

3DBODY.TECH 2020 ONLINE - PRELIMINARY PROGRAM



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11th 3DBODY.TECH Conference & Expo ONLINE / VIRTUAL · 17-18 November 2020

Program Outline - CET (Central Europe Time) UTC+1 - Time Zone Rome/Paris/Berlin/Madrid

3DBODY.TECH 2020, ONLINE / VIRTUAL, 17-18 November 2020, www.3dbody.tech 11th International Conference and Exhibition on 3D Body Scanning and Processing Technologies CET (Central Europe Time) UTC+1 - Time Zone Rome/Paris/Berlin/Madrid				
Time	Tuesday 17 November 2020		Wednesday 18 November 2020	
08:00	Login / 1-on-1 Networking		Virtual Exhibition	Login / 1-on-1 Networking
09:00	Opening Session		Scheduled live-streams	Virtual Exhibition
10:00	Technical Session 1 3D Body Scanning for Medicine I	Technical Session 2 3D Body Scanning Systems I	Networking	Scheduled live-streams
11:00	Break / 1-on-1 Networking		Exhibitors Live Stream I	Networking
12:00	Technical Session 3 3D Body Scanning for Medicine II	Technical Session 4 3D Body Scanning for Apparel I	Exhibitors Live Stream II	Exhibitors Live Stream III
13:00	Lunch Break / 1-on-1 Networking			Exhibitors Live Stream IV
14:00	Technical Session 5 Digital Anthropometry & Ergonomics	Technical Session 6 3D Body Scanning Systems II	Exhibitors Live Stream II	Exhibitors Live Stream IV
15:00	Break / 1-on-1 Networking			Exhibitors Live Stream IV
16:00	Technical Session 7 3D Body Processing	Technical Session 8 3D Body Scanning for Sport & Fitness	Exhibitors Live Stream II	Exhibitors Live Stream IV
17:00	Closing Session			Exhibitors Live Stream IV
18:00	Past-conference Networking		Exhibitors Live Stream II	Exhibitors Live Stream IV
19:00	24h / 1-on-1 Networking			Exhibitors Live Stream II

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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11th 3DBODY.TECH Conference & Expo

ONLINE / VIRTUAL · 17-18 November 2020

Tuesday 17 November 2020 - CET (UTC+1) Time Zone Rome/Paris/Berlin/Madrid

08:00-09:00 **Login / 1-on-1 Networking**

09:00-09:20 **Opening Session**

09:00 Welcome Speech from the Conference Director



Nicola D'APUZZO
Hometrica Consulting, Switzerland

09:20-11:10 **Technical Session 1: 3D Body Scanning for Medicine I – Track 1 Green**

09:20 Practical Procedures for Breast Profiling Using Shape-from-Shading

Harvey MITCHELL
School of Engineering, University of Newcastle, Newcastle, Australia #42

09:42 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 GIGA-BYTE Technology Co. Ltd., Taipei, Taiwan;
6 Lab of Stem Cell and Tissue Regeneration, National Defense Medical Center, Taipei, Taiwan #16

10:04 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

10:26 *Available*

09:20-11:10 **Technical Session 2: 3D Body Scanning Systems I – Track 2 Blue**

09:20 Title n.a.



Chris LANE
3dMD Ltd., London / Atlanta GA, UK / USA #01

09:42 ZOZOSUIT & ZOZOMAT: Solutions for Online Shopping in Japan



Bo LI
ZOZO New Zealand Ltd., Auckland, New Zealand #47

10:04 MySize Breakthrough Solution for Personalized Garment Size & Fit



Lia BILIK, Tatiana PELC
My Size Inc., Airportcity, Israel #40

10:26 Title n.a.



Author(s) n.a.
meepl, Zurich, Switzerland #45

10:48 *Available*

11:10-12:00 **Break / 1-on-1 Networking**

11:20-11:50 **Virtual Exhibitors Scheduled Live Stream I – Track 3 Rose**


11:20 Live Demonstration/Presentation from Quantum Matrix Ltd., Hong Kong



12:00-13:28 **Technical Session 3: 3D Body Scanning for Medicine II – Track 1 Green**

12:00 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 3,4, Hélder P. OLIVEIRA 1,2
1 INESC TEC, Porto, Portugal; 2 University of Porto, Porto, Portugal; 3 Champalimaud Foundation, Lisbon, Portugal; 4 University of Lisbon, Lisbon, Portugal #15

12:22 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

12:44  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

13:06 *Available*

12:00-13:28 **Technical Session 4: 3D Body Scanning for Apparel I – Track 2 Blue**

12:00 Development and Usage of 3D-Modeled Body Shapes for 3D-Pattern Making
Gabriela KOSEL, Katerina ROSE
Reutlingen University, Reutlingen, Germany #14


12:22 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


12:44 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

13:06 *Available*

13:30-15:00 **Lunch Break / 1-on-1 Networking**

13:40-14:50 **Virtual Exhibitors Scheduled Live Stream II – Track 3 Rose**


13:40 Live Demonstration/Presentation from IBV, València, Spain 



14:20 Live Demonstration/Presentation from Size Stream LLC, Cary NC, USA 



15:00-16:50 **Technical Session 5: Digital Anthropometry & Ergonomics – Track 1 Green**

15:00 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

15:22 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



15:44  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



16:06   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 Numalogics, Montréal QC, Canada; 2 Technologies Shapeshift 3D Inc., Montréal QC, Canada #33


16:28   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



15:00-16:50 **Technical Session 6: 3D Body Scanning Systems II – Track 2 Blue**

15:00 Title n.a.
 Chris LANE
3dMD Ltd., London / Atlanta GA, UK / USA #02

15:22 Multi-Camera Video Recording Solutions for 3D Reconstruction Applications
  Philippe MORIN
IO Industries Inc., London ON, Canada #03


15:44 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

16:06 Title n.a.
 Authors n.a.
NetVirta, Boston MA, USA #60

16:28 MeThreeSixty Improvements from Size Stream
  Warren WRIGHT
Size Stream LLC, Cary NC, USA #27


16:50-17:10 **Break / 1-on-1 Networking**


17:10-19:00 **Technical Session 7: 3D Body Processing – Track 2 Blue**

17:10 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

17:32 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

17:54 Quantitative Comparison of Manual vs. 3D Scanner Human Body Measurements
Andrei KOVAL
Bremen University, Bremen, Germany #35


18:16 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


18:38 Semantics Extension for Human Body Models
 Georgii MOLYBOGA, Ivan MAKEEV, Philipp MARCHENKO
3DLOOK Inc., San Mateo CA, USA #32

Wednesday 18 October 2020 - CET (UTC+1) Time Zone Rome/Paris/Berlin/Madrid


08:00-09:00 **Login / 1-on-1 Networking**

09:00-10:50 **Technical Session 8: 3D Body Technology for Sport & Fitness – Track 1 Green**

09:00 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

09:22 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

09:44 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

10:06 3D Body Scanning for Weight Loss Motivation
 David BRUNER
Size Stream LLC, Cary NC, USA #57

10:28 *Available*

09:00-10:50 **Technical Session 9: Body Modeling & Avatars** – Track 2 Blue

09:00 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

09:22 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

09:44 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

10:06 Title n.a.



Author(s) n.a.
Meshcapade GmbH, Tübingen, Germany #50

10:28 Title n.a.



Vincent CHAN
Quantum Matrix Ltd., Hong Kong #04

10:50-11:40 **Break / 1-on-1 Networking**

11:00-11:30 **Virtual Exhibitors Scheduled Live Stream III** – Track 3 Rose

11:10 Live Demonstration/Presentation from 3dMD Ltd., London / Atlanta GA, UK / USA



11:40-13:30 **Technical Session 10: 3D Body Scanning Systems III** – Track 1 Green

11:40 Mobile Scanning of Body Parts with Calibry Mini Scanner



Vadim FOMICHEV 1,2
1 Calibry International UG, Dusseldorf, Germany; 2 Thor3D, Moscow, Russia #59

12:02 When Standard is No Longer Enough: Developing Versatile Body Scanners and Scanning Strategies



Niklas BRUSTEN
botspot GmbH, Berlin, Germany #49

12:24 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

12:46 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

13:08 *Available*

11:40-13:30 **Technical Session 11: 3D Body Scanning for Apparel II** – Track 2 Blue

11:40 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

12:02 Analysis of Clothing Deformation During Motion and its Application for the Design of Functional Clothing



Doudou ZHANG, Sybille KRZYWINSKI, Yordan KYOSEV
TU Dresden, Institute of Textile Machinery and High Performance Material Technology, Germany #09

12:24 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

12:46 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

13:08 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

13:30-15:00 **Lunch Break / 1-on-1 Networking**

13:40-14:50 **Virtual Exhibitors Scheduled Live Stream IV – Track 3 Rose**

13:40 Live Demonstration/Presentation from botspot GmbH, Berlin, Germany



14:20 Live Demonstration/Presentation from Calibri 3D, Dusseldorf/Moscow, Germany/Russia



15:00-16:50 **Technical Session 12: 3D Hand & Foot Scanning – Track 1 Green**

15:00 Design of Wearable Shoe Tester Based on User Portrait



Min ZHANG

College of Textile & Garment, Southwest University, Chongqing, China #18

15:22 Arm and Forearm Scanning Methodology for the Development of an Orthotic Device for Tetraplegic Patients

Branko ŠTEFANOVIČ, Monika MICHALÍKOVÁ, Lucia BEDNARČÍKOVÁ, Marianna TREBUŇOVÁ, Radovan HUDÁK

Dep. of Biomedical Engineering and Measurement, Faculty of Mechanical Engineering, Technical University of Košice, Slovakia #06

15:44 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

16:06 Make It Easy: Reliability of Automatic Measurement for 3D Hand Scanning

Md Arif-UI-Anwar BHUYAN, Linsey GRIFFIN

Department of Design, Housing, and Apparel, College of Design, University of Minnesota, Minneapolis MN, USA #38

16:28 Title n.a.



Andrej REVKOV

Fittin, Voronezh, Russia #58

15:00-16:50 **Technical Session 13: 3D Body Scanning for Apparel III – Track 2 Blue**

15:00 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

15:22 Virtual Fit vs. Physical Fit - How Well Does 3D Simulation Represent the Physical Reality

Flora ZANGUE, Christian PIRCH, Anke KLEPSEK, Simone MORLOCK

Hohenstein Digital Fitting Lab, Bönnigheim, Germany #21

15:44 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

16:06 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

16:28 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 Reutlingen University, Germany; 2 Avalution GmbH, Kaiserslautern, Germany #55

16:50-17:00 **Closing Session**

16:50 Closing Speech from the Conference Director and Announcements for 3DBODY.TECH 2021



Nicola D'APUZZO

Hometrica Consulting, Switzerland

Icons / Symbols



Presentation/talk from **VIRTUAL** 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