APPENDIX A
OBJECTIVE FUNCTION PARAMETERS

The default weights for our synthesis objective function are: \( w_{\text{orientation}} = 5, w_{\text{shapechange}} = 0.5, w_{\text{color}} = 10, w_{\text{edge}} = 5, w_{\text{widthchange}} = 0.1, w_{\text{userwidth}} = 0.05, w_{\text{grow}} = 1, w_{\text{smoothness}} = 0.5 \). These parameters are used for most of our experiments and are rarely modified. However, with fast movement the deformation of large strokes is more visible, so sometimes \( w_{\text{orientation}} = 2, w_{\text{shapechange}} = 1 \) is used to increase stability. \( \sigma_{\text{width}} = 2, \sigma_{\text{smooth}} = 25 \) and \( \sigma_{\text{coh}} = 30 \) are used for exponential scaling in all examples. Default constraint settings are \( \tau_{\text{density}} = 0.8 \) (this ranges from 0 which allows no overlap to 1 which ignores overlap), \( \tau_{\text{minAge}} = 5, \tau_{\text{minLength}} = 5, \tau_{\text{maxLength}} = 10 \). For initial layers, stroke widths are usually larger, \( r = (10, 10) \), and ignore the color constraint. For later layers, especially when using Control Strokes in areas for fine details, smaller strokes can be used, \( r = (3, 3) \), with \( \tau_{\text{col}} = 0.1 \), and \( \tau_{\text{minAge}} = 3 \). For the “sketchy” line-drawing styles in Figs. 6 and 8, black strokes are drawn with \( \tau_{\text{density}} = 0.1 - 0.2, \tau_{\text{minLength}} = 6, \tau_{\text{maxLength}} = 14, \tau_{\text{dist}} = 5 - 15 \) to constrain strokes to lie near edges, region boundaries, or Guide Strokes. If the strokes are constrained to lie near image edges (as in Fig. 8), then \( \tau_{\text{col}} = 0.2 - 0.5 \). For the black style of Fig. 6, the stroke density \( \tau_{\text{density}} \) is set to 0 and strokes only drawn in unoccluded regions with \( \tau_{\text{col}} = 0.1 \).