Tour Eiffel Project

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The project consists in the simulation of a resilient Tower similar to the Tour Eiffel.
The tower is divided into a volumetric tetrahedral mesh and a surface mesh. The tetrahedra are the deformable core, whereas the surface mesh is more sophisticated and is meant to represent the graphical details of the model.
The behaviour of the tetrahedra is governed by the linear elasticity equations presented in the class. Each tetrahedron corresponds to a finite element, whose stiffness matrix is assembled in a larger matrix fitted into the Newton's equation in order to compute the position and velocity of each vertex of the volumetric mesh.
Regarding the surface mesh, first the barycentric coordinates of each vertex are computed, then during the simulation the cartesian coordinates are interpolated from the deformed volumetric mesh using the barycentric coordinates.