

Tuesday March 24th

7:30am Coffee Service and Registration Open

8:30am Welcome and Introductions – Cassie Mullenger

Keynote by Dr. Marler – Playing Outside the Changes, Balancing Fundamentals with Aspirations of Human Modeling in Space

9:30am Session: Digital Human Modeling

Moderator: Brianna Plummer

1. The Anthropometric Model Generator (AMG) Tool: Accurate 3D Body Shapes for Custom Digital Human Modeling Applications – Nathan Pickle (CFD Research)
2. Integrating 3D Anthropometric Variability into Parametric Personalization Pipelines for Facial Interface Accommodation – Vanessa Segura Duque (University of Minnesota)

****NOTE:** the "NAWCAD Digital Human Modeling and Research for Ergonomic, Anthropometric, and Medical Applications & 3D Scanning (DREAMS) and Applied Physical Ergonomics (APE) Labs' Current Efforts" briefing needed to be removed from the presentation line up. Informational flyers on both labs are included in the program, with Lori and Kenneth's contact information.

11:00am Session: 3D Anthropometry and Data Capture

Moderator: Matt Reed

1. Enhancing PassFit Anthropometric Outputs with User-Defined Dimensions – Daniel Park (UMTRI)
2. 3D Hand Shape Characterization for Improved Glove Design – Milo Tacheny (University of Minnesota)
3. Mobile 4D Body Scanning and Dynamic Anthropometry for Large-Scale Campaigns – Sandra Alemany (IBV)

12:30pm Offsite Lunch

1:30pm Panel Discussion: Emerging Technology in Anthropometry and Modeling

- **Moderator:** Casey Pirnstill – Modeling and Sim Tech Expert at AFLCMC
- **Panel Members:**
 - Tim Marler – Aerospace Corporation, Keynote Speaker
 - Matt Reed – University of Michigan Transportation Research Institute (UMTRI)
 - Anna Knight – Johns Hopkins University Applied Physics Lab

2:30pm Session: Personal Protective Equipment

Moderator: Caleb Russell

1. Beyond Pass/Fail: Quantifying Risk in Space Hardware Design and Verification – Han Kim (NASA AIBEL)
2. Optimizing Earcup Fit and Sizing for U.S. Army Hearing Protection – Han Kim (NASA AIBEL)
3. USN Aircrew Survival Vest Sizing and Fit Initiatives – Lori Basham (USN DREAMS/APE Lab)
4. **Body Armor Sizing and Fit – Brian Corner (Corner 3D, LLC)**

4:30pm Social Hour – DoubleTree Ballroom

Wednesday March 25th

- 8:00 am** **Coffee Service and Registration Open**
- 8:30am** **Keynote by Catherine MacDonell – Integrating physical readiness into a holistic performance framework**
- 9:30am** **Session: Spine Biomechanics**
Moderator: Matt Degnan
1. Simulating Effects of High-Acceleration Exposure for Mitigation of Cervical Spine Injury in Military Pilots – Nathan Pickle (CFD Research)
 2. Sex Differences in Amplification of Head-Coupled Vibration – Hunter Marriott (National Research Council Canada)
- 10:30am** **Session: Center of Gravity and Mass Properties**
Moderator: Ron Richardson
1. Comparative Mass Properties of Legacy and New Anthropomorphic Test Devices (ATDs) – Abigail Kerestes (USAF Biodynamics Lab)
 2. Quantifying Equivalent Muscle Reactions of a CG Adjusted Helmet – Tim Norman (Cedarville University)
 3. Segmentation Analysis of the Human Head: Implications for Helmet Mass Property Specifications and Biodynamic Modeling – Jen Whitestone (Accommodation Research Center)
- 12:00pm** **Offsite Lunch**
- 1:00pm** **Session: Cockpit Fit**
Moderator: Hunter Marriott
1. USAF Fighter, Bomber, and Trainer Anthropometric Accommodation Evaluations – Sarah Hollis (USAF Airmen Accommodation Lab)
 2. Developing Expertise in Cockpit Fit and Anthropometric Accommodation Modeling – Patrick Bickerton (Canada DND)
 3. Comfort and Fit Copilot - Jatin Kashyap (Innovision, LLC)
- 2:30pm** **Session: Ejection Seat Injury Prevention**
Moderator: Alyssa Kimble
1. A Parametric Human Body Modeling Framework: Bridging Population Variability and Injury Prediction – Sujata Khandare (AFRL/UMTRI)
 2. Ejection Modeling and Simulation System (EMASS) - Zhiqing Cheng (Innovision, LLC)
 3. Reevaluation of Minimum Sitting Height Requirements for USAF Ejection Seat – Jen Whitestone (Accommodation Research Center)
- 4:30pm** **Offsite No-Host Social – El Rancho Grande**

Thursday March 26th

8:00 am Coffee Service and Registration Open

8:30am Panel Presentation “Bridging virtual and real fit - the importance of real fit testing”

- Best practices today
 - Introduction and review the SPEED (Sustainable Product Evaluation, Engineering and Design) process – Daisy Veitch, Ph.D. (Anthrotech)
 - Understanding Who We Fit and Who We Don't - Kathleen M. Robinette, Ph.D. Fitmetrix LLC, Waynesville, OH, USA
 - Q&A
- Break: 10 minutes
- Future Needs and Opportunities
 - Virtual fit testing is transforming how products are designed, validated, and sold online. Karen Bredenkamp Magic Leap Inc., Plantation, FL, USA
 - Towards Fit Intelligence: Standards, Fit Databases, and AI for product design - Sandra Alemany, PhD, Instituto de Biomechanica (IBV) de Valencia, Valencia, Spain
 - Q&A (20 minutes)

10:45am Session: Applying Anthropometry to Design

Moderator: Brian Corner

1. Escaping the 1D Bottleneck: An Online Framework for Applying Population-Level 3D Anthropometry to Design – Matt Reed (UMTRI)
2. From Designer Intent to Quantitative Specification: A Human–AI Collaborative Approach – Matt Parkinson (Penn State University)
3. Methods for Synthesizing Anthropometric Data – Zoe Marazita (Penn State University)
4. Integrating Three-Dimensional Anthropometry into Real-Time Design – Vanessa Segura Duque (University of Minnesota)

12:30pm Offsite Lunch

1:30pm Session: Anthropometric Databases

Moderator: TBD

1. iSize: A Data-Driven Solution for Optimizing Clothing and Textile Sizing in the U.S. Military – Alexis Anton (AFUO)
2. Creation of a New Unweighted Matched United States Air Force Anthropometry Database Using Bin Signature Matching – Brian Corner (Corner 3D, LLC)
1. The Shape of the Future Warfighter: National Estimates from YouthShape.US – Monica Jones (UMTRI)
2. National Anthropometric Characterization of U.S. Firefighters: Implications for PPE Fit, Apparatus Design, and Safety Standards – Jen Whitestone (Accommodation Research Center)

3:30pm Recap of Available Resources: Attendee Discussion – Cassie Mullenger

Event Summary, Closing Remarks – Cassie Mullenger