Morphing planar graph drawings

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(joint work with Fidel Barrera-Cruz and Anna Lubiw)

A *morph* between two planar drawings Γ_0 and Γ_1 of a graph G is a continuous family of drawings Γ_t indexed by time $t \in [0, 1]$. The morph *preserves straight-line planarity* if all intermediate drawings Γ_t are straight-line planar drawings, in which case each Γ_t is determined by the positions of its vertices. Morphing arises naturally in a number of contexts including computer graphics, motion planning and medical imaging. We discuss efficient algorithmic solutions to the morphing problem that address various aspects such as the simplicity of the trajectory of each vertex throughout the morph.