Midwest ASB 2021 Conference Schedule

Wednesday, September 15 – Wolstein Center 5th Floor	
6:00 pm to 8:00 pm	Reception and Early Registration

Thursday, September 16 – Wolstein Center 4th Floor	
8:00 am to 9:15 am	Registration and Breakfast Location: Wolstein 4th floor atrium
9:15 am to 9:30 am	Welcome Address: **Dr. Brian Davis, Associate Dean of Engineering at Cleveland State University** Location: Wolstein 4th floor, Room 411
9:30 am to 10:30 am	Keynote Address 1: **Dr. Tamara Reid Bush, Associate Professor, and Interim Chair of Mechanical Engineering at Michigan State University** Location: Wolstein 4th floor, Room 411
10:30 am to 11:30 am	Coffee Break and Poster Session A Location: Wolstein 4th floor, Room 410
11:30 am to 12:30 pm	Keynote Address 2: **Dr. Jillian Beveridge, Assistant Staff and Research Group Leader at Cleveland Clinic Lerner Research Institute** Location: Wolstein 4th floor, Room 411
12:30 pm to 1:30 pm	Lunch Location: Wolstein 4th floor atrium
1:30 pm to 2:45 pm	Parallel Podium Sessions *Podium Session 1A: Upper Extremity* Location: Wolstein 4th floor, Room 411 *Podium Session 1B: Bone, Tissue, and Imaging* Location: Wolstein 4th floor, Room 410

2:45 pm to 3:00 pm	Coffee Break Location: Wolstein 4th floor atrium
3:00 pm to 4:00 pm	Parallel Podium Sessions *Podium Session 2A: Lower Body Exoskeletons and Biomechanics* Location: Wolstein 4th floor, Room 411 *Podium Session 2B: Clinical Biomechanics 1* Location: Wolstein 4th floor, Room 410
4:00 pm to 5:00 pm	Washkewicz College of Engineering Tours

Friday, September 17

8:00 am to 8:30 am	Breakfast
8:30 am to 9:00 am	Black Biomechanics Association Speaker (Virtual) **Dr. Erica Bell, Research Fellow at the Mayo Clinic (Assistive and Restorative Technology Laboratory)** Location: Wolstein 4th floor, Room 411
9:00 am to 10:00 am	Podium Session *Podium Session 3: Gait and Running* Location: Wolstein 4th floor, Room 411
10:00 am to 11:00 am	Coffee Break and Poster Session B Location: Wolstein 4th floor, Room 410
11:00 am to 12:00 pm	Open Forum Discussion on Biomechanics Panelists: **Dr. Ton van den Bogert, Cleveland State University** **Dr. Musa Audu, Case Western Reserve University** **Dr. Lise Worthen-Chaudhari, The Ohio State University** **Dr. Prabaha Sikder, Cleveland State University** Location: Wolstein 4th floor, Room 411

12:00 pm to 1:00 pm	Lunch Location: Wolstein 4th floor atrium
1:00 pm to 2:00 pm	Poster Session C Location: Wolstein 4th floor, Room 410
2:00 pm to 3:15 pm	Parallel Podium Sessions *Podium Session 4A: Knee Modeling and Biomechanics* Location: Wolstein 4th floor, Room 411 *Podium Session 4B: Clinical Biomechanics 2* Location: Wolstein 4th floor, Room 410
3:15 pm	Closing Address Location: Wolstein 4th floor, Room 411

Thursday, September 16th

Poster Session A: 10:30 am – 11:30 am

Room 410

Presenter	Poster Number	Title
Manaswini Chennoju	PA1	Comparison of the Levator Ani Muscle and the Apical Support Ligaments in Women With and Without Pelvic Organ Prolapse
Austin Cook	PA2	Effects of Rotator Cable and Crescent Tear Propagation on Humeral Abduction Strength
Justin Buce	PA3	Anatomy of the Rotator Cuff and Superior Capsular Complex
Amanda Laxganger	PA4	Intensity of Balance Challenge During Videogaming
Sydney Mountcastle	PA5	Adapting Stroke Hybrid Exoskeleton Electronics for Increased Ease of Use
Emily Szabo	PA6	Validation of Digital Image Correlation to Evaluate 4-Point Bending of Maturing Porcine Fibulae
Christopher Slater	PA7	Quantitative Measurement of Nanoscale Collagen Fiber Mechanical Damage
Marianna Morillo	PA8	Modeling Selective Activation of the Median Nerve
Walid Abuhashim	PA9	Biomechanics of the Praying Mantis Foreleg Strike
Michael Haupt	PA10	Quantitative Analysis of Hemiplegic Gait Following Forced Exercise Intervention
Bridget Gagnier	PA11	Validating the Use of an IMU-Based System to Capture Patient-Handling Tasks
Lauren Long	PA12	Importance of Including BMI, Weight, and Height in Arthroplasty Revision Data Analyses
Abigail Tolstyka	PA13	The Impact Balance Training Has on Kinematic Measurements Post Stroke

Thursday, September 16th

Parallel Podium Sessions 1A and 1B: 1:30 pm – 2:45 pm

Parallel Podium Session 1A – Upper Extremity – Room 411		
Presenter	**Time**	**Title**
Jack Schultz	1:30-1:45	Controlling an Effector with Eye Movements: The Effect of Entangled Sensory and Motor Responsibilities
Lanna Klausing	1:45-2:00	Upper Extremity Motion Assessments in Virtual Reality Environments
Garrett Weidig	2:00-2:15	Using Studies of Octopuses to Aid the Design of Smart Prosthetics
Adam Chrzan	2:15-2:30	Initial Work Towards a More Complete Understanding of the Healthy Thumb
David Williams	2:30-2:45	The Effects of Environmental Factors on Ladder Overreaching

Parallel Podium Session 1B – Bone, Tissue, and Imaging – Room 410		
Presenter	**Time**	**Title**
Ryan Rosario	1:30-1:45	Effect of Bony Mismatches Caused by Osteochondral Allograft Repair on Cartilage Deformation
Dylan Crocker	1:45-2:00	Fatigue and Fracture Toughness of Cortical Bone are Radiation Dose-Dependent
Phillip McClellan	2:00-2:15	Mesenchymal Stem Cell Delivery via Topographically Tenoinductive Collagen Biotextile Enhances Regeneration of Segmental Tendon Defects
Juliana Azuero	2:15-2:30	Design-Specific Muscle Tissue Constructs for Treating Severe Musculoskeletal Defects
Ronald Fortunato	2:30-2:45	Combining multiple imaging modalities to develop a finite element model of cerebral aneurysm with variable thickness and comparison to a constant thickness model

Thursday, September 16th

Parallel Podium Session 2A and 2B: 3:00 pm – 4:00 pm

Podium Session 2A – Lower Body Exoskeletons and Biomechanics – Room 411		
Presenter	**Time**	**Title**
Shanpu Fang	3:00-3:15	Added Mass Changes Kinematics and Kinetics of Adults During Walking
Sai Gunti	3:15-3:30	Optimization Based Postural Control System in an Underactuated Exoskeleton
Vinayak Vijayan	3:30-3:45	Spatiotemporal and Muscle Activation Adaptations During Overground Walking in Response to Lower Body Added Mass
Marshaun Fitzpatrick	3:45-4:00	An Adjustable Pelvic-Trunk Corset for Lower-Limb Exoskeletons

Podium Session 2B – Clinical Biomechanics I – Room 410		
Presenter	**Time**	**Title**
Khaled Adjerid	3:00-3:15	The Effect of Nipple Stiffness and Hole Size on Infant Sucking Behaviors
Homa Eskandri	3:15-3:30	Decay Rates of Generated Particles and Aerosolized Droplets in Dental Practices
Niloufar Sadoughipour	3:30-3:45	Aerosol Characterization in a Dental Setting
Chloe Edmonds	3:45-4:00	Oropharyngeal Capsaicin Application Alters Swallowing Kinematics to Improve Performance

Friday, September 17th

Podium Session 3: 9:00 am – 10:00 am

Podium Session 3 – Gait and Running – Room 411		
Presenter	**Time**	**Title**
Hala Osman	9:00-9:15	Quantifying Gait Perturbation Responses Using the Hotelling T-Squared Statistic: A Novel Approach
Dana Lorenz	9:15-9:30	A Treadmill Perturbation Method for Assessment of Reflex Modulation During Gait
Loubna Baroudi	9:30-9:45	Contextualizing Walking Speed in the Real World
Micah Garcia	9:45-10:00	Run Type Influences Running and Physiologic Parameters for High School Cross-Country Runners

Friday, September 17th

Poster Session B: 10:00 am – 11:00 am

Room 410

Presenter	Time	Title
Mikayla Bulson	PB1	Incorporating Additive Manufacturing in Hand Splinting and Designing a New Palm Cone
Ells Mine Saint Paul	PB2	Error in Joint Angle Measurement Through Simulated Motion Capture
Maria Gamez	PB3	Increased Load Transfer Heterogeneity in Chiari Malformation Suggests Less Interlimb Coordination
Dawud Sharrieff	PB4	EMG-IMU Instrumentation and Sensor Fusion
Brendan Otani	PB5	Bioprinting of a Design-Specific Implant for Treating Volumetric Muscle Loss (VML)
Raven Foust	PB6	Developing a Biomechanical Analysis for Softball Pitching
Zachary Hubbard	PB7	Quantifying Balance Through Step Length and Single-Leg Stance
Sofia Urbina	PB8	Manipulability of a Multilink Mobile Arm Support
Isaias Trevino	PB9	Identification of Feedback Control for Human Posture Using SCONE
Kyra Stovicek	PB10	Effectiveness of a Motor Point Pen in Finding Muscle Motor Points
Tayluer Streat	PB11	A case study of Chiari Malformation Type 2 gait abnormalities in a pediatric population
Kaitlin Skurnak	PB12	Pediatric Partial Body Weight Support System for the Aid of Movement for Children with Cerebral Palsy

Friday, September 17th

Poster Session B: 1:00 pm – 2:00 pm

Room 410

Presenter	Time	Title
Jack Schultz	PC1	Robot-Assisted Feeding for Individuals with Movement Disorders
Michael Dube	PC2	In Silico Modeling of Achilles Tendon Function in Running Humans: Effects of Foot Geometry, Speed, and Gait
Reese Moschetta	PC3	Feasibility of the Lifting Full-Body Model to Simulate Squatting Tasks
Cameron LaMack	PC4	Improving Neuromusculoskeletal Models with Tactile Feedback: A Proof of Concept Simulation Study
Nicole Arnold	PC5	Kinematic Data of Healthy Thumbs
Archana Lamsal	PC6	Understanding Head Movement and Shoulder Rounding in Seated and Standing Postures
Loay Al Zube	PC7	Modeling Human Arm Configuration Holding a Tennis Racket Using a 2-Dimensional 4-Segments Coupled Pendulum System
Lauren Eichaker	PC8	Determination of L5/S1 Loads During Lifting Using a Simplified Conservative Model
Kenneth Munyuza	PC9	Application of Artificial Neural Networks in Estimating Ground Reaction Forces Using Inertial Data of the Lower Body
Grace VanDellen	PC10	EEG Analysis of Referred Sensations Caused by Electrical Stimulation for Treatment of Phantom Limb Pain
Jessi Martin	PC11	The Viability of In-Shoe Insoles to Measure Pressure and Shear in Patients with Charcot Arthropathy
Sudeep Gummadi	PC12	3D Printing of Biomedical Implants
Ryan O'Quinn	PC13	Additive Insert Molding: Feasibility and Applications

Friday, September 17th

Podium Session 4A and 4B: 2:00 – 3:15 pm

Podium Session 4A – Knee and Ankle Modeling – Room 411		
Presenter	**Time**	**Title**
Lexie Mallinos	2:00-2:15	Pivot Shift and Anterior Drawer Test Simulations in Juvenile Patient Populations
Mohamed Hefzy	2:15-2:30	Knee Mechanics During Anterior and Posterior Lunge
Skye Carlson	2:30-2:45	Novel Implant Device for Plantar Plate Repair
Will Zaylor	2:45-3:00	Sensitivity of ACL Force and Stress to Kinematic Error
Jeffrey Watts	3:00-3:15	Anatomical Characteristics Contributing to Patellar Dislocations Following MPFL Reconstruction

Podium Session 4B – Clinical Biomechanics II – Room 410		
Presenter	**Time**	**Title**
Jae-Won Choi	2:00-2:15	A Preliminary Study on Measuring Normal and Tangential Force Using Stretch Polymeric Sensors for Smart Insoles
Justin Scott	2:15-2:30	Isolated Seat Pan Tilt Reduces Buttock and Lower Back Pressure on Able-Bodied Individuals and Wheelchair Users While Seated
Jeremiah Ukwela	2:30-2:45	Development of Foot Displacement Detection Algorithm for Power Wheelchair Footplate Pressure and Positioning
Mark Morkos	2:45-3:00	Accuracy of Cranial and Brain Morphometric Measurements across Parasagittal Planes as compared to Midsagittal Plane Measurements on Adult Females with Chiari I Malformation
Shraddha Sudhir	3:00-3:15	The Effects of Compression Garments on Hip and Knee Kinematics During a Swim Start