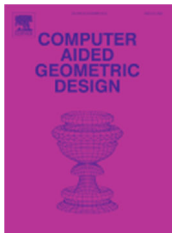
— Call for Papers —

Elsevier CAGD – Computer Aided Geometric Design

Special Issue

"Generalized Barycentric Coordinates"



Theme

Interpolating discrete data with continuous functions in one or more variables is a fundamental problem in diverse fields of science and engineering. Barycentric coordinates, which were introduced by Möbius in 1827, provide a convenient way to linearly interpolate data prescribed at the vertices of an *n*-dimensional simplex. This kind of barycentric interpolation is widely used, for example, in computer graphics, and the interpolating barycentric basis functions can be adopted as trial and test functions in finite and boundary element methods. The ideas of barycentric coordinates and barycentric interpolation have been extended in recent years to generalized barycentric coordinates for arbitrary polygons in the plane and general polytopes in higher dimensions, which in turn has led to novel solutions in applications like mesh parametrization, image warping, mesh deformation, as well as solving PDEs with finite and boundary element methods.

Topics

This special issue is dedicated to recent developments of generalized barycentric coordinates, covering new constructions, theoretic insights, and applications in the context of geometric design and processing, computer graphics, computational mechanics, and related research fields. The list of suggested topics includes, but is not limited to:

- theoretical and numerical analysis
- barycentric and transfinite interpolation
- barycentric mappings
- discrete differential geometry
- mesh parameterization
- shape deformation and free-form modeling
- finite element and boundary element methods on polytopal meshes
- meshfree coordinates
- applications in computer graphics and geometry processing
- applications in computational geometry
- applications in computational solid and fluid mechanics

Guest Editors

- Michael S. Floater (University of Oslo)
- Kai Hormann (Università della Svizzera italiana, Lugano)
- N. Sukumar (University of California, Davis)

Manuscript Preparation

This thematic issue seeks **high-quality research, survey, theory and application submissions**. Papers must be original contributions, not previously published or currently under review in other journals. Submissions based on previous published or submitted conference papers may be considered provided they are considerably improved and extended.

Guide for Authors

Please see CAGD's Guide for Authors for general information on article submission:

http://www.elsevier.com/journals/computer-aided-geometric-design/0167-8396/guide-for-authors

Submission

All papers must be submitted electronically using EES:

https://ees.elsevier.com/cagd/

Do not forget to select **"VSI: GBC"** as **"Article Type"** in the first step of the submission process.

Timeline

- Full paper submission: **15 March 2019**
- Notification of the 1st review process: **10 May 2019**
- Revised version due: **7 June 2019**
- Notification of acceptance: **28 June 2019**
- Camera ready copy due: **12 July 2019**

Contact

For more information, please contact Kai Hormann:
kai.hormann@usi.ch