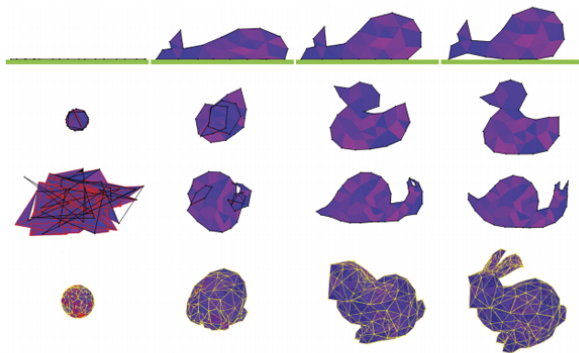


Robust treatment of degenerate elements in interactive corotational FEM simulations

Civit, Oscar; Susin, Antonio



We address the problem of robust and efficient treatment of element collapse and inversion in corotational FEM simulations of deformable objects in two and three dimensions, and show that existing degeneration treatment methods have previously unreported flaws that seriously threaten robustness and physical plausibility in interactive applications. We propose a new method that avoids such flaws, yields faster and smoother degeneration recovery and extends the range of well-behaved degenerate configurations without adding significant complexity or computational cost to standard explicit and quasi-implicit solvers.