

# \*Cages: A multi-level, multi-cage based system for mesh deformation

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Cage-based deformation has been one of the main approaches for mesh deformation in recent years, with a lot of interesting and active research. The main advantages of cage-based deformation techniques are their simplicity, relative flexibility and speed. However, to date there has been no widely accepted solution that provides both user control at different levels of detail and high quality deformations. We present \*Cages (star-cages), a significant step forward with respect to traditional single-cage coordinate systems, and which allows the usage of multiple cages enclosing the model for easier manipulation while still preserving

the smoothness of the mesh in the transitions between them. The proposed deformation scheme is extremely flexible and versatile, allowing the usage of heterogeneous sets of coordinates and different levels of deformation, ranging from a whole-model deformation to a very localized one. That locality allows faster evaluation and a reduced memory footprint, and as a result outperforms single-cage approaches in flexibility, speed and memory requirements for complex editing operations.