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**7/26 (Wed)**

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**7:00-8:00** \* **Continental Breakfast and Registration**

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**8:00-8:10** **Opening Remarks** (Session Chair: Kenji Shimada)

*D. C. Gossard*  
Massachusetts Institute of Technology

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**8:10-9:00** **Keynote Speech** (Session Chair: Myung-Soo Kim)

Discrete Differential Geometry for Modeling and Animation  
*P. Schröder*  
California Institute of Technology

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**9:00-10:15** **Shape Reconstruction** (Session Chair: Myung-Soo Kim)

Automatic Extraction of Surface Structures in Digital Shape Reconstruction  
*T. Várady<sup>1</sup>, M.-A. Facello<sup>2</sup>, Z. Terék<sup>1</sup>*  
<sup>1</sup>Geomagic Hungary, Ltd., <sup>2</sup>Geomagic, Inc.

Ensembles for Normal and Surface Reconstructions  
*M. Yoon<sup>1</sup>, Y. Lee<sup>1</sup>, S. Lee<sup>1</sup>, I. Ivrişimţzis<sup>2</sup>, H.-P. Seidel<sup>3</sup>*  
<sup>1</sup>POSTECH, <sup>2</sup>Coventry University, <sup>3</sup>MPI Informatik

Adaptive Fourier-based Surface Reconstruction  
*O. Schall, A. Belyaev, H.-P. Seidel*  
Max-Planck-Institut für Informatik, Germany

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**10:15-10:45** \* **Coffee and Tea Break**

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**10:45-12:00** **Curves and Surfaces I** (Session Chair: Tamas Várady)

Least-Squares Approximation by Pythagorean Hodograph Spline Curves via an Evolution Process  
*M. Aigner, Z. Šír, B. Jüttler* (Johannes Kepler University, Austria)

Geometric Accuracy Analysis for Discrete Surface Approximation  
*J. Dai<sup>1</sup>, W. Luo<sup>1</sup>, S.-T. Yau<sup>2</sup>, X.-D. Gu<sup>3</sup>*  
<sup>1</sup>Zhejiang University, <sup>2</sup>Harvard University, <sup>3</sup>Stony Brook University

Quadric Surface Extraction by Variational Shape Approximation  
*D.-M. Yan, Y. Liu, W. Wang*  
The University of Hong Kong

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**12:00-13:30** **Lunch Break (On your own -- please see the STATION SQUARE map for various restaurant options.)**

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**13:30-15:10** **Geometric Processing I** (Session Chair: Wenping Wang)

Tracking Point-Curve Critical Distances  
*X. Chen, E. Cohen, R.-F. Riesenfeld*  
University of Utah

Theoretically Based Robust Algorithms for Tracking Intersection Curves of Two Deforming Parametric Surfaces  
*X. Chen<sup>1</sup>, R.-F. Riesenfeld<sup>1</sup>, E. Cohen<sup>1</sup>, J. Damon<sup>2</sup>*  
<sup>1</sup>University of Utah, <sup>2</sup>University of North Carolina

Subdivision Termination Criteria in Subdivision Multivariate Solvers  
*I. Haniel, G. Elber*  
Technion, Israel Institute of Technology

Towards Unsupervised Segmentation of Semi-Rigid Low-Resolution Molecular Surfaces  
*Y. Wang<sup>1</sup>, L.-J. Guibas<sup>2</sup>*  
<sup>1</sup>Ohio State University, <sup>2</sup>Stanford University

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**16:15-17:30** **Bus Ride from Sheraton Hotel to Carnegie Mellon University**  
**(Meet at the front entrance of the hotel at 16:15. The busses will leave the hotel at 16:30, and take you to a short sightseeing trip to Oakland, where the Carnegie Mellon University campus is located.)**

**17:30-20:15** **Poster Session and Reception** (Session Chairs: Myung-Soo Kim, Kenji Shimada and Soji Yamakawa)

**01: Robust Three-dimensional Registration of Range Images using a New Genetic Algorithm**

*J.-W. Branch<sup>1</sup>, F. Prieto<sup>2</sup>, P. Boulanger<sup>3</sup>*

<sup>1</sup>Universidad Nacional de Colombia-Sede Medellín, <sup>2</sup>Universidad Nacional de Colombia-Sede Manizales, <sup>3</sup>University of Alberta, Canada

**02: Geometrical Mesh Improvement Properties of Delaunay Terminal Edge Refinement**

*B. Simpson<sup>1</sup>, M.-C. Rivara<sup>2</sup>*

<sup>1</sup>Univeristy of Waterloo, <sup>2</sup>University of Chile

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Note: the events marked with “\*” will be held in REFLECTIONS room.  
All the other event, unless it is specifically mentioned, will be held in GRAND STATION I room.

**03: Matrix based Subdivision Depth Computation for Extra-Ordinary Catmull-Clark Subdivision Surface Patches**

*G. Chen, F.-F. Cheng*  
University of Kentucky

**04: Hierarchically Partitioned Implicit Surfaces For Interpolating Large Point Set Models**

*D.-T. Chen<sup>1</sup>, B.-S. Morse<sup>2</sup>, B.-C. Lowekamp<sup>1</sup>, T.-S. Yoo<sup>1</sup>*  
<sup>1</sup>National Library of Medicine, <sup>2</sup>Brigham Young University

**05: A New Class of Non-stationary Interpolatory Subdivision Schemes based on Exponential Polynomials**

*Y.-J. Choi<sup>1</sup>, Y.-J. Lee<sup>2</sup>, J. Yoon<sup>2</sup>, B.-G. Lee<sup>3</sup>, Y.-J. Kim<sup>2</sup>*  
<sup>1</sup>Seoul University of Venture and Information, <sup>2</sup>Ewha Womans University, <sup>3</sup>Dongseo University

**06: Detection of Closed Sharp Feature Lines in Point Clouds for Reverse Engineering Applications**

*K. Demarsin<sup>1</sup>, D. Vanderstraeten<sup>2</sup>, T. Volodine<sup>1</sup>, D. Roose<sup>1</sup>*  
<sup>1</sup>Katholieke Universiteit Leuven, <sup>2</sup>Metris N.V. Belgium

**07: Feature Detection Using Curvature Maps and the Min-Cut/Max-Flow Algorithm**

*T. Gatzke, C. Grimm*  
Washington University in St. Louis

**08: Computation of Normals for Stationary Subdivision Surfaces**

*H. Kawaharada, K. Sugihara*  
University of Tokyo

**09: Voxelization of Free-form Solids Represented by Catmull-Clark Subdivision Surfaces**

*S. Lai, F.-F. Cheng*  
University of Kentucky

**10: Interactive Face-Replacements for Modeling Detailed Shapes**

*E. Landreneau, E. Akleman, J. Keyser*  
Texas A&M University

**11: Straightest Paths on Meshes By Cutting Planes**

*S. Lee, J. Han, H. Lee*  
Hongik University, Korea

**12: 3D Facial Image Recognition using a Nose Volume and Curvature based Eigenface**

*Y. Lee<sup>1</sup>, I. Kim<sup>2</sup>, J. Shim<sup>2</sup>, D. Marshall<sup>1</sup>*  
<sup>1</sup>Cardiff University, <sup>2</sup>Andong National University, Korea

**13: Surface Reconstruction for Efficient Colon Unfolding**

*S. Lim, H.-J. Lee, B.-S. Shin*  
Inha University, Korea

**14: Spectral Sequencing Based on Graph Distance**

*R. Liu, H. Zhang, O. van Kaick*  
Simon Fraser University, Canada

**15: An Efficient Implementation of RBF-based Progressive Point-Sampled Geometry**

*Y.-J. Liu<sup>1</sup>, K. Tang, J. Ajay<sup>2</sup>*  
<sup>1</sup>Tsinghua University, China, <sup>2</sup>The Hong Kong University of Science and Technology

**16: Segmentation of Scanned Mesh into Analytic Surfaces based on Robust Curvature Estimation and Region Growing**

*T. Mizoguchi, H. Date, S. Kanai, T. Kishinami*  
Hokkaido University

**17: Finding Mold-Piece Regions Using Computer Graphics Hardware**

*A.-K. Priyadarshi<sup>1</sup>, S.-K. Gupta<sup>2</sup>*  
<sup>1</sup>Solidworks Corporation, <sup>2</sup>University of Maryland

**18: A Method for FEA-based Design of Heterogeneous Objects**

*K.-H. Shin, J.-K. Lee*  
Seoul National University of Technology

**19: Time-Varying Volume Geometry Compression with 4D Lifting Wavelet Transform**

*Y. Wang, H. Hamza*  
University of Central Florida

**20: A Surface Displaced From a Manifold**

*S.-H. Yoon*  
Seoul National University

**21: Smoothing of Meshes and Point Clouds Using Weighted Geometry-Aware Bases**

*T. Volodine, D. Vanderstraeten, D. Roose*  
Katholieke Universiteit Leuven

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7/27 (Thr)

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7:00-8:00 \* **Continental Breakfast and Registration**

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8:00-8:10 **Announcement**

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8:10-9:00 **Keynote Speech II**

(Session Chair: Hiromasa Suzuki)

Robustness in Geometric Computations

*C. M. Hoffmann*

Purdue University

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9:00-10:15 **Curves and Surfaces II**

(Session Chair: Hiromasa Suzuki)

Piecewise Developable Surface Approximation of General NURBS Surfaces, with Global Error Bounds

*J. Subag, G. Elber*

Technion Israel Institute of Technology

Efficient Piecewise Linear Approximation of Bézier Curves with Improved Sharp Error Bound

*W. Ma, R. Zhang*

City University of Hong Kong

Approximate  $\mu$ -Bases of Rational Curves and Surfaces

*L. Shen<sup>1</sup>, F. Chen<sup>1</sup>, B. Jüttler<sup>2</sup>, J. Deng<sup>1</sup>*

<sup>1</sup>University of Science and Technology of China, <sup>2</sup>Johannes Kepler University, Linz, Austria

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10:15-10:45 \* **Coffee and Tea Break**

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10:45-12:00 **Shape Deformation**

(Session Chair: Gershon Elber)

Inverse Adaptation of Hex-dominant Mesh for Large Deformation Finite Element Analysis

*A. Dheeravongkit, K. Shimada*

Carnegie Mellon University

Preserving Form-Features in Interactive Mesh Deformation

*H. Masuda<sup>1</sup>, Y. Yoshioka<sup>1</sup>, Y. Furukawa<sup>2</sup>*

<sup>1</sup>The University of Tokyo, <sup>2</sup>National Institute of Advanced Industrial Science and Technology

Surface Creation and Curve Deformations Between Two Complex Closed Spatial Spline Curves

*J. Daniels II, E. Cohen*

University of Utah

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12:00-13:30 **Lunch Break (On your own -- please see the STATION SQUARE map for various restaurant options.)**

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13:30-15:10 **Shape Description**

(Session Chair: David Gu)

Computing a Family of Skeletons of Volumetric Models for Shape Description

*T. Ju<sup>1</sup>, M.-L. Baker<sup>2</sup>, W. Chiu<sup>2</sup>*

<sup>1</sup>Washington University in St. Louis, <sup>2</sup>Baylor College of Medicine

Representing Topological Structures Using Cell-Chains

*D.-E. Cardoze<sup>1</sup>, G.-L. Miller<sup>2</sup>, T. Phillips<sup>2</sup>*

<sup>1</sup>Tanner Research, <sup>2</sup>Carnegie Mellon University

Constructing Regularity Feature Trees for Solid Models

*M. Li, F.-C. Langbein, R.-R. Martin*

Cardiff University, Cardiff, UK

Insight for Practical Subdivision Modeling with Discrete Gauss-Bonnet Theorem

*E. Akleman, J. Chen*

Texas A&M University

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15:10-15:45 **Coffee and Tea Break** (Note that coffee and tea will be served outside of GRAND STATION I)

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15:45-17:00 **Shape Recognition**

(Session Chair: Ergun Akleman)

Shape-Based Retrieval of Articulated 3D Models Using Spectral Embedding

*V. Jain, H. Zhang*

Simon Fraser University, Canada

Separated Medial Surface Extraction from CT Data of Machine Parts

*T. Fujimori<sup>1</sup>, Y. Kobayashi<sup>2</sup>, H. Suzuki<sup>1</sup>*

<sup>1</sup>The University of Tokyo, <sup>2</sup>CREED Corporation

Two-Dimensional Selections for Feature-Based Data Exchange

*A. Rappoport<sup>1</sup>, S. Spitz<sup>2</sup>, M. Etzion<sup>3</sup>*

<sup>1</sup>Hebrew University, <sup>2</sup>Proficiency Inc., <sup>3</sup>Proficiency Ltd.

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18:00-21:00 **Dinner Cruise and Award Ceremony**

**(Meet at 18:00 at the GATEWAY CLIPPER. Our boat, Liberty Belle, will leave the dock at 18:20.)**

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Note: the events marked with “\*” will be held in REFLECTIONS room.  
All the other event, unless it is specifically mentioned, will be held in GRAND STATION I room.

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**7/28 (Fri)**

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**7:00-8:00 \* Continental Breakfast**

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**8:00-8:10 Announcement**

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**8:10-9:00 Subdivision Surfaces** (Session Chair: Sara McMains)

Composite  $\sqrt{2}$  Subdivision Surfaces

*G.Li<sup>1</sup>, W.Ma<sup>2</sup>*

<sup>1</sup>South China University of Technology, <sup>2</sup>City University of Hong Kong

Tuned Ternary Quad Subdivision

*T. Ni<sup>1</sup>, A.-H. Nasri<sup>2</sup>*

<sup>1</sup>University of Florida, <sup>2</sup>American University of Beirut

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**9:00-10:15 Geometric Modeling** (Session Chair: Weiyin Ma)

Geometric Modeling of Nano Structures with Periodic Surfaces

*Y. Wang*

University of Central Florida

Minimal Mean-Curvature-Variation Surfaces and Their Applications in Surface Modeling

*G. Xu<sup>1</sup>, Q. Zhang<sup>2</sup>*

Chinese Academy of Sciences<sup>1</sup>, Beijing Information Science and Technology University<sup>2</sup>

Parametric Design Method for Shapes with Aesthetic Free-Form Surfaces

*T. Oya<sup>1</sup>, T. Mikami<sup>1</sup>, T. Kaneko<sup>2</sup>, M. Higashi<sup>1</sup>*

<sup>1</sup>Toyota Technological Institute, <sup>2</sup>AISHIN Seiki Co., Ltd.

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**10:15-10:45 \* Coffee and Tea Break**

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**10:45-12:00 Curves and Surfaces III** (Session Chair: Tao Ju)

Control Point Removal Algorithm for T-spline Surfaces

*Y. Wang, J. Zheng*

Nanyang Technological University

Shape Representations with Blossoms and Buds

*L.-Y. Stefanus*

University of Indonesia, Faculty of Computer Science

Manifold T-spline

*Y. He, K. Wang, H. Wang, X.-D. Gu, H. Qin*

Stony Brook University

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**12:00-13:30 Lunch Break (On your own -- please see the STATION SQUARE map for various restaurant options.)**

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**13:30-14:20 Geometric Processing II** (Session Chair: Frank Cheng)

Simultaneous Precise Solutions to the Visibility Problem of Sculptured Models

*J.-K. Seong<sup>1</sup>, G. Elber<sup>2</sup>, E. Cohen<sup>1</sup>*

<sup>1</sup>University of Utah, <sup>2</sup>Technion

Density-Controlled Sampling of Parametric Surfaces Using Adaptive Space-Filling Curves

*J.-A. Quinn<sup>1</sup>, F.-C. Langbein<sup>1</sup>, R.-R. Martin<sup>1</sup>, G. Elber<sup>2</sup>*

<sup>1</sup>Cardiff University, <sup>2</sup>Technion, Israel

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**14:20-15:35 Engineering Applications** (Session Chair: Soji Yamakawa)

Verification of Engineering Models Based on Bipartite Graph Matching for Inspection Applications

*F. Fishkel, A. Fischer, S. Ar*

Technion, Israel Institute of Technology

A Step towards Automated Design of Side Actions in Injection Molding of Complex Parts

*A.-G. Banerjee, S.-K. Gupta*

University of Maryland

Finding All Undercut-Free Parting Directions for Extrusions

*X. Chen, S. McMains*

University of California, Berkeley

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**15:35-15:45 Closing**

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