

3DBODY.TECH 2020 ONSITE & VIRTUAL - PRELIMINARY PROGRAM



11th 3DBODY.TECH Conference & Expo

Lugano, Switzerland · 21-22 October 2020

Program Outline - CEST (Central Europe Summer Time) UTC+2 - Time Zone Zurich/Milan/Paris/Berlin

3DBODY.TECH 2020 - Onsite & Virtual				
10th International Conference and Exhibition on 3D Body Scanning and Processing Technologies				
Lugano, Switzerland, 21-22 October 2020, www.3dbody.tech				
Time	Wednesday 21 October 2020		Thursday 22 October 2020	
08:00	Registration / 1-on-1 Networking		Registration / 1-on-1 Networking	
09:00	Opening Session		Technical Session 7 3D Body Scanning for Sport & Fitness	Technical Session 8 Body Modeling & Avatars
10:00			Coffee Break / 1-on-1 Networking	
11:00	Technical Session 1 3D Body Scanning for Medicine I	Technical Session 2 3D Body Scanning Systems I	Technical Session 9 3D Body Scanning Systems III	Technical Session 10 3D Body Scanning for Apparel II
12:00	Lunch Break / 1-on-1 Networking		Lunch Break / 1-on-1 Networking	
13:00			Lunch Break / 1-on-1 Networking	
14:00	Technical Session 3 3D Body Scanning for Medicine II	Technical Session 4 3D Body Scanning Systems II	Technical Session 11 3D Hand & Foot Scanning	Technical Session 12 3D Body Scanning for Apparel III
15:00	Coffee Break / 1-on-1 Networking		Coffee Break / 1-on-1 Networking	
16:00			Technical Session 13 t.b.d.	Technical Session 14 3D Body Processing
17:00	Technical Session 5 Digital Anthropometry & Ergonomics	Technical Session 6 3D Body Scanning for Apparel I	Closing Session	
18:00	Welcome Cocktail / 1-on-1 Networking		Exhibition Breakdown	
19:00			Exhibition Breakdown	

Conference Office

Conference office: HOMETRICA CONSULTING - Dr. Nicola D'Apuzzo
Via Collegio 28, CH-6612 Ascona, Switzerland
Conference website: www.3dbody.tech info@3dbody.tech
Conference phones: +41.91.791.5524



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Wednesday 21 October 2020 - CEST (UTC+2) Time Zone Zurich/Milan/Paris/Berlin

08:00-09:30 **Registration / 1-on-1 Networking** – Welcome Desk

09:30-10:40 **Opening Session** – Room B1

09:30 Welcome Speech from the Conference Director
Nicola D'APUZZO
Hometrica Consulting, Switzerland



09:50 World Premieres, Product Launches and Announcements from Exhibitors & Sponsors at 3DBODY.TECH 2020
t.b.d.

10:40-11:10 **Coffee Break / 1-on-1 Networking** – Foyer

11:10-13:00 **Technical Session 1: 3D Body Scanning for Medicine I** – Room C


11:10 Practical Procedures for Breast Profiling Using Shape-from-Shading
Harvey MITCHELL
School of Engineering, University of Newcastle, Newcastle, Australia #42


11:32 Application of Multiple Views and Stereo-3D Imaging Technology to Burn Care
Tung Jing FANG 1,2,3, Chen HAN 4, Lai-Chung LEE 4, Chuan Chia WANG 5, Chia Chung FANG 6
1 Department of Electronic Engineering, National Taipei University of Technology, Taipei, Taiwan;
2 Department of Internal Medicine, Taipei Veterans-General Hospital and Tri-Service General Hospital, Taipei, Taiwan;
3 Department of Physiology and Biophysics, Institute of Physiology, National Defense Medical Center, Taipei, Taiwan;
4 Institute of Interaction Design, National Taipei University of Technology, Taipei, Taiwan;
5 GIIGA-BYTE Technology Co. Ltd., Taipei, Taiwan;
6 Lab of Stem Cell and Tissue Regeneration, National Defense Medical Center, Taipei, Taiwan #16



11:54 Post-Covid-19 Beauty Industry
  Soroush VALINIA 1,2
1 Department of Research and Development, Tarah Teb Co., Tehran, Iran; 2 Smart Beauty Co., Istanbul, Turkey #43



12:16 *Available*

11:10-13:00 **Technical Session 2: 3D Body Scanning Systems I** – Room B1

11:10 Title n.a.
 Chris LANE
3dMD Ltd., London / Atlanta GA, UK / USA #01

11:32 Title n.a.
 Bo LI
ZOZO New Zealand Ltd., Auckland, New Zealand #47

11:54 MySize Breakthrough Solution for Personalized Garment Size & Fit
  Lia BILIK, Tatiana PELC
My Size Inc., Airportcity, Israel #40

12:16 Title n.a.
  Author(s) n.a.
meepl, Zurich, Switzerland #45


12:38 Title n.a.
 Author(s) n.a.
NEXR Technologies SE, Berlin, Germany #46

13:00-14:40 **Lunch Break / 1-on-1 Networking** – Foyer

14:40-16:30 **Technical Session 3: 3D Body Scanning for Medicine II – Room C**


14:40 Personalized 3D Breast Cancer Models with Automatic Image Segmentation and Registration
Sílvia BESSA 1,2, João F. TEIXEIRA 1,2, Pedro H. CARVALHO 1, Pedro F. GOUVEIA 3, Hélder P. OLIVEIRA 1,2
1 INESC TEC, Portugal; 2 University of Porto, Portugal;
3 Champalimaud Foundation and Medical School, University of Lisbon, Portugal #15



15:02 Investigation of Smallest Volume Difference Measurable Using 3D Imaging
Zhale NOWROOZILARKI 1, Mary Catherine BORDES 2, Urmila SAMPATHKUMAR 3,
Summer E. HANSON 2, Gregory P. REECE 2, Mia K. MARKEY 4,5, Fatima A. MERCHANT 1,3,4
1 Department of Engineering Technology, University of Houston, Houston TX, USA;
2 Department of Plastic Surgery, The University of Texas MD Anderson Cancer Center, Houston TX, USA;
3 Department of Computer Science, University of Houston, Houston TX, USA;
4 Department of Biomedical Engineering, The University of Texas at Austin, Austin TX, USA;
5 Department of Imaging Physics, The University of Texas MD Anderson Cancer Center, Houston TX, USA #26



15:24 Breast Cancer Conservative Guided Surgery with Augmented Reality - Experimental Clinical Test Report
 Pedro F. GOUVEIA, Joana CORREIA, Pedro MORGADO, Manuel João FERREIRA, Marta MARTINHO,
Hernani DAVID, Daniel Simões LOPES, Arlindo R. FERREIRA, Vasilis VAVOURAKIS, Nickolas PAPANIKOLAOU,
Celeste ALVES, Mendes DE ALMEIDA, Maria João CARDOSO, Fatima CARDOSO
1 Champalimaud Clinical Center, Lisbon, Portugal; 2 Faculdade de Medicina, Universidade de Lisboa, Lisbon, Portugal #36

15:46 *Available*



14:40-16:30 **Technical Session 4: 3D Body Scanning Systems II – Room B1**

14:40 Title n.a.
 Chris LANE
3dMD Ltd., London / Atlanta GA, UK / USA #02

15:02 Multi-Camera Video Recording Solutions for 3D Reconstruction Applications
  Philippe MORIN
IO Industries Inc., London ON, Canada #03

15:24 Research Applications of 3D Body Shapes Capture in Movement. MOVE4D
A New Innovative Solution for 4D Full Body Digitization
  Author(s) n.a.
Instituto de Biomecanica, Universitat Politècnica de València, València, Spain #39

15:46 Reliability of Mobile 3D Scanning Technologies for the Customization of Respiratory Face Masks
  Jonathan BORDUAS, Aude CASTONGUAY, Patrick LAURIN, Daniel BÉLAND
Technologies Shapeshift 3D Inc., Montréal QC, Canada #34


16:08 Me Three Sixty Improvements from Size Stream
  Warren WRIGHT
Size Stream LLC, Cary NC, USA #27




16:30-17:00 **Coffee Break / 1-on-1 Networking – Foyer**

17:00-18:50 **Technical Session 5: Digital Anthropometry & Ergonomics – Room C**

17:00 Allometry Between Measures of Body Size and Shape in a Large Population-Based Cohort
Michael THELWELL 1, Alice BULLAS 1, Andreas KUHNAPFEL 3,4, John HART 1,
Peter AHNERT 3,4, Jon WHEAT 2, Markus LOEFFLER 3,4, Markus SCHOLZ 3,4,5, Simon CHOPPIN 1
1 Sports Engineering, Sport and Physical Activity Research Centre, Sheffield Hallam University, Sheffield, UK;
2 College of Health, Wellbeing and Life Sciences, Sheffield Hallam University, Sheffield, UK;
3 LIFE Research Center for Civilisation Diseases, Leipzig University, Germany; 4 Institute for Medical Informatics,
Statistics and Epidemiology, Leipzig University, Germany; 5 IFB Adiposity Diseases, Leipzig University, Germany #10

17:22 Modification of the Female Figure Identification Technique (FFIT) Formulas to Include Plus Size Bodies
Susan L. SOKOLOWSKI, Chrissy BETTENCOURT
Sports Product Design, University of Oregon, Portland OR, USA #22

17:44 Comparison and Validation of Traditional and 3D Scanning Anthropometric Methods to Measure the Hand
 Emily SEIFERT, Linsey GRIFFIN
University of Minnesota, St. Paul MN, USA #41

18:06 Improving the Fit of Respiratory Face Masks through 3D Scanning, Finite Elements Analysis and Additive Manufacturing
   Loïc DEGUELDRE 1, Jonathan BORDUAS 2, Francis DION 2, Patrick LAURIN 2, Aude CASTONGUAY 2,
Sean-Philippe VIENS 2, Franck LE NAVÉAUX 1, Bahe HACHEM 1, David BENOIT 1, Julien CLIN 1
1 Spinologics Inc., Montréal QC, Canada; 2 Technologies Shapeshift 3D Inc., Montréal QC, Canada #33

18:38 The Optimal Design of Self-Breathing Filterable Anti-Particulate Mask Based on Ergonomics
  Zujiao CHEN, Li ZHOU
College of Textiles and Garments, Southwest University, Chongqing, China #07

17:00-18:50 **Technical Session 6: 3D Body Scanning for Apparel I** – Room B1




- 17:00  3D Body Scanning with Mobile Application: An Introduction to Globalise Mass-Customisation with Pakistani Fashion E-Commerce Unstitched Apparel Industry
Sadia IDREES, Gianpaolo VIGNALI, Simeon GILL
School of Natural Sciences, Department of Materials, Faculty of Science & Engineering, The University of Manchester, UK #12
- 17:22 Virtual Fit vs. Physical Fit - How Well Does 3D Simulation Represent the Physical Reality?
Jacqueline KEINATH, Simone MORLOCK, Anke KLEPSE
Hohenstein Institut für Textilinnovation gGmbH, Bönningheim, Germany #21
- 17:44 Scan to Knit - From Body Scan Directly to the Knitting Machine
Dominik ŠURC 1, Dominik MICHEL 2, Alexander MIROSNICENKO 1, Alexander ARTSCHWAGER 1, Uwe RÖDER 1
1 DIFT Deutsche Institute für Textil- und Faserforschung Denkendorf, Denkendorf, Germany;
2 Avalution GmbH, Kaiserslautern, Germany #30
- 18:06 Scalable Fit Testing and Visualization with VitalFit
Dinesh K PAI 1,2
1 Vital Mechanics Research, Vancouver BC, Canada; 2 University of British Columbia, Vancouver BC, Canada #37
- 18:28 Development of an Automated Product Development Process for Tailored Bras Using Breast-Specific Measurements from 3D Body Scans in Conjunction with an Interactive Pattern Construction
Elena BRAKE 1, Gabriela KOSEL 1, Katerina ROSE 1, Ulrike GRÜN 2, Anke RISSIEK 2
1 Hochschule Reutlingen, Germany; 2 Avalution GmbH, Kaiserslautern, Germany #55

18:50-21:00 **Welcome Cocktail / 1-on-1 Networking**





Thursday 22 October 2020 - CEST (UTC+2) Time Zone Zurich/Milan/Paris/Berlin

08:00-08:30 **Registration / 1-on-1 Networking** – Welcome Desk

08:30-10:20 **Technical Session 7: 3D Body Technology for Sport & Fitness** – Room C

- 08:30  Development of an Articulating Cycling Mannequin for Wind Tunnel Testing
Raman GARIMELLA 1,2, Siemen MOENS 2, Jochen VLEUGELS 1, Toon HUYSMANS 3, Koen BEYERS 2, Stijn VERWULGEN 1
1 Department of Product Development, Faculty of Design Sciences, University of Antwerp, Antwerp, Belgium;
2 Voxdale bv, Wijnegem, Belgium; 3 Section on Applied Ergonomics and Design, Faculty of Industrial Design Engineering, Delft University of Technology, Delft, The Netherlands #11
- 08:52  An Indoor Training Bike to Provide Real-Time Feedback on the Aerodynamic Cycling Position Using Frontal Area Calculations
Thomas PEETERS 1, Raman GARIMELLA 1,2, Stijn VERWULGEN 1
1 Department of Product Development, Faculty of Design Sciences, University of Antwerp, Antwerp, Belgium;
2 Voxdale bv, Wijnegem, Belgium #24
- 09:14 Research on the Design of Intelligent Control Running Shoes Based on Wearable Technology
Wenwen ZHUO, Li ZHOU
College of Textile & Garment, Southwest University, Chongqing, China #20
- 09:36  3D Body Scanning for Weight Loss Motivation
Mark NEUMANN
Size Stream LLC, Cary NC, USA #57
- 09:58 *Available*


08:30-10:20 **Technical Session 8: Body Modeling & Avatars** – Room B1


- 08:30  An Open-Source Articulated Multi-Person Shape Model Training and Inference Pipeline
Samuel ZEITVOGEL, Astrid LAUBENHEIMER
Intelligent Systems Research Group, Faculty of Computer Science and Business Information Systems,
Karlsruhe University of Applied Sciences, Germany #17
- 08:52  A Review of 3D Human Pose Estimation from 2D Images
Kristijan BARTOL 1, David BOJANIĆ
1, Tomislav PETKOVIĆ 1, Nicola D'APUZZO 2, Tomislav PRIBANIĆ 1
1 University of Zagreb, Faculty of Electrical Engineering and Computing, Zagreb, Croatia;
2 Hometrica Consulting, Ascona, Switzerland #29
- 09:14 Algorithmic Issues During the FEM Mesh Preparation of Human Models Based on 3D Body Scans
Yordan KYOSEV, Doudou ZHANG, Ellen WENDT, Sybille KRZYWINSKI
TU Dresden, Institute of Textile Machinery and High Performance Material Technology (ITM), Dresden, Germany #48
- 09:36  Title n.a.
Author(s) n.a.
Meshcapade GmbH, Tübingen, Germany #50
- 09:58  Title n.a.
Vincent CHAN
Quantum Matrix Ltd., Hong Kong #04

10:20-10:50 **Coffee Break / 1-on-1 Networking** – Foyer

10:50-12:40 **Technical Session 9: 3D Body Scanning Systems III** – Room C

10:50 Title n.a.
 Author(s) n.a.
NEXR Technologies SE, Berlin, Germany #23


11:12 When Standard is No Longer Enough: Developing Versatile Body Scanners and Scanning Strategies
 Niklas BRUSTEN
botspot GmbH, Berlin, Germany #49


11:34 Evaluation of 3D Registration Deep Learning Methods using Iterative Transformation Estimations
 David BOJANIĆ 1, Kristijan BARTOL 1, Tomislav PETKOVIĆ 1, Nicola D'APUZZO 2, Tomislav PRIBANIĆ 1
1 University of Zagreb, Faculty of Electrical Engineering and Computing, Zagreb, Croatia;
2 Hometrica Consulting, Ascona, Switzerland #31


11:56 *Available*

10:50-12:40 **Technical Session 10: 3D Body Scanning for Apparel II** – Room B1

10:50 Half-Scale Body Forms in Active Poses for Design Development: Use of Pressure Data for Bicycle Clothing Design
 Arzu VURUSKAN 1, Susan ASHDOWN 2
1 Izmir University of Economics, Izmir, Turkey;
2 Cornell University, Ithaca, NY, USA #19

11:12 Deformation Analysis of the Human Body Skin During Motion and its Application for Design of Functional Clothing
 Doudou ZHANG, Sybille KRZYWINSKI, Yordan Kostadinov KYOSEV
TU Dresden, Institute of Textile Machinery and High Performance Material Technology, Germany #09


11:34 Using 3D Scanning to Create 4D Motion Data for Clothing Simulation
 Christian PIRCH, Anke KLEPSEK, Simone MORLOCK
Hohenstein Institut für Textilinnovation gGmbH, Bönnigheim, Germany #13

11:56 Morpheus: A Platform for the Representation, Manipulation and Secure Access of Standardized Morphological Data for the Digital Age Textile Industry
 Julien DUCRET 1, Cédric CLAIRE 1, Alexis CHARLOT 1, Xavier AMEZIANE 1,2, Samuel CRUZ-LARA 2
1 Morpheus S.A.S., Nancy, France; 2 LORIA UMR 7503 - University of Lorraine, Vandoeuvre-lès-Nancy, France #08

12:18 Global Trends in Body Measurement and Shape Development - and Their Impacts on Technical Product Development, Size and Fit
Anke RISSIEK
Avalution GmbH, Kaiserslautern, Germany #54

12:40-14:10 **Lunch Break / 1-on-1 Networking** – Foyer


14:10-16:00 **Technical Session 11: 3D Hand & Foot Scanning** – Room C

14:10 Design of Wearable Shoe Tester Based on User Portrait
 Min ZHANG
College of Textile & Garment, Southwest University, Chongqing, China #18

14:32 Arm and Forearm Scanning Methodology for the Development of an Orthotic Device for Tetraplegic Patients
Branko ŠTEFANOVIĆ, Monika MICHALÍKOVÁ, Lucia BEDNARČIKOVÁ, Marianna TREBUŇOVÁ, Radovan HUDÁK
Dep. of Biomedical Engineering and Measurement, Faculty of Mechanical Engineering, Technical University of Košice, Slovakia #06

14:54 Correlation of Foot Width and Instep Height for Male and Female Feet
Ales JURCA 1,2, Sašo DŽEROSKI 2,3
1 Volumental AB, Stockholm, Sweden; 2 Jozef Stefan International Postgraduate School, Ljubljana, Slovenia;
3 Jozef Stefan Institute, Ljubljana, Slovenia #44

15:16 Make It Easy: Reliability of Automatic Measurement for 3D Hand Scanning
Arif-UI-Anwar BHUYAN, Linsey GRIFFIN
Department of Design, Housing, and Apparel, College of Design, University of Minnesota, Minneapolis MN, USA #38

15:38 Title n.a.
 Andrej REVKOV
Fittin, Voronezh, Russia #58






14:10-16:00 **Technical Session 12: 3D Body Scanning for Apparel III** – Room B1

- 14:10 Development and Usage of 3D-Modeled Body Shapes for 3D-Pattern Making
Gabriela KOSEL, Katerina ROSE
Reutlingen University, Reutlingen, Germany #14
- 14:32 3D Body Scanners' Ability to Improve the Cutting of Patterns for Traditional Saudi Garment to Assimilate Them into Modern-Day Clothing
Faizah ALMALKI, Simeon GILL, Steven G. HAYES, Lisa TAYLOR
The University of Manchester, Manchester, UK #25
- 14:54 Enhancing Pattern Construction by Body Scanning: The Importance of Curves
Tarfah ALRUSHAYDAN, Simeon GILL, Kristina BRUBACHER, Steven G. HAYES
The University of Manchester, Manchester, UK #56
- 15:16 *Available*

16:00-16:30 **Coffee Break / 1-on-1 Networking** – Foyer

16:30-18:20 **Technical Session 13: t.b.d.** – Room C










16:30-18:20 **Technical Session 14: 3D Body Processing** – Room B1

- 17:58 Working Group Progress for IEEE P3141 - Standard for 3D Body Processing, 2019-2020
 Carol MCDONALD 1, Alfredo BALLESTER 2, Randy K RANNO 3, Alice BULLAS 4, Dinesh K PAI 5,6, William GLASCOE 7, Warren WRIGHT 8, Emma SCOTT 9
IEEE-SA, Piscataway NJ, USA; 1 Gneiss Concept, Washougal WA, USA; 2 Instituto de Biomecanica, Universitat Politècnica de València, Spain; 3 Silverdraft Supercomputing, Boise ID, USA; 4 Centre for Sports Engineering Research, Sheffield Hallam University, UK; 5 Vital Mechanics Research, Vancouver BC, Canada; 6 University of British Columbia, Vancouver BC, Canada; 7 Web3D Consortium, Mountain View CA, USA; 8 Size Stream LLC, Cary NC, USA; 9 Fashion Should Empower, Vancouver BC, Canada #05
- 16:52 Comparative Analysis of Anthropometric Methods: Past, Present, and Future

 Alfredo BALLESTER 1, Warren WRIGHT 2, Jorge VALERO 1, Alice BULLAS 3, Tim DEVLIN 4, Emma SCOTT 5, Carol MCDONALD 6
1 Instituto de Biomecanica, Universitat Politècnica de València, Spain; 2 Size Stream LLC, Cary NC, USA; 3 Centre for Sports Engineering Research, Sheffield Hallam University, UK; 4 Yellowjacket Technologies, Berlin, Germany; 5 Fashion Should Empower, Vancouver Island BC, Canada; 6 Gneiss Concept, Washougal WA, USA #28
- 17:14 Quantitative Comparison of Manual vs. 3D Scanner Human Body Measurements
Andrei KOVAL
Bremen University, Bremen, Germany #35
- 17:36 Automatic Extraction of Anthropometric Measurements from 3D Body Scans which are Misaligned or in Natural Posture
 Rajesh BHARTIYA, Abhishek MISHRA, Omkar PANDE
3D Measure Up, ProtoTech Solutions Pvt. Ltd., Pune, India #53
- 17:58 Semantics Extension for Human Body Models
 Georgii MOLYBOGA, Ivan MAKEEV, Philipp MARCHENKO
3DLOOK Inc., San Mateo CA, USA #32

18:20-18:30 **Closing Session** – Room B1

- 18:20 Closing Speech from the Conference Director and Announcements for 3DBODY.TECH 2021
Nicola D'APUZZO
Hometrica Consulting, Switzerland

Icons / Symbols

-  Presentation/talk from **GOLD** Exhibitor & Sponsor
-  Presentation/talk from **SILVER** Exhibitor & Sponsor
-  Presentation/talk from **VIRTUAL EX** Exhibitor & Sponsor
-  Presentation/talk related to **MOBILE APP** solutions
-  Presentation/talk related to **4D & DYNAMIC** scanning, measurement, simulation, visualization
-  Presentation/talk related to **AI / ML** Artificial Intelligence & Machine Learning
-  Presentation/talk related to **AM / 3D PRINT** Additive Manufacturing & 3D Printing
-  Presentation/talk related to **VR / AR** Virtual & Augmented Reality
-  Presentation/talk related to **COVID-19** & pandemic