



Preface

Geometric Modeling and Processing 2006

The fourth international conference on Geometric Modeling and Processing (GMP2006) was held on July 26–28, 2006, in Pittsburgh, PA, USA. The conference provided a forum for researchers and practitioners to present and discuss new approaches to solving geometric problems using a range of computational techniques. This special issue consists of extended versions of selected papers presented at the conference.

Aigner et al. present an iterative evolution-based least-square fitting algorithm for unorganized data points using the approach of active curves adapted to the family of Pythagorean Hodograph curves. The best fitting curve is shown to be the stationary point of one differential point derived from the evolution process.

Dai et al. present a theoretical analysis and explicit formulas for the errors of Hausdorff distance and normal distance of a smooth surface and its triangulation. The authors suggest Delaunay triangulation as a reasonable choice for triangulation of surfaces.

Li and Ma describe a unified framework for surface subdivision based on the $\sqrt{2}$ splitting operator. Using various atomic operators, the proposed approach reproduces most existing surface subdivision schemes.

Finally, Ni et al. present a ternary version of Catmull–Clark subdivision with special rules at extraordinary vertices. This scheme produces bounded curvature and guarantees the convex hull property at extraordinary nodes.

The guest editors would like to thank all authors and reviewers who contributed to this special issue and to the conference. Our special thanks go to Professor Dave Gossard of MIT who served as the conference chair and also to the past GMP chairs who have established the high standard of the GMP conference series.

Myung-Soo Kim *

Seoul National University, Korea

E-mail address: mskim@cse.snu.ac.kr

Kenji Shimada

Carnegie Mellon University, USA

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* Corresponding author.