Verification of Scanned Engineering Parts With CAD Models Based on Discrete Curvature Estimation (*B. Lipshitz, A. Fischer*)

Decomposition of complex models for manufacture (*T. Lim, H.Medellin, J.R.Corney, J.M.Ritchie, and J.B.C.Davies*)

Using semi-implicit representation of algebraic surfaces (*L. Buse, A. Galligo*)

Procedural Modeling of Cracks and Fractures (*A. Martinet, E. Galin, B. Desbenoit, S. Akkouche*)

Generative Parametric Design of G Tracery (*S. Havemann, D. W. Fellner*)

Modeling the coronary artery tree (*C. Lorenz, J. von Berg, T. Buelow, S. Renisch, S. Wergandt*)

Empirical Analysis of Computational and accuracy Tradeoffs Using Compactly Supported radial Basis Functions for Surface Reconstruction (*B. Morse, W. Liu, L. Otis*)

Freeform Shape Deformations with Meaningful Constraints a Parameters (*R. Dumitrescu, J. S.M. Vergeest*)

Calibration Issues for Projector-based 3D-Scanning (*T. Gockel, P. Azad, R. Dillmann*)

Reeb graph representation of surfaces with boundary (*S. Biasotti*)

Shape recovery using functionally represented const models (*P. A. Fayolle, A. Pasko, E. Kartasheva, N. Mirenkov*)

Reconstruction with 3D Geometric Bilateral Filter (*A. Miropolsky, A. Fischer*)

Developability-preserved Free-form Assembled patches (*C. C. L. Wang, K. Tang*)

Implicit Curve and Surface Design Using Smooth Unit Functions (*Q. Li*)

Stability and Homotopy of a Subset of the Medial Axis (*F. Chazal, A. Lieutier*)

Tracing Surface Intersection with a Validated ODE System Solver (*H. Mukundan, K. H. Ko, T. Maekawa, T. Sakkalis, N. M. Patrikalakis*)

Topological and Geometric Beautification of Reverse Engineered Geometric Models (*F. C. Langbein, A. D. Marshall, R. R. Martin, B. I. Mills , C. H. Gao*)

Connected and Manifold Sierpinski Polyhedra (*E. Akleman and V. Srinivasan*)

Physics-based Modelling and Simulation of Functional Cloth Virtual Prototyping Applications (*M. Fontana, C. Rizzi, U. Cugini*)

Image Based Bio-CAD Modeling and Its Applications to Biomedical and Tissue Engineering (*B. Starly, A. Darling, C. Gomez, J. Nam, W. Sun , A. Shokoufandeh, W. Regli*)

Shape Similarity Measurement Using Ray Distances for N Customization (*T. J. Hwang, K. Lee, J. H. Jeong, H. Y. Oh*)

Using Cayley Menger Determinants (*D. Michelucci, S. Foufou*)

History Based Reactive Objects for Immersive CAD (*T. Convard, P. Bourdot*)

Shortest Circuits with Given Homotopy in a Constellation (*D. Michelucci, M. Neveu*)

Contour Interpolation with Bounded Dihedral A (*S. Bespamyatnikh, M. Jiang, B. Zhu*)

Actual Morphing: A Phsical-Based Approach for Blending Two 2D/3D Shapes (*S. M. Hu, C. F. Li, H. Zhang*)

Euler Operators for Stratified Objects with Incomplete Boundaries (*J. P. Gomes*)

Handling Degeneracies in Exact Boundary Evaluation (*K. Ouchi, J. Keyser*)

3D Discrete Skeleton Generation by Wave Propagation on PR-Octree for Finit Element Mesh (*Sizing W. R. Quadros, K. Shimada, S. J. Owen*)

Compression, Segmentation, and Modeling of Filamentary Volumetric Data (*B. McCormick, B. Busse, P. Doddapaneni, Z. Melek, J.*)

Plumber: A Multi-scale Decomposition of 3D Shapes into Tubular Primitives an Bodies (*M. Mortara, G. Patane, M. Spagnuolo, B. Falcidieno, J. Rossignac*)

A Scan-Line Grouping Algorithm (SLGA) (*K.V. Kostas, A.I. Ginnis, P.D. Kaklis*)

Venue

The Convention on Shapes and Solids (**SMI&SM'04**) will be held at the Palazzo Ducale, situated in the historical part of Genova. The Palazzo Ducale and the pleasant nearby Antique Harbor will offer many of the international artistic programs to be hosted by Genova in 2004, in its role of the European Capital of the Culture.

Genova Cristoforo Colombo International Airport (GOA) is located a few km from the city center. Connections to/from downtown by bus or by taxi (approx. 20€).
http://www.airport.genova.it

Railways: Genova Brignole or Genova Piazza Principe stations.

Highway: Genova Ovest exit.

For more information visit:
http://www.apt.genova.it
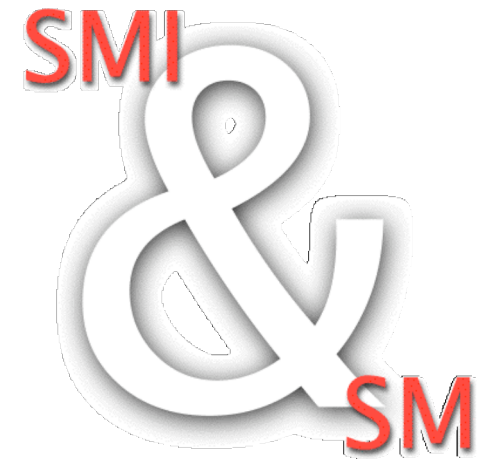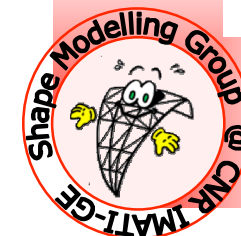**http://www.genova-2004.it/**

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Shape Modelling Group @ CNR IMATI-GE

7–11 June 20 Genova, It

Shapes & Solids 2004: Convention Programme

Sunday, June 6th

SMI Tutorial T1 (full day)
Freeform Shape Representations for Efficient Geometry Processing (Stephan Bischoff, Mario Botsch, Leif Kobbelt)

Monday, June 7th

Technical Session TS1: IMPLICIT SURFACES (10.15-11.30)
A Hybrid Shape Representation for Free-form Modeling (*Remi Allegre, Aurelien Barbier, Samir Akkouche, Eric Galin*)

Multiresolution Reconstruction of Implicit Surfaces with Attributes from Large Unorganized Point Sets (*Ireneusz Tobor, Patrick Reuter, Christophe Schlick*)

3D Scattered Data Approximation with Adaptive Compactly Supported Radial Basis Functions (*Yutaka Ohtake, Alexander Belyaev, Hans-Peter Seidel*)

Technical Session TS2: FEATURE-BASED MODELING AND DEFORMATIONS (11.45-13.00)
Fitting and manipulating freeform shapes by extendable freeform templates (*Y. Song, J.S.M.Vergeest and S.Spanjaard*)

Multi-minimisations for shape control of Fully Free Form Deformation Features (*J.P. Pernot, S. Guillet, B. Falcidieno, F. Giannini*)

Sweepers: Swept User-Defined Tools for Modeling by Deformation (*Alexis Angelidis, Geoff Wyvill, Marie-Paule Cani*)

INVITED TALK: Nadia Magnenat-Thalmann (14.00-15.00)
Dynamic body transformation and matching from scanned data

Technical Session TS3: GEOMETRIC ALGORITHMS (15.00-15.50)
Computing Planar Sections of Surfaces of Revolution with Revolute Quadric Decomposition (*Jinyuan Jia, Kai Tang, Ajay Joney and Ki-Wan Kwok*)

Nonlinear Polynomial Systems: Multiple Roots and their Multiplicities (*K. H. Ko, T. Sakkalis, N. M. Patrikalakis*)

Technical Session TS4: SUBDIVISION SURFACES (16.20-18.00)
Polygonal decomposition of the 1-ring neighborhood of the Catmull-Clark scheme (*I.P. Ivrissimtzis, R. Zayer, and H.-P. Seidel*)

Semiregular Pentagonal Subdivision (*Ergun Akleman, Vinod Srinivasan, Zeki Melek, Paul Edmundson*)

Detail-Preserving Variational Surface Design with Multiresolution Constraints (*Ioana Boier-Martin, Remi Ronfard, Fausto Bernardini*)

Surface Quality Assessment of Subdivision Surfaces on Programmable Graphics Hardware (*Yusuke Yasui, Takashi Kanai*)

Tuesday, June 8th

INVITED TALK: Michael Leyton (9.00-10.00)
A Generative Theory of Shape

Technical Session TS5: SHAPE RETRIEVAL (10.00-11.15)
A Survey of Content Based 3D Shape Retrieval Methods (*Johan W.H. Tangelder, Remco C. Veltkamp*)

Augmented Reeb Graphs for Content-based Retrieval of 3D Mesh Mod (*Tony Tung, Francis Schmitt*)

The Princeton Shape Benchmark (*Philip Shilane, Patrick Min, Michael Kazhdan, and Thomas Funkhouser*)

Technical Session TS6: MESH PROCESSING I (11.45-13.00)
Differential Coordinates for Interactive Mesh Editing (*Yaron Lipman, Olga Sorkine, Daniel Cohen-Or, David Levin, Christian Roessl, Hans-Peter Seidel*)

Least-squares Meshes (*Olga Sorkine, Daniel Cohen-Or*)

A fast and simple stretch-minimizing mesh parameterization (*Shin Yoshizawa, Alexander G. Belyaev, Hans-Peter Seidel*)

Technical Session TS7: MESH PROCESSING II (14.00-14.50)
View-dependent Streaming of Progressive Meshes (*Junho Kim, Seungyong Lee, Leif Kobbelt*)

Constant-time Navigation in Four-Dimensional Nested Simplicial Me (*Michael Lee, Leila De Floriani, Hanan Samet*)

Technical Session TS8: POINT-BASED MODELING (14.50-15.40)
Robust Watermarking of Point-Sampled Geometry (*Daniel Cotting, Tim Weyrich, Mark Pauly, and Markus Gross*)

Approximating Bounded, Non-orientable Surfaces from Points (*Anders Adamson, Marc Alexa*)

Technical Session TS9: APPLICATIONS I (16.10-17.00)
Evaluation and Visualization of Stress and Strain on Soft Biological Tissues in Contact (*Sofiane Sarni, Anderson Maciel, Ronan Boulic, Daniel Thalmann*)

Mold Accessibility via Gauss Map Analysis (*Gershon Elber, Xianming Chen, Elaine Cohen*)

Technical Session TS10: INTERACTIVE MODELING (17.00-17.50)
Stroke-Input Methods for Immersive Styling Environments (*T. Fleisch, P. Santos, G. Brunetti, A. Stork*)

Novel Interface Paradigm for Supporting Product Design (*Kuo-Cheng Wu, Terrence Fernando, Simon Bee*)

Wednesday, June 9th

INVITED TALK: Ari Requicha (9.15-10.15)
Building Shapes by Self-Assembly

Technical Session TS11: APPLICATIONS II (11.30-12.45)
Contouring Medial Surface of Thin Plate Structure using Local Marching Cubes (*Tomoyuki Fujimori, Hiromasa Suzuki, Yohei Kobayashi and Kiwamu Kase*)

Closing Gaps by Clustering Unseen Directions (*P. Cignoni, G. Impoco, R. Scopigno*)

Extension of ISO 10303, the STEP Standard, for the Exchange of Procedura Shape Models (*M. J. Pratt*)

INVITED TALK: C. Hoffmann, with G. Park, J-R. Simard, N. F. Stewart (15.00-16.00)
Accurate Evaluation and Robustness in Solid Modeling

Technical Session 1: MEDIAL AXIS REPRESENTATIONS (16.00-17.15)
Efficient and Robust Computation of an Approximated Medial Axis (*Y. Yang, O. Brock, R. N. Moll*)

Medial Axis Extraction and Shape Manipulation of Solid Objects U Parabolic PDEs (*H. Du, H. Qin*)

Medial-Axis Based Solid Representation (*A. Shaham, A. Shamir, Cohen-Or*)

Thursday, June 10th

INVITED TALK: E. Cohen (9.00-10.00)
From Computer Geometry to Manufacturing Algorithms

Technical Session 2: GEOLOGICAL AND VOLUMETRIC REPRESENTATIONS (10.00-11.15)
Multiresolution Heterogeneous Solid Modeling and Visualization U Trivariate Simplex Splines (*J. Hua, Y. He, H. Qin*)

Automatic Building of Structured Geological Models (*S. Brande, Schneider, M. Perrin, N. Guiard, P. Lienhardt , Y. Bertrand *)

Spline Approximation of General Volumetric Data (*C. Roessl, Zeilfelder, G. Nuernberger, H.P. Seidel*)

Technical Session 3: SURFACE PARAMETERIZATION AND APPROXIMATION (11.45-13.00)
Planar Parameterization for Closed Manifolds Genus-1 Meshes (*I. Steiner, A. Fischer*)

A Condition for Isotopic Approximation (*F. Chazal, D. Cohen-Steiner*)

An Effective Condition for Sampling Surfaces with Guarantees (*J. Boissonnat, S. Oudot*)

Technical Session 4: SUBDIVISION SCHEMES (14.00-14.50)
Optimization Techniques for Approximation with Subdivision Surfa (*M. Marinov, L. Kobbelt *)

A Framework for Multiresolution Adaptive Solid Objects (*Y.- S. Chang, Qin*)

Technical Session 5: TOLLERANCING AND COLLISION DETECTI (14.50-15.40)
Tolerance Envelopes of Planar Parametric Part Models (*Y. Ostrov, Berman, L. Joskowicz*)

Fast Continuous Collision Detection for Articulated Models (*S. Redon, C. Lin, D. Manocha, Y. J. Kim*)

Technical Session 6: SIMPLICIAL GEOMETRIC REPRESENTATIO (16.10-17.00)
B-rep SE: Simplicially Enhanced Boundary Representation (*M. Frey, V. Shapiro*)

Update Operations on 3D Simplicial Decompositions of Non-mani Objects (*L. De Floriani, A. Hui*)

Friday, June 11th

INVITED TALK 3: R. Scopigno (9.00-10.00)
Efficient Processing of 3D Scanned Models

Teachnical Session 7: ENGINEERING DRAWING AND CAD DATA (10.00-10.50)
Integration of Parametric and Geometric CAD Data Exchange (*S. Spitz, A. Rappoport*)

Making the Most of Using Depth Reasoning to Label Line Drawin Engineering Objects (*P. A. C. Varley, R. R. Martin, H. Suzuki*)

Technical Session 8: BOOLEAN OPERATORS AND DESIGN (11.20-12.10)
Progressive Dimension-Independent Boolean Operations (*A. Paoluzzi, Pascucci, G. Scorzelli*)

Constraint-based Design of B-spline Surfaces from Curves (*R. Mich B. D. Bruderlin*)