ICTS MONTHLY COLLOQUIUM

Topological Descriptors and Scalar Field Comparison

Data resulting from high fidelity computational simulations and high resolution imaging devices are becoming increasingly complex, both in terms of size of the data and the number of features. This necessitates the development of new classes of techniques for efficient analysis and effective data exploration. Topological descriptors provide abstract representations of features in the data, are succinct, and are amenable to visual analysis. A merge tree is a widely used topological descriptor that captures the topology of sub-level and super-level sets of a scalar function. Comparative tasks such as visual identification of correspondence between features or key event detection require a feature-aware comparison measure between topological descriptors. I will present tree edit distance-based measures for comparing merge trees. The comparison measures satisfy desirable mathematical properties, can be computed efficiently, and support intuitive feature-driven analysis and visualization of CFD and 3D cryo electron microscopy data. [https://vgl.csa.iisc.ac.in] [https://www.youtube.com/c/vgliisc]

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3:30 PM, 15 May 2023

Zoom link: shorturl.at/bizJN

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