among Construction Workers. Proceedings of the 18th International Conference on Construction Applications of Virtual Reality (CONVR), Auckland, New Zealand, November 22-23, 2018.
- [4]. **Bhandari S.**, Hallowell M. R. #, Van Boven L., Golparvar-Fard M., Gruber J., & Welker K. M. (2018). Using augmented virtuality to understand the situational awareness model. Proceedings of the American Society of Civil Engineers 2018 Construction Research Congress (CRC), New Orleans, LA, April 2-4, 2018.
- [5]. **Bhandari S.**, Hallowell M. R. #, Van Boven L., Gruber J., and Welker K. M. (2016). Emotional states and their impacts on hazard identification skills. Proceedings of the ASCE 2016 Construction Research Congress (CRC), San Juan, Puerto Rico, May 31-June 2, 2016.

✓ **Peer-Reviewed Conference Proceeding Accepted or Submitted**

- [1]. **Bhandari S.**, Hallowell M. R. #, Albert A. (**Accepted**). Improving Hazard Recognition Performance: Insights from Literature Review. Proceedings of the ASCE 2020 Construction Research Congress (CRC), Tempe, Arizona, March 8th – 11th, 2020.
- [2]. Alruqi W., and **Bhandari S.** (**Accepted**). Understanding the Influence of Perceived Productivity Pressures on Perceptions of Risk Among Construction Workers Proceedings of the ASCE 2020 Construction Research Congress (CRC), Tempe, Arizona, March 8th – 11th, 2020.
- [3]. Techara U., **Bhandari S.**, Hallowell M. R. # (**Accepted**). Does Fatigue Reduce Hazard Recognition Performance among Transmission Workers? Proceedings of the ASCE 2020 Construction Research Congress (CRC), Tempe, Arizona, March 8th – 11th, 2020.
- [4]. Alsharef A., Albert A., Jaselskis E., and **Bhandari S.** (**Accepted**). Construction Safety Training: Challenges, Opportunities, and Best Practices. Proceedings of the ASCE 2020 Construction Research Congress (CRC), Tempe, Arizona, March 8th – 11th, 2020.

PROFESSIONAL REGISTRATION AND TRAINING

- [1]. OSHA 10-hour Construction Safety and Health Certification. (Certification# 26-006017592).
- [2]. Certified National Center for the Integration of Research, Teaching, and Learning (CIRTL) Associate.
- [3]. College of Engineering and Applied Science Graduate Mentorship Certificate.

MERIT-BASED AWARDS

- [1]. **Best Paper Award** at 5th International/11th Construction Specialty Conference Vancouver, Canada, June 7- 10, 2015.
- [2]. Outstanding Reviewer Certificate for the journal *Safety Science*. (October 2017)
- [3]. Dean's List for Academic Excellence (Spring, 2014).

STUDENT ADVISING

Ph.D.

1	Bandar Alqahtani ¹	Western Mich. Univ.	On-going	Modeling the influence stress on construction workers' safety performance: cross-cultural examination.
2	Katie Welfare	U. of Colorado Boulder	On-going	Developing a Human Factors Climate Model.

¹Chair/Primary Advisor

M.S. Report

1	Anuj Patel	Western Mich. Univ.	Fall 2019	Using Lifecycle Cost Analysis for Repair and Renovation Projects.
2	Sreeja Thallapureddy	Western Mich. Univ.	On-going	Efficacy of Multimedia Based Safety Training Programs.
3	Sumit Saha	Western Mich. Univ.	On-going	Measuring Situational Awareness and Human Factors on Construction Sites.

TEACHING COURSE EVALUATIONS

Scores based on a 5-pt scale. Western Michigan University only.

Course Title	# Students	Term	Course Overall	Instructor Overall	Course Organization
CCE 4380: Const Project Mgmt.	22	Spring 2020	Ongoing	Ongoing	Ongoing
CCE 6360*: Life Cost Mgmt. and Analysis	16	Fall 2019	4.38	4.38	4.46

*Graduate Course

Scores based on a 6-pt scale. University of Colorado Boulder only.

Course Title	# Students	Term	Course Overall	Instructor Overall	Instructor Effectiveness
CVEN 3256 ¹ : Const Equip. and Methods	53	Spring 2019	5.32	5.74	5.62
CVEN 3256: Const Equip. and Methods	42	Fall 2018	5.14	5.68	5.64
CVEN 3256: Const Equip. and Methods	37	Fall 2017	5.00	5.18	5.00

¹Co-instructor

SERVICE

Conference Technical Committees:

- [1]. CIB W099 and TG59 International Conference 2020: Scientific and Technical Committee Member (Upcoming)

Peer-Reviewer (Journals)

- [1]. Safety Science (2016- *present*).
 [2]. Journal of Construction Economics and Management (2017-*present*).
 [3]. Practice Periodical on Structural Design and Construction (2019 – *present*).

Peer-Reviewer (Conferences)

- [1]. CRC: *Construction Research Congress* Conference (2016, 2020).
 [2]. CIB W099 and TG59: *International Safety, Health, and People in Construction* Conference (2015, 2017, 2018, 2020).