MeshFree Methods and Radial Basis Functions in Computational Sciences

Special Track of the ICCS 2023 conference

The ICCS is classified as "**A**" in the CORE ranking
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Prague, Czech Republic | 3-5 July, 2023

Workshop Committee:

- Vaclav Skala, University of West Bohemia, Czech Republic
- Nadaniela Edigi, Universiti Dedli Studi di Camerino, Italy
- Zhujia Fu, Hohai University, China
- Marco Evangelos Biancolini, University of Rome "Tor Vergata", Italy
- Samsul Ariffin Abdul Karim, Universiti Malaysia Sabah, Malaysia
- Fernando Cesar Meira Menandro, Federal University of Espírito Santo, Brazil
- Arkadiusz Orlowski, Warsaw University of Life Sciences, Poland
- Other agreements pending

Track Description

Meshfree methods are a hot topic in computational sciences and numerical mathematics.

Standard computational methods used across many application fields require tessellation in 2D or 3D using triangular or tetrahedral meshes. Tessellation itself is computationally expensive especially in higher dimensions and the result of that computation is again discrete, and physical phenomena are not smoothly interpolated.

The meshfree methods are especially convenient for scattered data processing as they do not require tessellation. They are used not only for interpolation and approximation, but also for a solution of partial and ordinary differential equations, etc. Meshfree methods are scalable to higher dimensions and offer smooth final representation and they lead to a solution of a system of linear equations, in general.

This ICCS 2023 workshop is intended to explore broad computational applicability of the Meshfree methods especially based on Radial Basis Functions across many areas, including theoretical and mathematical aspects of the Meshfree methods.

The aim is also to connect latest theoretical research results with possible computational applications, i.e. put together theory and applications in computational sciences.

The accepted and presented papers are expected to be published in the ICCS 2023 conference proceedings with Springer LNCS.

Main topics (but not limited to):

1. Meshfree methods in engineering problems
2. Meshfree methods and differential equations
3. Meshfree methods and GIS, CAD/CAM systems
4. Meshfree methods in theory and practice
5. Meshfree methods and computational and numerical issues
6. Meshfree interpolation and approximation methods for large scalar and vector data sets
7. Meshfree methods for scattered spatio-temporal data, t-varying systems.
8. Radial Basis Functions (RBF) in computer graphics, visualization etc.
9. Meshfree methods in image processing and computer vision
10. Meshfree methods and projective space representation
11. Comparison of meshfree and mesh based computational methods
12. Scattered data interpolation and approximation methods
13. Rradial Basis Functions for a mesh morphing and data mapping
14. Meshfŕee methods for corrupted image reconstruction and inpainting removal
15. Meshfree methods applications in general

Important dates –
Paper submission" **December xx, 20xx** via EasyChair.
Please, see the ICCS 2023 page, for updates at

- https://www.iccs-meeting.org/iccs2023/important-dates/

Detailed information

- http://meshfree.zcu.cz/ICCS2023/
- https://www.iccs-meeting.org/iccs2023/

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- http://meshfree.zcu.cz/

Actual list of related publications of the group

- http://afrodita.zcu.cz/~skala/Publication-RBF.htm

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