

Safeer Farrukh Siddicky, Ph.D.

CONTACT INFORMATION

The University of Texas at Austin
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Background

EDUCATION

University of Missouri-Kansas City **Kansas City, MO**
Doctor of Philosophy, Engineering and Biomedical & Health Informatics August 2015 - May 2018
Master of Science, Mechanical Engineering August 2013 - May 2015

- Dissertation title: “Evaluating the Ergonomics of Healthcare Providers using Kinematic Motion Analysis, Electromyography and Musculoskeletal Modeling”
- Thesis title: “Use of Biomechanical Motion Analysis to Evaluate Endotracheal Intubation Skill in a Simulated Clinical Setting”

Georgia Institute of Technology **Atlanta, GA**
Bachelor of Science, Mechanical Engineering August 2009 - May 2013

PROFESSIONAL EXPERIENCE

The University of Texas at Austin **Austin, TX**
Department of Kinesiology and Health Education Jan 2022 - present
Assistant Professor of Instruction

- Instructed coursework in biomechanics and motor learning (theory and laboratory techniques)
- Coordinated research schedules and maintained core MCRS research spaces (BEL 530, BEL 546B)

Boise State University **Boise, ID**
Department of Mechanical and Biomedical Engineering Jul 2020 - Dec 2021
Adjunct Graduate Faculty & Postdoctoral Research Assistant; Advisor: Erin M. Mannen, Ph.D.

- Led industry and federally funded biomechanics research studies on infant movement
- Authored federal grant proposals, technical reports, and study (IRB) protocols
- Instructed coursework in biomechanics theory, laboratory techniques, and MATLAB programming
- Served on M.S. thesis committee and supervised graduate and undergraduate students

University of Arkansas for Medical Sciences **Little Rock, AR**
Department of Orthopaedic Surgery Aug 2018 - Jul 2020
Post Doctoral Fellow; Advisor: Erin M. Mannen, Ph.D.

- Led orthopedic biomechanics research studies on healthy and pathologic infant movement
- Supervised graduate students, medical students, and undergraduate interns

University of Missouri-Kansas City **Kansas City, MO**
Human Motion Laboratory & Center for Health Insights May 2014 - May 2018
Graduate Research Assistant; Advisor: Gregory W. King, Ph.D.

- Designed and conducted biomechanical research on occupational ergonomics and clinical performance

Medical Positioning Inc. (MPI) **Kansas City, MO**
Product Development Intern June 2016 - August 2016

Georgia Institute of Technology **Atlanta, GA**
Undergraduate Research Assistant January 2012 - May 2013

Research

PUBLICATIONS
(PEER REVIEWED:
IN PRINT, IN PRESS,
OR ACCEPTED)

†MENTORED
STUDENT

*SHORTLISTED FOR
THE ORS HARRIS
AWARD

1. Lim Y, Chambers T, Walck C, **Siddicky SF**, Mannen EM, Huayamave V, “Challenges in kinetic-kinematic driven musculoskeletal subject-specific infant modeling”, *Mathematical and Computational Applications - Special Issue “Computational Methods for Coupled Problems in Science and Engineering”*, 27(3):36, 2022.
2. Akhter S, Jain SF, Ishihara R, **Siddicky SF**, High R, Suh DW, “The Incidence of Work-Related Musculoskeletal Disease among Pediatric Ophthalmologists: Are Ergonomic Innovations Needed?,” *Clinical Ophthalmology*, 16:833-40, 2022.
3. Wang J, **Siddicky SF**, Carroll J, Rabenhorst B, Bumpass DB, Whitaker B, Mannen EM, “Infant inclined sleep product safety: a model for using biomechanics to explore safe infant product design,” *Journal of Biomechanics*, 128:110706, 2021.
4. Wang J, **Siddicky SF**, Johnson T, Kapil N, Majmudar B, Mannen EM, “Supine lying center of pressure characteristics as a predictor of developmental stages in early infancy,” *Technology and Healthcare*, 30(1):43-49, 2021.
5. Wang J, Severin C, **Siddicky SF**, Barnes CL, Mannen EM, “Effect of movement speed on lower and upper body biomechanics during sit-to-stand-to-sit transfers: self-selected speed vs. fast imposed speed,” *Human Movement Science*, 77:102797, 2021.
6. Wang J, **Siddicky SF**, Dohm M, Barnes CL, Mannen EM, “Kinematic and kinetic changes following Total Hip Arthroplasty during sit-to-stand transfers: systematic review,” *Arthroplasty Today*, 7:148-156, 2021.
7. **Siddicky SF***, Wang J, Rabenhorst B, Buchele L†, Mannen EM, “Exploring infant hip position and muscle activity in common baby gear and orthopedic devices,” *Journal of Orthopaedic Research*, 39(5):941-9, 2021.
8. Wang J, **Siddicky SF**, Carroll J, Rabenhorst B, Bumpass DB, Whitaker BN, Mannen EM, “Do inclined sleeping surfaces impact infants’ activity and movement? A safe sleep product design perspective,” *Journal of Biomechanics*, 111:109999, 2020.
9. **Siddicky SF**, Bumpass DB, Krishnan AR, Tackett SA, Mccarthy RE, Mannen EM, “Positioning and baby devices impact infant spinal muscle activity,” *Journal of Biomechanics*, 104:109741, 2020.
10. Sherrill JT†, **Siddicky SF**, Davis WD†, Chen C, Bumpass DB, Mannen EM, “Validation of a Customized Spine Biomechanics Simulator: A Case for Field Standardization,” *Journal of Biomechanics*, 98:109470, 2020.
11. Wang J, Mannen EM, **Siddicky SF**, Lee J, Latt LD, “Gait alterations in posterior tibial tendonitis: A systematic review and meta-analysis,” *Gait & Posture*, 76:28-38, 2020.
12. Bonafede L, Kazmierczak L, **Siddicky SF**, Gunton KB, “Ergonomics in Strabismus Surgery,” *Current Opinion in Ophthalmology*, 30(5):331-6, 2019.
13. Wang J, **Siddicky SF**, Oliver T, Dohm M, Barnes CL, Mannen EM, “Biomechanical changes following Knee Arthroplasty during sit-to-stand transfers: systematic review,” *Journal of Arthroplasty*, 34(10):2494-2501, 2019.
14. Branson BG, Abnos RM†, Simmer-Beck ML, King GW, **Siddicky SF**, “Using Motion Capture Technology to Measure the Effects of Magnification Loupes on Dental Operator Posture: A Pilot Study,” *WORK: A Journal of Prevention, Assessment, and Rehabilitation*, 59(1):131-9, 2018.

PUBLICATIONS
(PEER REVIEWED:
UNDER REVIEW,
UNDER REVISION, OR
IN PREPARATION)

†MENTORED
STUDENT

15. **Siddicky SF**, Akhter S, Mozafari H, Hermsen J, Kalaga P, Cox J, Linke G, Scherr T, King GW, Suh D, “Surgical Magnification Loupe Customization to Prevent Chronic Back and Neck Pain in Ophthalmic Surgeons,” *WORK: A Journal of Prevention, Assessment, and Rehabilitation*, (under review).
16. **Siddicky SF**, Olitsky SE, King GW, “Biomechanical assessment of positional adjustments and ophthalmologist ergonomics during refraction and strabismus exams,” *Applied Ergonomics*, (under revision).

17. **Siddicky SF**, Olitsky SE, King GW, “Quantitative Evaluation of Eye Care Provider Posture during Slit Lamp examination using Kinematic Motion Analysis and Electromyography,” *Applied Ergonomics*, (under revision).
18. **Siddicky SF**, King GW, Balakrishnan B, Hoffman MA, “Objective Kinematic Evaluation of Simulated Endotracheal Intubation Skill Using Marker-based Motion Analysis,” *Human Movement Science*, (under revision).
19. **Siddicky SF**, Davis WD[†], Wang J, Goldrod S[†], Leshner M, Whitaker B, Carroll J, Mannen EM, “Breathability consideration for inclined sleepers, crib bumpers, and toy chests: developing a simulated carbon dioxide rebreathing model,” *IEEE Transactions on Biomedical Engineering*, (in preparation).
20. **Siddicky SF**, Eckles JP[†], Kee J, Rabenhorst B, Mannen EM, “Ultrasonographic evaluation of infant hips in the Pavlik harness and body-worn commercial baby carriers,” *Journal of Pediatric Orthopaedics*, (in preparation).
21. Davis WD[†], **Siddicky SF**, Leshner M, Mannen EM, “Air permeability of infant sleep products: Comparison of existing permeability testing standards and exploration of physiologically guided methods for suffocation prevention,” *Journal for Consumer and Product Safety*, (in preparation)

PEER-REVIEWED
CONFERENCE
PROCEEDINGS
(ORAL
PRESENTATIONS)

[†]MENTORED
STUDENT

§SENIOR AUTHOR

1. **Siddicky SF**, Eckles JP[†], Wang J, Dalal SS[†], Rabenhorst B, Kee J, Mannen EM, “Ultrasound evaluation of healthy infant hips in the Pavlik harness and commercial baby carriers,” Orthopaedic Research Society Annual Meeting, Tampa, FL, February 2022.
2. Siegel DN[†], Davis WD[†], Prow A[†], Scholes O[†], Mannen EM, **Siddicky SF**[§], “The Unexplored Milestone: Kinematics and Muscle Utilization of How Babies Roll,” American Society of Biomechanics Annual Conference, Atlanta, GA, August 2021. (virtual)
3. **Siddicky SF**, Rabenhorst B, Aronson EA, Wang J, Mannen EM, “Lower extremity biomechanics of healthy infants, infants with hip instability, and infants treated for developmental dysplasia of the hip with the Pavlik harness,” Canadian Society of Biomechanics Annual Conference, Montreal, Canada, May 2021.
4. **Siddicky SF**, Wang J, Rabenhorst B, Aronson EA, Mannen EM, “Lower extremity muscle activity and hip range of motion of infants with hip dysplasia: how does it compare to healthy infants?,” Mid-South Biomechanics Conference, Memphis, TN, February 2020.
5. **Siddicky SF**, Rabenhorst B, Wang J, Aronson E, McCoy A[†], Casper E[†], Mohler SA[†], Mannen EM, “Biomechanical changes following Pavlik harness treatment for developmental dysplasia of the hip,” Orthopaedic Research Society Annual Meeting, Phoenix, AZ, February 2020. *Presentation to the ORS Hip Dysplasia Research Interest Group*
6. **Siddicky SF**, Wang J, Tackett SA, Bumpass DB, McCarthy R, Rabenhorst B, Mannen EM, “Daily infant positioning and its implications on long-term spine and lower extremity health,” South Central American Society of Biomechanics Meeting, Plano, TX, April 2019.
7. **Siddicky SF**, Mozafari H, King GW, Suh D, “Redesigning surgical magnification loupes: Effect of angle of declination, weight, and strap design on the postural ergonomics of ophthalmic surgeons,” American Academy of Pediatric Ophthalmology and Strabismus 45th Annual Meeting, San Diego, CA, March 2019. DOI: <https://doi.org/10.1016/j.jaapos.2019.08.034>
8. **Siddicky SF**, Buchele L[†], Tackett SA, Rabenhorst B, Mannen EM, “Infant Hip Position and Lower Extremity Muscle Activity in an Inward Facing Babycarrier and the Pavlik Harness,” Gait and Clinical Movement Analysis Society Annual Conference, Frisco, TX, March 2019.
9. **Siddicky SF**, Wang J, Bumpass DB, McCarthy R, Tackett SA, Mannen EM, “Infant muscle activity during tummy time: Implications for musculoskeletal development,” Mid-South Biomechanics Conference, Memphis, TN, February 2019.
10. **Siddicky SF**, Akhter S, Suh D, “Surgical Loupe Customization to Improve Ergonomics Among Ocular Surgeons,” 19th Annual Meeting of the American Academy of Ophthalmology, Chicago, IL, October 2018.
11. **Siddicky SF**, King GW, Olitsky SE, “Evaluating the Postural Ergonomics of Ophthalmologists using Kinematic Motion Analysis and Electromyography,” 42nd Annual Meeting of the American Society of Biomechanics, Rochester, MN, August 2018. *Presentation to the American Society of Biomechanics Doctoral Competition*

12. Siegel DN[†], **Siddicky SF**, Davis WD[†], Mannen EM, “Muscle Utilization of How Babies Achieve a Roll,” 9th World Congress of Biomechanics, Taipei, Taiwan, July 2022.
13. Olvera HL[†], Brittain AR[†], Mannen EM, **Siddicky SF**, “Spatiotemporal Biomechanics of Caregivers Carrying Infants in an Outdoor Setting,” 23rd Annual University of Maryland National Conference for McNair Scholars and Undergraduate Research, College Park, MD, March 2022.
14. **Siddicky SF**, Huayamave V, Mannen EM, “A novel method to quantify continuous kicking force from infants wearing a Pavlik harness,” Orthopaedic Research Society Annual Meeting, Tampa, FL, February 2022.
15. Olvera HL[†], **Siddicky SF**, Mannen EM, “Quantifying the Spatiotemporal Characteristics and Biomechanics of Parents Carrying Infants in a Non-Laboratory Setting,” Annual Biomedical Research Conference for Minority Students, November 2021. (virtual)
16. Mannen EM, Wang J, **Siddicky SF**, Carroll JC, Rabenhorst BM, Bumpass DB, Whitaker BN, “Is This Safe for Baby? Using Biomechanics to Explore Safety of Inclined Sleepers,” American Society of Biomechanics Annual Conference, Atlanta, GA, August 2021. (virtual)
17. Siegel DN[†], **Siddicky SF**, Davis WD[†], Prow A[†], Scholes O[†], Mannen EM, “The Unexplored Milestone: Kinematics and Muscle Utilization of How Babies Roll,” 16th Annual Northwest Biomechanics Symposium, Salem & Corvallis, OR, July 2021. (virtual)
18. Huayamave V, Lim Y, Walck C, Mannen EM, **Siddicky SF**, “Estimating infant hip joint moments using a novel musculoskeletal model,” Orthopaedic Research Society Annual Meeting, February 2021. (virtual)
19. Mannen, EM, Wang J, **Siddicky SF**, Johnson TL, Kapil N, Majmudar B, “Does supine lying center of pressure movement predict normal developmental stages in early infancy?,” American Academy of Pediatrics Virtual National Conference and Exhibition, October 2020. (virtual)
20. **Siddicky SF**, Wang J, Hefley W[†], Rabenhorst B, Aronson EA, Mannen EM, “Does the Pavlik harness treatment cause lower extremity biomechanical changes in infants?,” American Society of Biomechanics Annual Conference, Atlanta, GA, August 2020. (virtual)
21. Wang J, **Siddicky SF**, Carroll JL, Rabenhorst BM, Bumpass DB, Whitaker BN, Mannen EM, “Do inclined sleeping surfaces impact infants’ upper body muscle activity and movement?,” American Society of Biomechanics Annual Conference, Atlanta, GA, August 2020. (virtual)
22. Johnson TL, Kapil N, Escapita A, Majmudar B, **Siddicky SF**, Wang J, Mannen EM, “Artificial Intelligence-Based Quantification of the General Movement Assessment Using Center of Pressure Patterns in Healthy Infants,” Association for Clinical and Translational Science Conference, Washington, DC, April 2020.
23. Akhter S, **Siddicky SF**, High R, Jain SF, Suh D, “The incidence of work-related musculoskeletal disease among pediatric ophthalmologists: are ergonomic innovations needed?,” American Academy of Pediatric Ophthalmology and Strabismus 46th Annual Meeting, Austin, TX, March 2020.
24. Wang J, **Siddicky SF**, Carroll J, Rabenhorst B, Bumpass DB, Whitaker BN, Mannen EM, “Do inclined sleeping surfaces impact infants’ upper body muscle activity and movement? A safe sleep product design perspective,” Mid-South Biomechanics Conference, Memphis, TN, February 2020.
25. Wang J, **Siddicky SF**, Johnson T, Kapil N, Majmudar B, Mannen EM, “Supine lying center of pressure characteristics as a predictor of developmental stages in early infancy,” Mid-South Biomechanics Conference, Memphis, TN, February 2020.
26. Wang J, **Siddicky SF**, Johnson T, Kapil N, Majmudar B, Mannen EM, “Can the complexity of supine lying center of pressure detect developmental disorders in young infants?,” Southeast Regional Institutional Development Award (IDeA) Conference, Louisville, KY, November 2019.
27. **Siddicky SF**, Rabenhorst B, Wang J, Aronson E, McCoy A[†], Casper E[†], Mohler SA[†], Mannen EM, “The biomechanics of infants treated for developmental dysplasia of the hip with the Pavlik harness,” Southeast Regional Institutional Development Award (IDeA) Conference, Louisville, KY, November 2019.

28. Kapil N, Escapita A, Simpson, H, **Siddicky SF**, Wang J, Mannen EM, Johnson T, “Quantification of the General Movement Assessment Using Center of Pressure Patterns in Healthy Infants,” 47th Annual Child Neurology Society Meeting, Charlotte, NC, October 2019.
29. Kapil N, Escapita A, Simpson, H, **Siddicky SF**, Wang J, Mannen EM, Johnson T, “Quantification of the General Movement Assessment Using Center of Pressure Patterns in Healthy Infants,” Biomedical Engineering Society Annual Meeting, Philadelphia, PA, October 2019.
30. **Siddicky SF**, Wang J, Bumpass DB, McCarthy R, Tackett SA, Mannen EM, “The importance of prone time in the healthy musculoskeletal development of infants,” XXVII Congress of the International Society of Biomechanics & 43rd Annual Meeting of the American Society of Biomechanics, Calgary, Canada, July 2019.
31. Sherrill JT[†], **Siddicky SF**, Davis WD[†], Dalal SS[†], Mannen EM, “Validation of a Novel Spine Biomechanics Simulator,” XXVII Congress of the International Society of Biomechanics & 43rd Annual Meeting of the American Society of Biomechanics, Calgary, Canada, July 2019.
32. Huayamave V, Mannen EM, Stanton N, Walck C, **Siddicky SF**, Price C, “A novel computational model of babywearing to predict growth and development of the pediatric hip joint,” VIII International Conference on Coupled Problems in Science and Engineering, Sitges, Spain, June 2019.
33. Wang J, **Siddicky SF**, Johnson T, Kapil N, Tackett SA, Mannen EM, “Supine lying center of pressure as a predictor of developmental disorders in early infancy,” South Central American Society of Biomechanics Meeting, Plano, TX, April 2019.
34. Stanton N, **Siddicky SF**, Price C, Mannen EM, Huayamave V, “Biomechanics of Babywearing: Implications For Hip Joint Development,” 29th International Pediatric Association Congress, Panama City, Panama, March 2019.
35. Sherrill JT[†], **Siddicky SF**, Davis WD[†], Chen C, Mannen EM, “Validation of a novel spine biomechanics simulator,” Mid-South Biomechanics Conference, Memphis, TN, February 2019.
36. **Siddicky SF**, Rabenhorst B, Tackett SA, Buchele L[†], Mannen EM, “Lower extremity hip position and muscle activity during babywearing in soft structured baby carriers: Implications for developmental dysplasia of the hip,” Orthopaedic Research Society Annual Meeting, Austin, TX, February 2019.
37. **Siddicky SF**, King GW, Olitsky SE, “Positional Adjustments to Patients and Equipment May Reduce the Possibility of Musculoskeletal Diseases in Ophthalmologists During Retina Examinations at Slit Lamp,” 8th World Congress of Biomechanics, Dublin, Ireland, July 2018.
38. **Siddicky SF**, King GW, Olitsky SE, “Postural considerations during retina examination at the slit lamp: Positional adjustments to patients and equipment may reduce the risk of musculoskeletal symptoms in ophthalmologists,” American Academy of Pediatric Ophthalmology and Strabismus 44th Annual Meeting with the International Strabismological Association, Washington, DC, March 2018.
39. **Siddicky SF**, Abnos RM[†], Muller MA[†], King GW, Olitsky SE, “Evaluating Ergonomics in Ophthalmology Using Kinematic Motion Analysis: A Pilot Study,” 18th Annual Meeting of the American Academy of Ophthalmology, New Orleans, LA, November 2017.
40. Abnos RM[†], **Siddicky SF**, Muller MA[†], Branson B, Simmer-Beck M, King GW, “Postural Evaluation of Dental Care Professionals using Motion Analysis and Electromyography,” 41st Annual Meeting of the American Society of Biomechanics, Boulder, CO, August 2017.
41. Abnos RM[†], Branson BS, Simmer-Beck ML, **Siddicky SF**, King GW, “Motion Capture Technology as a Method for Measuring the Effect of Magnification Lenses on Dental Clinician Posture: A Pilot Study,” 7th International Conference on Applied Human Factors and Ergonomics, Orlando, FL, July 2016.
42. Hoffman M, **Siddicky SF**, Balakrishnan B, King GW, “3D Motion Analysis of Clinical Performance: A New Big Data Opportunity,” American Medical Informatics Association Joint Summits on Translational Science, San Fransisco, CA, March 2016.

GRANT AND
PROPOSAL
INVOLVEMENT

(PRINCIPAL
INVESTIGATOR)

1. Thrasher Research Fund Early Career Award
Title: *Quantifying Pavlik harness forces on infants: Applications in developmental dysplasia of the hip*
Period: 06/01/2019 - 05/31/2020
Amount: \$ 25,000
Role: Principal Investigator
Status: Not Awarded
2. University of Missouri School of Graduate Studies Research Grant
Title: *Correlating motion analysis data from simulated Endotracheal Intubation (ETI) to patient outcomes extracted from Electronic Health Record (EHR)*
Period: 6/1/16 - 5/31/17
Amount: \$7,500
Role: Principal Investigator
Status: Awarded

(CO-INVESTIGATOR
OR RESEARCH
ASSISTANT)

3. United States Consumer Product Safety Commission
Title: *Infant Biomechanics and Suffocation Research*
Period: 10/01/2020 - 09/30/2021
Amount: \$374,507 (\$302,587 direct)
Role: Co-Investigator
Status: Awarded
4. Iron Mountains, LLC
Title: *Biomechanics of Infant Rolling*
Period: 06/30/2020 - 07/31/2021
Amount: \$194,541
Role: Co-Investigator
Status: Awarded
5. UAMS Center for Musculoskeletal Disease Research Pilot Project, NIH 1P20GM125503
Title: *A Multi-Scale Biomechanical Model of the Infant Hip to Progress Innovation in Pediatric Hip Dysplasia Rehabilitation*
Period: 05/01/2019 - 06/30/2020
Amount: \$200,000
Role: Co-Investigator
Status: Awarded
6. Boba, Inc.
Title: *Impact of position on infant biomechanics*
Period: 08/01/2018 - 06/30/2020
Amount: \$39,961 (\$31,724 direct)
Role: Co-Investigator
Status: Awarded
7. International Hip Dysplasia Institute
Title: *An ultrasonographic approach to assessing hip alignment and the efficacy of the abduction brace compared to common infant devices*
Period: 02/01/2019 - 02/01/2020
Amount: \$17,650
Role: Co-Investigator
Status: Awarded
8. United States Consumer Product Safety Commission
Title: *Biomechanical Analysis of Inclined Sleeper Infant Products*
Period: 09/01/2018 - 09/30/2019
Amount: \$248,432 (\$197,787 direct)
Role: Co-Investigator
Status: Awarded
9. UAMS Center for Musculoskeletal Disease Research Pilot Project
Title: *Biomechanics of non-surgically treated infants with developmental hip dysplasia*
Period: 08/01/2018 - 06/30/2019
Amount: \$65,000

- Role: Co-Investigator
Status: Awarded
10. UAMS Center for Musculoskeletal Disease Research Start-up Funding
Title: *How do babies move? Exploring the biomechanical impact of positioning and baby gear*
Period: 07/01/2018 - 1/31/2019
Amount: \$75,000
Role: Co-Investigator
Status: Awarded
 11. University of Missouri System Interdisciplinary Intercampus Research Program
Title: *Informatic and Architectural Analysis of Human Performance in a Clinical Simulation Setting*
Period: 8/1/14 - 7/31/15
Amount: \$94,640
Role: Research Assistant
Status: Awarded
 12. Eunice Kennedy Shriver National Institute of Child Health and Human Development FOA: HD20-005 Research Project Grants in Pediatric Rehabilitation (R01 Clinical Trial Option)
Title: *A Multi-Scale Biomechanical Model of the Infant Hip to Progress Innovation in Pediatric Hip Dysplasia Rehabilitation*
Period: 7/1/2020 - 6/30/2024
Amount: \$1,865,946 (\$1,250,000 direct)
Role: Co-Investigator
Status: Not Awarded
 13. United States Consumer Product Safety Commission
Title: *Evaluating the Strength of Infants*
Period: 9/1/18 - 8/30/20
Amount: \$ 1,934,304
Role: Co-Investigator
Status: Not Awarded
 14. National Institutes of Health
Title: *Virtual Pelvic Surgery Simulator for the Prevention of Surgical Errors*
Period: 9/1/17 - 9/1/20
Amount: \$610,476
Role: Research Assistant and Co-Author
Status: Not Awarded
 15. United States Department of Defense
Title: *Quantitative & Qualitative Clinical Skills Assessment & Correlation with Patient Outcomes*
Period: 9/1/16 - 2/28/19
Amount: \$1,237,904
Role: Research Assistant and Co-Author
Status: Not Awarded

Teaching

COURSES AS INSTRUCTOR

1. Biomechanics of Sport (KIN 395-4; 1 semester at UT - planned)
2. Biomechanics in Clinical Settings (KIN 395-59; 1 semester at UT - planned)
3. Motor Development and Performance (KIN 321M; 1 semester at UT)
4. Motor Learning (KIN 335C; 1 semester at UT)
5. Applied Biomechanics of Human Movement (KIN 320; 2 semesters at UT)
6. Biomechanics Laboratory (KIN 382-4; 1 semester at UT)
7. Introduction to Computation for Engineers (ME 273; 1 semester at BSU)
8. Laboratory Techniques in Biomechanics (ME 520/KINES 525; 1 semester at BSU)
9. Introduction to Solid Biomechanics (ME 356; 1 semester at BSU)
10. MATLAB Applications in Neurobiology (NBDS 5125; 1 semester at UAMS)
11. Instrumentation and Measurements Laboratory (ME 352; 2 semesters at UMKC)

COURSES AS TEACHING ASSISTANT

1. Engineering Statics (CE 275; 2 semesters at UMKC)
2. Engineering Dynamics (ME 285; 1 semester at UMKC)
3. Thermodynamics (ME 299; 1 semester at UMKC)
4. Fluid Mechanics (ME 351; 1 semester at UMKC)
5. Heat & Mass Transfer (ME 399; 1 semester at UMKC)

INVITED LECTURES

1. **Siddicky, SF**, “Positioning Matters: A spectrum of musculoskeletal health from infancy to adulthood”, KIN 197C/397C Movement and Cognitive Rehabilitation Science Seminar, The University of Texas at Austin, Austin, TX, November 22, 2021.
2. **Siddicky, SF**, Wang J, “Gait Analysis in Orthopaedics”, UAMS Orthopaedic Surgery Residency Program Lecture Series, University of Arkansas for Medical Sciences, Little Rock, AR, April 29, 2020.
3. **Siddicky, SF**, “Electromyography: Concepts and Applications”, UAMS Biomechanics Summer Lecture Series, University of Arkansas for Medical Sciences, Little Rock, AR, July 08, 2019.
4. **Siddicky SF**, “Analysis of Human Performance in a Clinical Simulation Setting using 3D motion capture”, guest lecture to Bioinformatics Students in MEDB 5540 Multidisciplinary Graduate Seminar (Mary Gerkovich, instructor), School of Medicine, University of Missouri-Kansas City, Kansas City, MO, September 28, 2015
5. **Siddicky SF**, “Medical skill evaluation in a simulated clinical setting using biomechanical motion analysis”, guest lecture to Interdisciplinary Motion Analysis Group, Kansas City, MO, May 13, 2015
6. **Siddicky SF**, “The M.S.M.E Graduate Student Experience”, guest lecture to Mechanical Engineering students in ME 457 Mechatronic System Design course (Travis D. Fields, instructor), University of Missouri-Kansas City, Kansas City, MO, February 24, 2015
7. Hoffman MA, **Siddicky SF**, “3D Motion Analysis of Clinical Movement”, guest lecture to the Faculty of Ophthalmology, University of Missouri-Kansas City School of Medicine, Kansas City, MO, December 03, 2014

WORKSHOPS FACILITATED

1. **Siddicky SF**, Komisar V, “Preparing for a postdoctoral fellowship,” 16th Annual Northwest Biomechanics Symposium (virtual roundtable), Salem & Corvallis, OR, July 2021.
2. Olitsky SE, **Siddicky SF**, Suh D, Sprunger DT, “Musculoskeletal symptoms among ophthalmologists and how to prevent them,” American Academy of Pediatric Ophthalmology and Strabismus, 45th & 44th Annual Meetings, San Diego, CA, March 2019 & Washington, DC, March 2018.
3. **Siddicky SF**, Davis-Kankanamge C, Vilchez Lagos G, “Writing Proposals to Get Grants to Support Graduate Research”, panel workshop for Bioinformatics Students in MEDB 5540 Multidisciplinary Graduate Seminar, School of Medicine, University of Missouri-Kansas City, Kansas City, MO, October, 2016.

WORKSHOPS
ATTENDED

1. “How to Be a Culturally-Competent Mentor, hosted by the Black Biomechanists Association,” American Society of Biomechanics Annual Conference (virtual), Atlanta, GA, August 10, 2021.
2. “Entropy,” Nonlinear Analysis Core Virtual Webinar Series, Center for Research in Human Movement Variability, University of Nebraska Omaha, Omaha, NE, October 22, 2020.
3. “Teaching during COVID-19: Tips for translating your course to hybrid online learning,” American Society of Biomechanics Annual Conference (virtual), Atlanta, GA, August 4, 2020.
4. “Peer Instruction Faculty Workshop - Flipped Classroom,” University of Arkansas for Medical Sciences, Little Rock, AR, October 17, 2019.
5. “Aging and Innovation: Discovering Opportunity”, Consortium for Aging in Community & Regnier Institute for Entrepreneurship and Innovation, University of Missouri-Kansas City, Kansas City, MO, October 17-18, 2014.

Service

COMMUNITY
OUTREACH

The University of Texas at Austin

1. UT Summer Discovery Neuroscience Class Lab Visit - Host (2022)

University of Arkansas for Medical Sciences

1. Mount St. Mary’s Girls’ High School Class Lab Visit - Host (2019)
2. Museum of Discovery Girls in STEM Summer Camp - Field Trip Host (2019)
3. Harding University Biomedical Engineering Students Lab Visit - Host (2019)

University of Missouri-Kansas City

4. High Achieving High School Student Outreach Lab Visit - Host (2017)
5. Partnership for Regional Education Preparation (PREP-KC) Students Lab Visit - Host (2014)
6. Center High School Summer Program Lab - Field Trip Host (2014)
7. Rockhurst University Physics of Medicine Students Lab Visit - Host (2014)

LEADERSHIP

1. Community Building Committee - The University of Texas at Austin Department of Kinesiology and Health Education, Member

JOURNAL REVIEW

1. Clinical Biomechanics (2021-present)
2. Journal of Sport Rehabilitation (2020-present)
3. Applied Ergonomics (2019-present)
4. WORK: A Journal of Prevention, Assessment & Rehabilitation (2019-present)
5. Gait & Posture (2018-present)

CONFERENCE
ABSTRACT REVIEW

1. North American Congress on Biomechanics (2021-present)
2. American Society of Biomechanics (2020-present)
3. Gait and Clinical Movement Analysis Society (2018-present)
4. American Medical Informatics Association (2017-present)

GRANT REVIEW

1. Students Engaged in Artistic and Academic Research (SEARCH), University of Missouri (2015)

CONFERENCE
MODERATION

1. Orthopaedic Research Society - Bone and Hip Podium Posters, Phoenix, AZ, February 2020.
2. South Central American Society of Biomechanics - Student Podiums, Plano, TX, April 2019.
3. American Society of Biomechanics - Running AMA on Reddit, Boulder, CO, August 2017.

CONFERENCE
MENTORING

1. American Society of Biomechanics Annual Meeting Mentorship Program, August 2021.
2. American Society of Biomechanics Annual Meeting Mentorship Program, August 2020.

EXTERNAL
CONTRIBUTIONS

1. United States Consumer Product Safety Commission (CPSC), “Biomechanical Analysis of Inclined Sleep Products,” Co-author on the Mannen Study presented as part of a notice of proposed rulemaking for infant inclined sleep products published by the CPSC. October 2019.
2. Electric Power Research Institute, “Filming Product/Amine Impact on Condensate Deep Bed Resin Polishers: Comparison of Four Commercial Products,” Contributor to EPRI Report #3002008140, December 2016.

MEDIA OUTREACH
(WEB LINKS)

1. Interviewed for a portion of my postdoctoral work in the article “Narrow-base baby carrier yielded lower alpha angles, femoral coverage vs Pavlik harness” on OrthopedicsToday Magazine, Published: February, 2022.
2. National media coverage of an infant inclined sleeper project that I worked on as a part of Dr. Erin Mannen’s research team, funded by the United States Consumer Product Safety Commission, (Washington Post, CBS, ABC, Consumer Reports), October 2019.
3. Interviewed for a portion of my dissertation work in the article “Ophthalmic Ergonomics: Continuing Challenges and New Insights” on EyeNet Magazine, Published: April, 2018.
4. Coverage of my workshop at the American Academy of Pediatric Ophthalmology and Strabismus Annual Meeting in the article “Awareness of and advances in ergonomics needed to prevent musculoskeletal problems” on Ocular Surgery News Magazine, Published: March, 2018.
5. Demonstrated motion capture setup on a surgical error detection project, and produced media clip shown as part of a news report on KSHB-TV Channel 41, Air date: September 7, 2017.
6. Interviewed for a segment on my Master of Science motion analysis research on the PBS TV Show SciTech Now, Air date: April 11, 2016.

Mentorship

GRADUATE
COMMITTEE
MEMBERSHIP

The University of Texas at Austin

1. Keng-Hung Shen, Ph.D. Program in Kinesiology (Movement & Cognitive Rehabilitation Science), Investigating Control of Limb Loading with e Perturbation Approach, Summer 2022. **(served on Ph.D. comprehensive examination committee).**
2. Forouzan Foroughi, Ph.D. Program in Kinesiology (Movement & Cognitive Rehabilitation Science), Effect of biofeedback gait training on functional gait and weight bearing characteristics in older adults, Summer 2022. **(served on Ph.D. comprehensive examination committee).**
3. Donald Prible, Ph.D. Program in Kinesiology (Movement & Cognitive Rehabilitation Science), Effect a Phase-Based Speed Modulation treadmill training system on gait speed in older adults, Summer 2022. **(served on Ph.D. comprehensive examination committee).**

Boise State University

1. Wyatt Davis, M.S Program in Mechanical and Biomedical Engineering, “Biofidelic Considerations for Improving Standardized Airflow and Firmness Testing for Infant Sleep Products”, Summer 2020 to Spring 2022. **(served on M.S. thesis committee).**

GRADUATE
STUDENTS

University of Michigan

1. Lauren Nicole Long, M.S. Program in Biomedical Engineering, American Society of Biomechanics Annual Conference Mentorship Program, Fall 2021.
2. Jaywoo Kim, Ph.D. Program in Kinesiology and Mechanical Engineering, American Society of Biomechanics Annual Conference Mentorship Program, Fall 2020.

Boise State University

1. Abby Brittain, Ph.D. Program in Mechanical and Biomedical Engineering, Parent ergonomics project, Fall 2021 to current.

2. Danielle Siegel, Ph.D. Program in Mechanical and Biomedical Engineering, Infant rolling project, Summer 2020 to Spring 2022.

University of Arkansas for Medical Sciences

1. John T Sherrill, Ph.D Program in Interdisciplinary Biomedical Sciences, Validation of a Spine Testing Machine Study, Fall 2018 to Summer 2020.
2. Pearl Doiphode, M.S. Program in Exercise Science at University of Central Arkansas, Internship on Sports Biomechanics Research, Summer 2019.

University of Missouri-Kansas City

1. Ricky Abnos, M.S. Program in Mechanical Engineering, Biomechanical Postural Evaluation of Dental Hygienists Study and Postural Ergonomics of Ophthalmologists Study, Spring 2016 to Spring 2017.

MEDICAL
STUDENTS

Idaho College of Osteopathic Medicine

1. Abby Prow, M1, Infant Rolling Study, Spring 2021 to Spring 2022.
2. Olivia Scholes, M1, Infant Rolling Study, Spring 2021 to Spring 2022.

University of Arkansas for Medical Sciences

1. Jason Eckels, M2, Infant Hip Ultrasound Study, Summer 2019 to Summer 2020.
2. Samantha Mohler, M1, Infant Hip Modeling Study, Spring 2019 to Summer 2020.
3. Sidhant S. Dalal, M1, Infant Hip Ultrasound Study, Spring 2019 to Summer 2020.

University of Missouri-Kansas City

1. Subhjit Kaur Sekhon, M2, Postural Ergonomics of Ophthalmologists Study, Spring 2015 to Summer 2015.
2. Srinivasa Potla, M3, Biomechanical Analysis of Endotracheal Intubation Skill Study and Postural Ergonomics of Ophthalmologists Study, Summer 2015.

UNDERGRADUATE
RESEARCH
STUDENTS

Boise State University

1. Holly Olvera, Mechanical and Biomedical Engineering, Summer 2021 to current.
2. Sarah Goldrod, Mechanical and Biomedical Engineering, Fall 2020 to Spring 2022.

University of Arkansas for Medical Sciences

1. Will Hefley, Intern, Biology, University of Tulsa, Fall 2019 to Summer 2020.
2. Samuel Hockett, Intern, Biomedical Engineering, Harding University, Summer 2019.
3. Emma Casper, Intern, Biomedical Engineering, Harding University, Spring 2019.
4. Anna Mccoy, Intern, Biomedical Engineering, Harding University, Spring 2019.
5. Lauren Buchele, Honors Senior Thesis, Biomedical Engineering, University of Arkansas, Summer 2018 to Spring 2019

University of Missouri-Kansas City

1. Jacqueline Sampson, Mechanical Engineering, Fall 2017 to Spring 2018.
2. Mary Okafor, Mechanical Engineering, Fall 2017 to Spring 2018.
3. Jessi Lee Peters, Intern, Physics, Rockhurst University, Fall 2017 to Spring 2018.
4. Quang Nguyen, Intern, Physics, Rockhurst University, Fall 2017 to Spring 2018.
5. Asangi Nimesha Senanayke, Mechanical Engineering, Spring 2016 to Spring 2017.
6. Maureen Muller, Mechanical Engineering, Spring 2016 to Spring 2017.

Professional

REGISTRATION	Engineer in Training (E.I.T), Missouri (#2014034382)
CERTIFICATION	BUILD (Boise State Uniting for Inclusion and Leadership in Diversity) certificate (2021)
HONORS	2020 - Shortlisted for the Orthopaedic Research Society Harris Award 2018 - Finalist for the American Society of Biomechanics Doctoral Competition (Top 36/250) 2018 - School of Graduate Studies Travel Grant, UMKC 2018 - Student Activities Fee Commission Travel Grant, UMKC 2017 - Outstanding Doctoral Student in Mechanical Engineering Award, UMKC (Also in 2016) 2017 - Graduate Teaching Assistant Scholarship, UMKC (Every semester since Spring 2014) 2016 - First Prize (Singing) at UMKC Culture Night Talent Show 2015 - Finalist for the UMKC Distinguished Master's Thesis Award 2015 - Outstanding Master's Student in Mechanical Engineering Award, UMKC 2014 - Honor Society of Phi Kappa Phi (Top 10% of graduate class) 2013 - Vice-President, Bangladesh Student Association at Georgia Tech 2013 - Dean's List, Georgia Institute of Technology (Since 2011) 2013 - Georgia Tech Idol (winner of campus-wide singing competition)
SKILLS	Programming: MATLAB, LabVIEW, HTML/CSS, L ^A T _E X Modeling: AutoCAD, Solidworks, PTC Creo/Pro Engineer, Inventor, Eagle PCB, Adams Multiphysics: Abaqus, ANSYS Fluent, COMSOL Statistics: SPSS, MINITAB Biomechanics: Vicon, Optitrack, MotionAnalysis, Qualisys, Delsys, Novel, Visual3D, OpenSim Learning (LMS): Canvas, Blackboard Video Platform: Panopto, Camtasia
ACTIVITIES	Co-founding member, Kansas City Area Interdisciplinary Motion Analysis Group (A consortium of educators, researchers and medical professionals in Motion Analysis) (2015-2018). Consulted with the Gait Analysis Laboratory of the Children's Mercy Hospital Pediatric Orthopedics Department to investigate data quality between a MotionAnalysis Cortex system and a VICON Nexus system, Kansas City, MO (2015-2016).
MEMBERSHIPS	Gait and Clinical Movement Analysis Society (GCMAS) Pediatric Orthopedic Society of North America (POSNA) Orthopedic Research Society (ORS) American Society of Biomechanics (ASB) Canadian Society of Biomechanics (CSB) American Society of Mechanical Engineers (ASME)