

# 2007 Israel-Italy Bi-National Conference on Shape Modeling and Reasoning for Industrial and Biomedical Applications

Conference Co-Chairs: Prof. Anath Fischer, Prof. Leila DeFloriani  
Program Co-Chairs: Prof. Gill Barequet, Prof. Prof. Bianca Falcidieno  
Organizational Co-Chairs: Dr. Stefano Boccaletti, Prof. Ayellet Tal

<http://mecadserv1.technion.ac.il/Israel-Italy-May07>

## Day 1 (Monday May 7, 2007) – Coler-California Visitors Center, Technion, Haifa, Israel

- 9:00-9:30 REGISTRATION
- 9:30-9:45 **WELCOME:**  
*Prof. Peretz Lavie*, Vice President for Resource Development and External Relations, Technion  
*Dr. Stefano Boccaletti*, Scientific Attaché, Embassy of Italy in Israel  
*Prof. Leila De Floriani*, Conference Co-Chair, University of Genoa  
*Prof. Anath Fischer*, Conference Co-Chair, Technion
- 9:45-10:30 **SESSION ONE: Medical and Engineering Applications I - Industry** (45 min.)  
Chair: Bianca Falcidieno, IMATI, CNR
- From the Notebook of a Troubled Inventor  
*G. Iddan*, RDC Ltd., Given Imaging
  - Structured Optimization  
*M. Sperati*, Altair Engineering
  - New Horizons in Computerized Tomography Image Processing  
*B. Sabbah*, Philips
- 10:30-11:00 COFFEE BREAK
- 11:00- 12:30 **SESSION TWO: Medical and Engineering Applications II - Industry** (90 min.)  
Chair: Giovanni Moroni, Politecnico di Milano
- MediGuide – The GPS of the Medical World  
*Z. Karni*, MediGuide
  - Miniature Robotic System for Spine Surgery  
*M. Shoham, E. Zehavi, O. Hadomi*, Mazor Surgical Technologies
  - Modeling Shapes in Target Driven Mode  
*D. Ciarloni*, Think3
  - Objet PolyJet 3D Printing Technology  
*O. Sagi, G. Lavi*, Objet
  - WonderNet- The Biometric Signature Authentication System  
*S. Waisel*, WonderNet
  - 3D Surface Reconstruction for Reverse Engineering  
*T. Shalom*, CogniTens
- 12:30-13:15 **SESSION THREE: Geometric & Engineering Knowledge for Product Development** (45 min)  
Chair: Michela Spagnuolo, IMATI, CNR
- The Role of Semantics in Shape Modeling and Reasoning  
*B. Falcidieno, M. Attene, M. Mortara*, IMATI, CNR
  - Network Knowledge and Application  
*M. Shpitalni, G. Gutman, D. Bossin*, Technion
- 13:15-14:15 **LUNCH**
- 14:15-15:30 **SESSION FOUR: Medical and Engineering Applications III - Industry** (75 min.)  
Chair: Maurizio Martelli, University of Genova
- From Drawing-Based Design to Digital Aircraft  
*A. Klunover*, Israel Aircraft Industries
  - Imagine and Shape  
*E. Boichis*, Dassault Systemes
  - People tracking by 3-D shape and size models  
*G. Garibotto*, Elsag spa
  - The Fastest Way From Any 3D Data to Color Tangible Model  
*Z. Grinberg*, Caliber, Z-Corp
  - IMPRESSION: A New Optical Scanner for Measurement of Double-Sided Objects  
*F. Paz, K. Sanilevici, G. Agronik, M. Doherty, Y. Daniel, E. Zeitlin, G. Sirat*, Optimet
- 15:30 -16:00 **COFFEE BREAK**
- 16:00-17:50 **SESSION FIVE: Medical Applications & Modeling** (110 min.)  
Chair: Dan Gordon, Dept. of Computer Science, University of Haifa
- Shape Modelling and Bio-Microfluidics  
*L. Fortuna, M. Bucolo, M. Frasca, F. Sapuppo*, University of Catania
  - A Kinematic Model for Estimating Cup Alignment Error During Total Hip Arthroplasty - How Accurate Are We Really?  
*A. Wolf*, Technion
  - Dynamic Adaptive Subdivision  
*E. Puppo*, University of Genova
  - Nonlinear Interpolation between Slices  
*G. Barequet, A. Vaxman*, Technion
  - A Neural Network Technique for Mesh Reconstruction of Bone Micro-Structure  
*A. Fischer, Y. Holdstein, L. Podshivalov, P. Z. Bar-Yoseph*, Technion

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## Day 2 (Tuesday May 8, 2007) - Room 1003 (10th floor), Faculty of Electrical Engineering, Technion

- 9:00-9:30 **SESSION SIX: Geometric Manipulations** (30 min.)  
Chair: Paolo Chiabert, Politecnico di Torino
- **Keynote Lecture:** Sorting in Space  
*H. Samet*, University of Maryland
- 9:30-10:40 **SESSION SEVEN: Segmentation & Recognition** (70 min.)  
Chair: David Levin, Dept. of Computer Science, Tel-Aviv University
- Shape Partitioning Based on Symmetries Detection  
*P. Chiabert, M. De Maddis, R. Levi, F. Lombardi, M. Orlando, S. Ruffa, F. Vaccarino*, Politecnico di Torino
  - Papercraft Models using Generalized Cylinders  
*C. Gotsman, F. Massarwa, G. Elber*, Technion
  - 3D Shape Matching and Classification  
*M. Spagnuolo, S. Biasotti, D. Giorgi, S. Marini*, IMATI, CNR
- 10:40- 11:10 **COFFEE BREAK**
- 11:10-13:00 **SESSION EIGHT: Surface Reconstruction** (110 min.)  
Chair: Enrico Puppo, University of Genova
- Surface approximation by moving-least-squares - Review and recent developments  
*D. Levin*, Tel Aviv University
  - Regression Spline in Shape Inspection and Reconstruction  
*G. Moroni, S. Petrò, M. Rasella*, Politecnico di Milano
  - Watertight Surface Reconstruction of Raw Scanned Data  
*D. Cohen-Or, A. Sharf*, Tel Aviv University
  - Dense Mirroring Surface Recovery from 1D Homographies and Sparse Correspondences  
*M. Lindenbaum, S. Rozenfeld*, Technion; *I. Shimshoni*, University of Haifa
  - Robust Methods for Geometric Primitive Recovery and Estimation from Range Images  
*I. Shimshoni*, University of Haifa; *I. Lavva*, Technion
- 13:00-14:15 **LUNCH**
- 14:15-15:45 **SESSION NINE: Shape Modeling I** (90 min.)  
Chair: Daniel Cohen-Or, Dept. of Computer Science, Tel-Aviv University
- A Semantic-Oriented Decomposition for Modeling Non-Manifold Shapes  
*L. De Floriani*, University of Genova; *A. Hui*, University of Maryland
  - Area-preserving smoothing of polygons and polylines  
*D. Gordon, O. Sharon, Z. Shavit*, University of Haifa
  - Direct Visibility of Point Sets  
*A. Tal, S. Katz, R. Basri*, Technion
  - Shape Engineering Aspects of Measures of “Distances” Defined on Planes and Hyperplanes  
*M. Bercovier, M. Luzon*, Hebrew University
- 15:45 -16:15 **COFFEE BREAK**
- 16:15- 17:45 **SESSION TEN: Shape Modeling II** (90 min.)  
Chair: Craig Gotsman, Dept. of Computer Science, Technion
- Pattern-Driven Mapping from Architectural Plans to Solid Models of Buildings  
*A. Paoluzzi, G. Scorzelli*, University of Roma Tre
  - GPU-Based Compression Technique for Textures  
*J. El-Sana, K. Manan, Y. Livney*, Ben Gurion University
  - Light propagation effects for the benefit of 3D structure estimation  
*Y. Schechner*, Technion
  - Intensity-based 3D CT-like reconstruction of the femur from 2D X-ray images using a statistical model  
*L. Joskowitz, R. Haddad*, Hebrew University
- 17:45-18:40 **SESSION ELEVEN: Italy-Israel Collaboration** (45 min.)  
Chair: Leila De Floriani, University of Genova
- Italy-Israel Collaboration  
*S. Boccaletti*, Italian Scientific Attaché
  - Italy-Israel Joint Research Activities  
*B. Falcidieno*, IMATI, CNR
  - The role of the University of Genova in ICT: research, teaching, technology transfer and possible relations with Israel  
*M. Martelli*, University of Genova
  - Summary and Future Israel-Italy Cooperation  
*G. Barequet*, Technion