Parameterizing Animated Lines for Stylized Rendering

Additional Material

Figure 1: **Overview:** lines are extracted independently for each frame of the animation, before being grouped as plausible corresponding lines from frame to frame. Lines may split or merge during the animation and create a graph which is subsequently decomposed in bands corresponding to single lines over time. These bands, or space-time lines, are finally parameterized independently under user control to provide time-coherent parametric lines.

Figure 2: Robust topology change detection for lines which can be modeled as the zero level sets of a scalar function (e.g. silhouettes).
Figure 3: Space-time parameterization of a line set: our variational formulation offers intuitive control w.r.t. to the texture function type (stretchable or periodic).

Figure 4: From spatial to temporal coherency control.

Figure 5: Line parameterization for a scene with dynamic geometry and topology. Our discontinuity-reuse algorithm pairs the split and the merger, which limits the number and extent of the cuts.
Figure 6: Four frames of a desk model, with lines only.

Figure 7: Four frames of a more complex example: the cactus scene.

Figure 8: Four frames of an additional example.

Figure 9: Even simple shapes can generate complex lines. The silhouette of a peanut folds in nontrivial ways (a), the inner and outer silhouettes of a torus repeatedly merge and split (b), and the multipod generates many visibility events (c).