APPENDIX A
OBJECTIVE FUNCTION PARAMETERS

The default weights for our synthesis objective function are: $w_{orientation} = 5, w_{shapechange} = 0.5, w_{color} = 10, w_{edge} = 5, w_{widthchange} = 0.1, w_{userwidth} = 0.05, w_{grow} = 1, w_{smoothness} = 0.5$. 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 $w_{orientation} = 2, w_{shapechange} = 1$ is used to increase stability. $\sigma_{width} = 2$, $\sigma_{smooth} = 25$ and $\sigma_{coh} = 30$ are used for exponential scaling in all examples. Default constraint settings are $\tau_{density} = 0.8$ (this ranges from 0 which allows no overlap to 1 which ignores overlap), $\tau_{minAge} = 5$,$\tau_{minLength} = 5$, $\tau_{maxLength} = 10$, For initial layers, stroke widths are usually larger, $\mathbf{r} = (10, 10)$, and ignore the color constraint. For later layers, especially when using Control Strokes in areas for fine details, smaller strokes can be used, $\mathbf{r} = (3, 3)$, with $\tau_{col} = 0.1$, and $\tau_{minAge} = 3$. For the "sketchy" line-drawing styles in Figs. 6 and 8, black strokes are drawn with $\tau_{density} = 0.1 - 0.2$, $\tau_{minLength} = 6$, $\tau_{maxLength} = 14$, $\tau_{dist} = 5 - 15$ 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 $\tau_{col} = 0.2 - 0.5$. For the black style of Fig. 6, the stroke density $\tau_{density}$ is set to 0 and strokes only drawn in unoccluded regions with $\tau_{col} = 0.1$.