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Editorial: Special issue on Geometric Modeling (Dagstuhl 2005)

Geometric modeling is the branch of Computer Science concerned with the efficient acquisition, representation, manipulation, reconstruction and analysis of three-dimensional geometry on a computer. Models and shapes in three dimensions can be represented as splines or subdivision surfaces, as well as by polygonal meshes or point clouds. Applications of geometric modeling cover a wide collection of areas from classical computer aided design, reverse engineering and simulation, to computer graphics, scientific visualization, medical imaging, multimedia and entertainment.

The present special issue of Computing includes selected papers that were presented at the 6th Dagstuhl seminar on Geometric Modeling in May 2005. The seminar was attended by 59 participants. The participants came from 4 continents and 19 countries, and included 4 industrial scientists as well as the leading academic experts in the field. A very special event during the conference was the award ceremony for the John Gregory Memorial award. This time Prof. R. Farouki, Prof. R. Goldman and Prof. R. Riesenfeld were the recipients of the award in recognition of their fundamental contributions to the field of geometric modeling.

There were a total of 53 technical presentations at the conference related to the following diverse topics:

- curve and surface modeling and analysis,
- surface reconstruction,
- curve and surface interpolation and fitting,
- multiresolution representations, subdivision surfaces,
- point based modeling,
- computational topology,
- geometric models for biomedical application.

The organizers would like to thank the team of Schloss Dagstuhl for helping to make this workshop a success.

Grenoble Chemnitz Tempe Houston
January 2007

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Gerald Farin, Ron Goldman
(Special editors)