Program of the

4th International Conference and Exhibition on
3D Body Scanning Technologies

Long Beach California, USA, 19-20 November 2013

Organizer
Hometrica Consulting - Dr. Nicola D’Apuzzo
Ascona, Switzerland

www.hometrica.ch
## Program Outline

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<th>Time</th>
<th>Tuesday 19th November 2013</th>
<th>Wednesday 20th November 2013</th>
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<tr>
<td>08:00</td>
<td>Registration</td>
<td>Registration</td>
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<tr>
<td></td>
<td>Welcome desk</td>
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<tr>
<td>09:00</td>
<td>Opening Session</td>
<td>Technical Session 7</td>
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<tr>
<td></td>
<td></td>
<td>Body Scanning Systems &amp; Technologies</td>
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<tr>
<td>10:00</td>
<td>Break</td>
<td>Technical Session 8</td>
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<tr>
<td></td>
<td></td>
<td>Anthropometric Studies &amp; Surveys</td>
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<tr>
<td>11:00</td>
<td>Technical Session 1</td>
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<td></td>
<td>Medical Scanning Systems</td>
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<tr>
<td>12:00</td>
<td>Technical Session 2</td>
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<tr>
<td></td>
<td>Body Scanning for Apparel I</td>
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<tr>
<td>13:00</td>
<td>Lunch Break</td>
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<td>14:00</td>
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<tr>
<td>15:00</td>
<td>Technical Session 3</td>
<td>Technical Session 9</td>
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<td></td>
<td>Medical Applications I</td>
<td></td>
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<tr>
<td>16:00</td>
<td>Coffee Break</td>
<td>Technical Session 10</td>
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<tr>
<td></td>
<td></td>
<td>Body Scanning for Apparel II</td>
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<tr>
<td>17:00</td>
<td>Technical Session 5</td>
<td>Technical Session 11</td>
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<td>World Engineering</td>
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<td>Anthropometry Resource I</td>
<td>Morphology Analysis &amp; Measurement</td>
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<tr>
<td>18:00</td>
<td>Technical Session 6</td>
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<tr>
<td></td>
<td>Full Body Scanning Systems</td>
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<td>19:00</td>
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<tr>
<td>19:00</td>
<td>Closing Session</td>
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### Conference Office

HOMETRICA CONSULTING - Dr. Nicola D’Apuzzo  
Via Collegio 28, CH-6612 Ascona, Switzerland  
www.hometrica.ch info@hometrica.ch  
Conference website: www.3dbodyscanning.org  
Conference email: info@3dbodyscanning.org  
Conference phone: +41.91.781.5524  
Local phone USA: 714-251-4712
### Tuesday 19th November 2013

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
<th>Participants</th>
<th>Session Chair</th>
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<tr>
<td>08:00-09:45</td>
<td>Registration – Welcome Desk</td>
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<tr>
<td>09:45-10:45</td>
<td>Opening Session – Centennial A</td>
<td></td>
<td>Welcome Speech from the Conference Director</td>
<td>Dr. N. D’Apuzzo</td>
</tr>
<tr>
<td>10:00</td>
<td>3D Body Scanning, Past and Future</td>
<td></td>
<td>Kathleen M. Robinette, Department of Design, Housing and Merchandising, Oklahoma State University, Stillwater OK, USA</td>
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<tr>
<td>10:45-11:00</td>
<td>Break – Prefunction Area</td>
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<tr>
<td>11:00-13:00</td>
<td>Technical Session 1: Medical Scanning Systems – Centennial D</td>
<td></td>
<td>Breast Volume Calculation Using a Low-Cost Scanning System</td>
<td>Dr. F. Merchant</td>
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<td></td>
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<td>Simon B. Choppin1, Heidi Probst2, Amit Goyal3, Sean Clarkson1, Jonathan Wheat1</td>
<td>University of Houston (USA)</td>
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<td></td>
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<td></td>
<td>1 Centre for Sports Engineering Research, Sheffield Hallam University, Sheffield, UK; 2 Centre for Health and Social Care Research, Sheffield Hallam University, Sheffield, UK; 3 Breast Unit, Royal Derby Hospital, Derby, UK</td>
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<tr>
<td>11:24</td>
<td>Facial Overlay Analysis - Combined Repositioning and Computer Alignment</td>
<td></td>
<td>Richard C. Roth, Matthew DePauw, Advanced Imaging and Measurement Laboratory, Analytical Sciences, Amway, Ada MI, USA</td>
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<tr>
<td>11:48</td>
<td>A Two-Picture Acquisition System for 3D Geometry and Light Reflection</td>
<td></td>
<td>Hussam Yousef1, Célène Loscos2, Régis Huez2, Michel Herbin2, ALTIMESH, Reims, France; Université de Reims Champagne-Ardenne, CReSTIC-SIC, Reims, France</td>
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<tr>
<td>12:12</td>
<td>The Potential for Dense Dynamic 4D Surface Capture - Illustrated with Actual Case Studies</td>
<td></td>
<td>Chris Lane, 3dMD LLC, Atlanta GA, USA</td>
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<tr>
<td>12:36</td>
<td>How to Make 3D Body Scanning Easy, Fast and Reliable</td>
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<td>Mike Babin, TechMed 3D, St-Nicolas QC, Canada</td>
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<tr>
<td>11:00-13:00</td>
<td>Technical Session 2: Body Scanning for Apparel I – Centennial A</td>
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<td>Effectiveness of 3D Scanning in Establishing Sideseam Placement for Pattern Design</td>
<td>Prof. S. Krzywinski</td>
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<td>Kathryn Brownbridge1, Simeon Gill1, Susan Ashdown2, 1 Department of Apparel, Manchester Metropolitan university, Manchester, UK; 2 Department of fiber science and apparel design, Cornell University, Ithaca NY, USA</td>
<td>ITM TU Dresden (Germany)</td>
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<tr>
<td>11:20</td>
<td>Applied Body Scanning Technology for the Extreme Sports Apparel</td>
<td></td>
<td>Stacy Holt1, Yoram Burg2, Rick Elder3, 1 Holt Consulting Ltd., Vancouver BC, Canada; 2 Optitex International, Petach-Tikva, Israel; 3 Beyond Clothing LLC, Seattle WA, USA</td>
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<tr>
<td>11:40</td>
<td>3D virtual-Try-On: The Avatar at Center Stage</td>
<td></td>
<td>Jean-Marc Survile, Thierry Moncoutié, Lectra, Paris, France</td>
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<tr>
<td>12:00</td>
<td>Fitting Simulation Evaluated on Self Body Scanned and Programmed Avatars</td>
<td></td>
<td>Shu-Hwa Lin1, Rayneld Johnson2, Ju-Young Kang1, Didier Stricker3, Yan Cui3, 1 University of Hawaii at Manoa, Honolulu HI, USA; 2 Wayne State University, Detroit MI, USA; 3 Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI) GmbH, Kaiserslautern, Germany</td>
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<td>12:20</td>
<td>An Exploratory Study of Virtual Fit Testing Using 3D Virtual Fit Models and Garment Simulation Technology in Technical Design</td>
<td></td>
<td>MyungHee Sohn, Lushan Sun, Textile and Apparel Management, University of Missouri, Columbia MO, USA</td>
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<tr>
<td>12:40</td>
<td>Use of 3D Body Scanner Data in Digital Tailoring</td>
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<td>Pirjo Elbrecht1,2, 1 Tallinn University of Technology, Tallinn, Estonia; 2 Incognito Ballistic, Tallinn, Estonia</td>
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<tr>
<td>Time</td>
<td>Session/Topic</td>
<td>Authors</td>
<td>Affiliations</td>
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<td>15:00</td>
<td><strong>Technical Session 3: Medical Applications I</strong> — Centennial D (Dr. H. Mitchell)</td>
<td>Virtobot - A Robot System for Optical 3D Scanning in Forensic Medicine</td>
<td>Robert Breitbeck1, Wolfgang Ptsacek2, Lars Ebert1, Martin Fürst2, Geront Kronreif2, Michael Thal1 1 Institute of Forensic Medicine, Virtopsy, University of Zurich, Zurich, Switzerland; 2 Austrian Center for Medical Innovation and Technology, Integrated Microsystems Austria, Wiener Neustadt, Austria</td>
<td>#25</td>
</tr>
<tr>
<td>15:22</td>
<td>Computation of Breast Ptsosis from 3D Scans of Torso</td>
<td>Danni Li1, Lijuan Zhao 2, Gregory P. Reece2, Melissa A. Crosby2, Michelle C. Fingeret2, Fatima A. Merchant1 1 University of Houston, Houston TX, USA; 2 The University of Texas M.D. Anderson Cancer Center, Houston TX, USA</td>
<td>#33</td>
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<tr>
<td>15:45</td>
<td>Does the “Rule of Nines” Apply to Morbidly Obese Burn Victims?</td>
<td>Stephen D. Wohlgemuth1,2, David B. Stefan3 1 Sentara Comprehensive Weight Loss Solutions, Norfolk VA, USA; 2 Eastern Virginia Medical School, Norfolk VA, USA; 3 Novaptus Systems Inc., Chesapeake VA, USA</td>
<td>#52</td>
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<tr>
<td>16:08</td>
<td>4D Capture and Analysis</td>
<td>Colin Urquhart</td>
<td>Dimensional Imaging Ltd., Glasgow, Scotland UK</td>
<td>#79</td>
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<tr>
<td>15:00</td>
<td><strong>Technical Session 4: Body Modeling &amp; Avatars</strong> — Centennial A (Dr. C. Shu)</td>
<td>Methodology for Construction of a T-Pose 3D Human Model</td>
<td>Eric Ennis, Christopher Hess, Isiah Davenport</td>
<td>#32</td>
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<tr>
<td>15:22</td>
<td>ShapeMate: A virtual Tape Measure</td>
<td>Alexandros Neophytou, Qizhi Yu, Adrian Hilton</td>
<td>Centre for Vision, Speech and Signal Processing, University of Surrey, UK</td>
<td>#67</td>
</tr>
<tr>
<td>15:45</td>
<td>Parametric Modeling of the Human Body Using Kinect Measurements</td>
<td>Jorn Wijckmans1, Dorien Van Deun2, Koen Buytaert1, Herman Bruyninckx2 1 Department of Mechanical Engineering, Biomechanics Section, Katholieke Universiteit Leuven, Belgium; 2 Department of Mechanical Engineering, Division PMA, Katholieke Universiteit Leuven, Belgium</td>
<td>#21</td>
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<tr>
<td>17:00</td>
<td>Sizing up Australia: The Next Step - Summary</td>
<td>Daisy Veitch1, Chris Fitzgerald2, Verna Blyett3, Steve Ward4, Chang Shu5, Kathleen Robinette6</td>
<td>1 SHARP Dummies Pty Ltd, Adelaide, Australia; 2 Risk &amp; Injury Management Services Pty Ltd, Melbourne, Australia; 3 Appleton Institute, Central Queensland University, Adelaide, Australia; 4 University of New South Wales, Sydney, Australia; 5 National Research Council Canada, Ottawa, Canada; 6 Oklahoma State University, Oklahoma City, USA</td>
<td>#36</td>
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<tr>
<td>17:20</td>
<td>3D Scanning of Dutch Military - Secular Trends in PCA for 18,000 Soldiers</td>
<td>Frank B. ter Haar1, Henk G. B. Reulink2, Hein A. M. Daamen1,3,4,5 1 TNO, Soesterberg, The Netherlands; 2 Ministry of Defence, Soesterberg, The Netherlands; 3 MOVE Research Group, Faculty of Human Movement Sciences, VU University, Amsterdam, The Netherlands; 4 Sizing Science, Soesterberg, The Netherlands; 5 AMFI Amsterdam Fashion Institute, CREATE-IT Applied Research, Amsterdam University of Applied Sciences, Amsterdam, The Netherlands</td>
<td>#11</td>
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<tr>
<td>17:40</td>
<td>From 3-D Scans to Design Tools</td>
<td>Chang Shu1, Pengcheng Xi1, Stefanie Wuhrer2 1 National Research Council of Canada, Ottawa, Canada; 2 Saarland University, Saarbrucken, Germany</td>
<td>#39</td>
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<tr>
<td>18:00</td>
<td>3D Anthropometric Data Set of the Head and Face of Children Aged 0.5-6 Years for Design Applications</td>
<td>Lyé Goto, Johan F.M. Molenaar1, Richard H.M. Goossens 1 University of Amsterdam, The Netherlands; 2 The Netherlands; 3 Erasmus Medical Centre, Rotterdam, The Netherlands</td>
<td>#43</td>
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<td>18:20</td>
<td>Web Based 3D Visualization and Interaction for Whole Body Laser Scans</td>
<td>Sandy Resler, Kyle Leber</td>
<td>National Institute of Standards and Technology (NIST), USA</td>
<td>#27</td>
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<td>18:40</td>
<td>From S-M-L-XL to Mass Customization. Case Study: External Ankle Sprain Protection with Exo-L</td>
<td>Johan F.M. Molenaar1, Marcel Fleuren2, Gerjan Klein Rensink3 1 Industrial Design Engineering, Delft University of Technology, Delft, The Netherlands; 2 Exo Ligament, Delft, The Netherlands; 3 Erasmus Medical Centre, Rotterdam, The Netherlands</td>
<td>#49</td>
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**Technical Session 6: Full Body Scanning Systems**  
Session Chair: Dr. M. Reed  
University of Michigan (USA)

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<th>Institution/Location</th>
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<tr>
<td>17:00</td>
<td>New Traveling Type 3D Full Body Scanner</td>
<td>Kohei Ikei, Masaki Hayashi, Hiroki Kameshima, Yuji Nishio, Yukio Sato</td>
<td>1 SpaceVision Inc., Tokyo, Japan; 2 Keio University, Tokyo, Japan</td>
</tr>
<tr>
<td>17:24</td>
<td>Essential Elements of 3D Body Scanning for Applications in Retail and Research</td>
<td>David Bruner</td>
<td>Size Stream LLC, Cary NC, USA</td>
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<tr>
<td>17:48</td>
<td>VITUS 3D Body Scanner</td>
<td>Markus MAURER</td>
<td>VITRONIC GmbH, Wiesbaden, Germany</td>
</tr>
<tr>
<td>18:12</td>
<td>Extreme Body Scanning - The Future of Very Accurate Body Reference Models - An Update on the Collaboration Between 3dMD and the Max Planck Institute for Intelligent Systems Perceiving Systems</td>
<td>Chris Lane</td>
<td>3dMD LLC, Atlanta GA, USA</td>
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<tr>
<td>18:36</td>
<td>MeasureMe - The World's First Tablet Based Body Scanner Using 3D Depth Sensors</td>
<td>Raj Sareen</td>
<td>Styku LLC, Los Angeles (CA), USA</td>
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**Wednesday 20th November 2013**

**Technical Session 7: Body Scanning Systems & Technologies**  
Session Chair: Prof. C. Loscos  
URCA (France)

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<th>Institution/Location</th>
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<tr>
<td>08:30</td>
<td>Line-structure Laser Human Body 3D Scanner with High Resolution</td>
<td>Tian Qingguo, Zhang Xiangyu, Li Yunpeng, Yang Yujie, Wang Jianjun, Ge Baoyin</td>
<td>1 School of Precision Instrument and Opto-Electronics Engineering, Tianjin University, Tianjin, China; 2 Key Laboratory of Opto-Electronics Information Technology of Ministry of Education, Tianjin, China</td>
</tr>
<tr>
<td>08:54</td>
<td>High Accuracy Passive Photogrammetry 3D Body Scanner</td>
<td>Antonio Perez, Rubén Muñiz, Juan Luengo, Efrén Vigil</td>
<td>1 Metria Digital, Linera, Spain; 2 Computer Vision Lab, University of Oviedo, Asturias, Spain; 3 Soluciones Antropométricas, Linera, Spain; 4 Intelmeq Ingeniería, Linera, Spain</td>
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<tr>
<td>09:18</td>
<td>Spread-Sheet Execution of Shape-from-Shading for Human Back Surface Measurement</td>
<td>Harvey Mitchell</td>
<td>School of Engineering, University of Newcastle, Newcastle NSW, Australia</td>
</tr>
<tr>
<td>09:42</td>
<td>Towards Human Body Scanners for the Masses</td>
<td>Geert Willems</td>
<td>4DDynamics Bvba, Deurne, Belgium</td>
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<tr>
<td>10:06</td>
<td>RECOVER3D: A Hybrid Multi-View System for 4D Reconstruction of Moving Actors</td>
<td>Laurent Lucas, Philippe Souchez, Muhammad Ismaïl, Olivier Nocent, Cédric Niqui, Céline Lesco, Ludovic Blachet, Stéphanie Prévost, Yannick Remion</td>
<td>1 CRoSTIC-SIC, Université de Reims Champagne-Ardenne, Reims, France; 2 XD Production, Issy-les-Moulineaux, France</td>
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**Technical Session 8: Anthropometric Studies & Surveys**  
Session Chair: Dr. B. Bradtmiller  
Anthrotech (USA)

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<tr>
<td>08:30</td>
<td>Difference in Shape and Dimensions between Adult and Children Feet Based on 40,000 3D Scans</td>
<td>Damir Omrčen, Aleš Jurca</td>
<td>UCS, Universal Customization System, d.o.o., Vrhnika, Slovenia</td>
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<tr>
<td>08:54</td>
<td>Comparison of European and Asian Morphology</td>
<td>James Webster, Jeremy Cornold</td>
<td>Oxylane Research, Villeneuve-d'Ascq, Lille, France</td>
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<tr>
<td>09:18</td>
<td>Size China 3D Anthropometric Survey</td>
<td>Roger Ball</td>
<td>The Hong Kong Polytechnic University, Hong Kong, SAR of China</td>
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<tr>
<td>09:42</td>
<td>SizeBR - The Brazilian Study on Anthropometric</td>
<td>Sergio Ferreira Bastos, Flávio Sabra, Rynaldo Rosa, Luis Felipe</td>
<td>Senai CETIQT, Brazil</td>
</tr>
<tr>
<td>10:06</td>
<td>EUROFIT - Integration, Homogenisation and Extension of the Scope of Large 3D Anthropometric Data Pools for Product Development</td>
<td>Rainer Trieb, Alfredo Ballester, George Kartousis, Sandra Alemany, Jordi Uriel, Guido Hansen, Mirco Sanguinetti, Michael van Genabith</td>
<td>1 Human-Solutions GmbH, Kaiserslautern, Germany; 2 IBV - Instituto de Biomecánica de Valencia, Spain; 3 Hypercliq E.E., Athens, Greece; 4 Human Solutions Of North America Inc, Cary, USA</td>
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</table>
10:30-11:00 Coffee Break – Prefunction Area

11:00-12:30 Technical Session 9: Medical Applications II – Centennial D

11:00 Deploying Reconfigurable 3D Scanning for Complex Anatomical Measurements
Chris Lane
3dMD LLC, Atlanta GA, USA

11:22 Automated Detection of Breast Contour in 3D Images of the Female Torso
Lijuan Zhao1, Shishir K. Shah1, Gregory P. Reece2, Melissa A. Crosby2, Michelle C. Fingeret2, Fatima A. Merchant1
1 University of Houston, Houston TX, USA;
2 The University of Texas MD Anderson Cancer Center, Houston TX, USA

11:45 Towards a Case-Based Reasoning System for Predicting Aesthetic Outcomes of Breast Reconstruction
Juhun Lee1,2, Clement S. Sun1,2, Gregory P. Reece2, Michelle C. Fingeret2, Mia K. Markey1,2
1 The University of Texas at Austin, Austin TX, USA;
2 The University of Texas MD Anderson Cancer Center, Houston TX, USA

12:08 Breast Augmentation Virtual Surgery using 3D Body Scanning - Bridging the Gap between Patient Expectations and Surgical Practicalities
David A. Gilbert1, David B. Stefan2
1 The Hague Plastic and Cosmetic Surgery Center, Norfolk VA, USA; 2 Novaptus Systems Inc., Chesapeake VA, USA

11:00-12:30 Technical Session 10: Body Scanning for Apparel II – Centennial A

11:00 3D Product Development Based on Kinematic Human Models
Anja Leipner, Sybille Krzywiński
Institute of Textile Machinery and High Performance Material Technology (ITM), TU Dresden, Dresden, Germany

11:22 Analysis of Lower Body Change in Active Body Positions of Varying Degrees
Ping Xiao1,2, Susan P. Ashdown3
1 Fashion Institute, Donghua University, Shanghai, China;
2 Key Laboratory of Clothing Design and Technology, Ministry of Education, Shanghai, China;
3 Department of Fiber Science & Apparel Design, Cornell University, Ithaca NY, USA

11:45 Volumetric and Space Requirements of the Offshore Workforce: The Effects of Donning a Survival Suit
Robert J. Ledingham, Arthur D. Stewart
Institute of Health and Welfare Research, Robert Gordon University, Aberdeen UK

12:08 Use of 3D Body Scanning Technique to Investigate an Effect of Garment Design on Heat and Mass Transfer in Clothing
Agnes Psikuta, Andrea Bohnet, Joanna Frackiewicz-Kaczmarek, Rene M. Rossi
Laboratory for Protection and Physiology, EMPA, St. Gallen, Switzerland

12:30-14:30 Lunch Break

14:30-16:30 Technical Session 11: Morphology Analysis & Measurement – Cent. D

14:30 Analysis of Morphological Variation of the Knee for Brace Development
James Webster, Jeremy Cornolo, Marine Menut, Katerina Kollias
Oxylane Research, Villeneuve-d’Ascq, Lille, France

14:54 Complete Spacial Evaluation of the Preoperative Bariatric Patient - New Insights into Body Composition
Stephen D. Wohlgemuth1,2, David B. Stefan3
1 Sentara Comprehensive Weight Loss Solutions, Norfolk VA, USA;
2 Eastern Virginia Medical School, Norfolk VA, USA;
3 Novaptus Systems Inc., Chesapeake VA, USA

15:18 3D Facial Analysis Software for Before and After Comparison
Masaki Hayashi1,2, Kohei Ike1, Yuji Nishio1, Hideto Kameshima1, Yukio Sato1,2
1 SpaceVision Inc., Tokyo, Japan; 2 Keio University, Tokyo, Japan

15:42 Advances in Anthropometric Accounting for Ear Digital Modeling
John A. Roebuck
Roebuck Research and Consulting, Santa Monica CA, USA

16:06 Reproducibility of Body Volume Assessments in Survival Clothing in Fixed and Portable Scanning Systems
Robert J. Ledingham1, Alan M. Nevill2, Arthur D. Stewart1
1 Institute of Health and Welfare Research, Robert Gordon University, Aberdeen UK;
2 School of Sport, Performing Arts and Leisure, University of Wolverhampton, Walsall, UK
Exploring Consumer Perceptions Toward the Use of Me-Ality Body Scanner for Clothing Selection in U.S. Shopping Malls
Young-A Lee
Iowa State University, Department of Apparel, Events, and Hospitality Management, Ames IA, USA

Scan-to-Pattern Clothing Systems: A Systematic Approach
Bruce Bradtmiller
Anthrotech Inc., Yellow Springs OH, USA

Analysis of Three Dimensional Torso Shape and Bodice Pattern of Elderly Japanese Women
Keiko Watanabe1, Hiroko Takabu2
1 Kyoto Women's University, Kyoto, Japan; 2 Jissen Women's University, Tokyo, Japan

Findings of a Breast Assessment Service and Implications for Clothing
Graham Hutton, Samantha Tema, Martin Bayley
Body Aspect Ltd, Nottingham, UK

Designing for Pregnant Women
Marie-Eve Faust
Fashion Merchandising Management, School of Business, Philadelphia University, USA

Accurate 3D Face and Body Modeling from a Single Fixed Kinect
Ruizhe Wang, Matthias Hernandez, Jongmoo Choi, Gérard Medioni
Computer Vision Lab, Inst. for Robotics and Intelligent Systems, Univ. of Southern California, Los Angeles CA, USA

A Portable, Low-Cost 3D Body Scanning System
Christoph Kopf, Christoph Heindl, Martijn Rooker, Harald Bauer, Andreas Pichler
PROFACTOR GmbH , Steyr-Gleink, Austria

Portable and Affordable Body Scanning in Made-to-Measure Apparel Using 3D Depth Sensors
Raj Sareen
Styku LLC, Los Angeles (CA), USA

Distortion Correction of Depth Data from Consumer Depth Cameras
Sean Clarkson1, Jon Wheat1, Ben Heller1, James Webster2, Simon Choppin1
1 Sports Engineering Research, Sheffield Hallam Univ., Sheffield, UK; 2 Oxylane Research, Villeneuve-d'Ascq, France

Volumental - Turning Computer Vision Research into Customized Scanning for Business
Alper Aydemir
Volumental, Stockholm, Sweden

Anthropometric Dynamics of Pregnant Women and Their Implications on Apparel Sizing
Mahendran Balasubramanian, Adriana Petrova, Kathleen Robinette
Department of Design, Housing and Merchandising, Oklahoma State University, Stillwater OK, USA

Development of the Sizing System for Clothing Based on Korean Anthropometry Data
Young-Suk Lee
Dept. of Clothing Science, Chonnam National University, Gwangju, South Korea

Exploitation of 3D Body Databases for the Apparel Industry
Sandra Alemany, Alfredo Ballester, Eduardo Parrilla, Jordi Uriel, Jorge González, Beatriz Nácher, Juan Carlos González, Álvaro Page
Instituto de Biomecánica de Valencia, Universidad Politécnica de Valencia, Valencia, Spain

Designing Footwear for Uniformed South African Females - A Practical Study
Karen Bredenkamp
ERGOnomics TECHnologies, Centurion, South Africa

Functional Postures Assumed by Elderly People on Daily Activities - A Pilot Study for Interior Home Design
C.P. Guimarães1, F.C.H. Pastura1, M.C.P. Zamberlan1, G.L. Cid1, D. Batista1, P. Streit1, M. Fraga1, J. Oliveira1, M.P. Ferreira1, V. Santos1,2
1 National Institute of Technology, Rio de Janeiro, Brazil; 2 PUC RIO Departamento de Engenharia Industrial, Rio de Janeiro, Brazil

Designing Footwear for Uniformed South African Females - A Practical Study
Karen Bredenkamp
ERGOnomics TECHnologies, Centurion, South Africa

Closing Session – Centennial A

Closing speech and announcements for 3DBST2014 from the conference director
Nicola D’Apuzzo
Hometrica Consulting, Switzerland
CONFERENCE HIGHLIGHTS

Welcome Speech from the Conference Director
Dr. Nicola D’APUZZO – Hometrica Consulting, Ascona, Switzerland

Dr. Nicola D’Apuzzo is operating since 2004 Hometrica Consulting, a technology consulting firm specialized in 3-D surface digitization, 3-D data processing and 3-D measurement of the human body. Dr. D’Apuzzo has more than fifteen years of experience in research and development, in private firm and educational institutions, on 3-D surface digitization techniques, 3-D data processing, image processing, digital image acquisition, machine and industrial vision systems. In 2010, Dr. D’Apuzzo organized the first international conference on 3D body scanning technologies and since then he is fully dedicated to its development.

3D Body Scanning, Past and Future
Prof. Kathleen ROBINETTE – Oklahoma State University, Stillwater OK, USA

Dr. Kathleen Robinette is currently Head of the Department of Design, Housing and Merchandising in the College of Human Sciences at Oklahoma State University. Prior to accepting this position, Robinette spent more than 30 years working for the Air Force Research Lab where she spearheaded the development, management, and transitioning of new technologies for incorporating human dimensionality into product engineering. Dr. Kathleen Robinette is co-founder and now president of the World Engineering Anthropometry Resource (WEAR) Association, a nonprofit organization headquartered in Paris that is developing an engineering anthropometric resource.

3D Body Scanning, Past and Future
New technology is valued for one of two reasons: 1) it enables us to do something better or cheaper or 2) it enables us to do something we couldn’t do before. Many people still value 3-D scanning for the first reason, because they think it enables us to gather 1-D measurements better, faster or cheaper. However, 3-D scanners are much more valuable than just alternative 1-D measuring tools. 3-D enables us to do things we can’t do with 1-D data. 3-D provides shape, contour, volume, location, comparative locations over time or under different conditions (such as fitting versus not fitting), or between two people, etc. 3-D provides capability essential to: true-to-life dynamic human modeling for design, injury prediction, fit quantification, situational visualization and more. Some people might even argue that if you have 3-D you don’t need 1-D, but 1-D data are easy to store, search and use for simple categorization using tools readily available to most people. Therefore the two tools each provide different capabilities and are even more useful together. This presentation reviews the evolution of anthropometry technology, the lessons learned, the goals and aims of the research and proposes a vision of the future for the science of anthropometry that could change the way human-worn or inhabited products are designed and produced.

World & International Premieres

Size Stream (USA) Technical Session 6 and Exhibition
Size Stream will present for the first time at the conference enhancements to the Size Stream 3D body scanner: 4D scanning, instant 3D body scanning, color texture capture in low cost depth sensor scanner.

3dMD (USA) Technical Sessions 1 and 6
3dMD will present two world premieres: (1) the new dynamic 3D body scanning system with 22 viewpoints, 60Hz dynamic scanning with sub-millimeter accuracy and markerless surface tracking; (2) the potential for dense dynamic 4D surface capture, illustrated with case studies never been seen before publically.

Vitronic (Germany) Technical Session 6
Vitronic will give during a presentation the first glances on the new 3D body scanner VITUS II which will be available in 2014: doubled resolution (54 points/cm2), color texture capture, new customized software.

Styku (USA) Technical Sessions 6, 13 and Exhibition
Styku will launch at the conference its revolutionary portable new body scanning and measurement solution: MeasureMe - The world's first tablet based body scanner using 3D depth sensors.

[TC]² DNA Holdings (USA ) Exhibition
[TC]² DNA Holdings will announce, launch, present for the first time publically new products and solutions at the conference's exhibition. More details will be unveiled at the conference.

SpaceVision (Japan) Technical Session 6 and Exhibition
SpaceVision will present and demonstrate the new portable Traveling Type 3D Full Body Scanner.

4DDynamics (Belgium) Technical Session 7
4DDynamics will announce and present at the conference for the first time publically the new 3D full body scanner GOTCHA ! Body Scanner based on low cost depth sensors.
LIST OF EXHIBITORS

3dMD (USA) – www.3dmd.com
3dMD is the world leader in 3D body scanning for medical applications, with well more than 1,400 3D cameras worldwide. The ultra-fast high-resolution 3D surface imaging devices and the application software will be demonstrated at the exhibition.

TechMed 3D (Canada) – www.techmed3d.com
TechMed 3D is specialized in body measurement technologies and digital imaging solutions adapted to the orthotics, prosthetics and custom equipment market. 3D surface imaging devices and application software will be demonstrated at the exhibition.

Size Stream (USA) – www.sizestream.com
Size Stream was established in 2012 and is focused on 3D body scanning and its applications. Its staff have more than 100 years of combined experience in this sector. Size Stream launched its first full body scanner in Spring 2013 and will announce major new features at the conference and exhibition.

SpaceVision (Japan) – www.space-vision.jp
SpaceVision is a leading manufacturer of innovative 3D imaging solutions used in various application fields. At the exhibition of the conference, SpaceVision will demonstrate world's smallest, lightest and fastest 3D body scanner.

VITRONIC (Germany) – www.vitronic.com
VITRONIC, a world leading organization in the field of machine vision, is developer and manufacturer of body scanning systems employed by Human Solutions. At the exhibition, VITRONIC will demonstrate its 3D full body scanner VITUS.

Human Solutions (USA/Germany) – www.human-solutions.com
Human Solutions is a world market leader for body scanning and ergonomics simulation. Systems from Human Solutions are used by more than 300 companies worldwide. Human Solutions will jointly participate at the exhibition with VITRONIC.

Lectra (France) – www.lectra.com
Lectra is the world leader in integrated technology solutions (software, CAD/CAM hardware, services) for industries using textiles, to manufacture their products. Lectra will demonstrate Modaris, the apparel pattern-making and grading software solution with fully-integrated 3D virtual prototyping technology.

4DDynamics (Belgium) – www.4ddynamics.eu
4DDynamics is best known for its modular and configurable 3D white-light scanning systems. At the conference exhibition, 4DDynamics will demonstrate face and body scanners composed of multiple scanning pods and new low-cost 3D scanning solutions.

Dimensional Imaging (UK) – www.di3d.com
Dimensional Imaging (UK) is a world-leading supplier of 3D & 4D face and body surface image capture and analysis solutions. Dimensional Imaging systems based on passive stereo photogrammetry technology will be demonstrated at the exhibition.

[TC]² DNA Holdings offers full retail solutions based on 3D body scanning, from acquiring body measure data, through virtual fitting and styling, until garment production. 3D body scanning system and software solutions will be presented at the exhibition.

Styku (USA) – www.styku.com
Styku will demonstrate MeasureMe, the revolutionary portable low-cost body scanning and measurement solution. MeasureMe offers both booth and handheld configurations and its software also provides full 3D view of the customer's posture, shape and asymmetry for a perfect fit.

triMirror (Canada) – 3d.trimirror.com
triMirror is revolutionizing shopping by combining 3D technology, real-time clothing simulation, virtual fitting, and visualization. At the exhibition of the conference, triMirror's virtual fitting room will be demonstrated at the booth of Size Stream.

LIST OF SPONSORS

HOMETRICA CONSULTING (Switzerland) – www.hometrica.ch
HOMETRICA CONSULTING is organizing the series of 3DBST conferences. Hometrica Consulting is a leading international consulting firm in the sectors related to 3D human body scanning and technologies.

3D-A-PORTER (UK) – 3d-a-porter.com
3D-A-PORTER brings fashion brands and manufacturers the strategic 3D solutions they need to stay at the forefront of the Fashion Revolution: from 3D body scanners, through 3D garments, to 3D virtual try-on.

Perceiving Systems MPI (Germany) – ps.is.tue.mpg.de
The Institute for Intelligent Systems at MPI is a fast-growing center of research excellence in computer vision, robotics, and machine learning. The research seeks to understand mathematical principles of intelligent systems.

Vorum (Canada) – www.vorum.com
Vorum provides automation solutions for the prosthetics, orthotics and footwear industries. As developers of the Canfit Design Software, several 3D scanners and multi-axis carving machines, Vorum delivers head-to-toe CAD-CAM systems and services.

INOVIP (France) – inovip.com
INOVIP is a consulting firm dedicated to made-to-measure garment production. INOVIP provides solutions and know-how on pattern databases, anthropometric dummies, 3D scanning system for point of sale, software integration.

CLO Virtual Fashion (S. Korea) – www.clo3d.com
CLO Virtual Fashion builds 3D apparel CAD software that enables to design garments, to view 3D sample in real time and to communicate easy with partners. CLO 3D stimulates collaboration and product completeness across all departments.

NEATEK (France) – www.neatek.fr
NEATEK offers consulting services for ready-to-wear and leather goods, strongly oriented towards mass-customization for the luxury market and distribution, with an innovative approach around item customization.
CONFERENCE VENUE - THE WESTIN LONG BEACH

The conference and exhibition take place at Centennial Ballroom on the third floor of the Westin Long Beach.

Address: The Westin Long Beach, 333 E Ocean Blvd, Long Beach, CA 90802, USA
First Announcement - 3D Body Scanning Technologies 2014

5th International Conference and Exhibition on
3D Body Scanning Technologies
Lugano, Switzerland, 21-22 October 2014

Main conference topics/application sectors
· 3D/4D scanning technologies for body, face, foot, etc.
· Full body scanning for apparel, textile, fashion
· Face, torso and body scanning for medicine
· Foot scanning, custom footwear and orthopedics
· Body scanning for health, fitness and sport
· Digital anthropometry, anthropometric studies and surveys
· Face and body modeling, animation and avatars
· Applications in virtual life, games and entertainment
· 3D face biometrics and applications in security
· 3D face and body scanning for arts, sculpture, 3D printing

Conference facts
· Main and largest international event focused on 3D body scanning technologies
· Two full days, 14 technical sessions, 1 poster session, with 60-80 presentations
· Exhibition of equipment on 500m² (extendable) with expected 15-25 exhibitors
· About 200-250 expected attendees at the conference and exhibition
· Strong international character of attendees, authors, participants, exhibitors