



Technion-Israel Institute of Technology
Computer Science Department
Center for Graphics and Geometric Computing



CGGC Seminar

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Volumetric Frame Fields for Hexahedral Meshing

The hexahedral meshing problem is the volumetric analog of the quad meshing problem, with analogous applications in finite element modeling. One might expect that frame field-based methods, which have proven effective in quad meshing, would extend naturally to the volumetric case. Unfortunately, several problems arise in attempting this extension. The geometry of frames becomes significantly more complicated, making optimization over frames more challenging. Moreover, field and mesh topology is far more complicated in 3D due to non-commutative symmetries.

I will discuss our recent work (joint with David Bommes and Justin Solomon), in which we examine the geometry of two different spaces of frames and develop tailored optimization techniques to achieve state-of-the-art results. Next, time permitting, I will detail some observations (joint with Paul Zhang) about integrability and meshability of frame fields.

Finally, I will talk about tantalizing insights we have gleaned from the physics of topological defects in ordered media.

The lecture will be held on Thursday, 28.03.2019, at 11:00, Taub 337

הזמנה זו מהווה אישור כניסה עם רכב לטכניון