# Design Memorandum

Date: Friday, July 18, 2008

Subject: A Design Sketch of a Strategy for Integrating the Stroke Generation and Texture Synthesis Modules

- If synthesis performance continues to be a problem, user stroke capture feedback may need to be re-specified. The current specification calls for synthesis to occur interactively while the user tracks the mouse. However, superior responsiveness could be achieved by delaying synthesis until after the stroke trajectory has been completely defined (on mouse-up). During tracking, a partially transparent, feathered proxy stroke can be drawn.

- The existing stroke capture and trajectory generation model may produce trajectories that are insufficiently smooth. Indeed, Strassman's in his 1986 "Hairy Brushes" methodology, didn't even use direct stroke capture; instead, he generated brush trajectories from splines. Now, I can't recall the exact type of spline he employed—I don't have the paper in front of me—but it would have to be some variety of interpolating spline, most likely Catmull-Rom.

- A macro design for stroke-to-synthesis integration needs to be developed. And it needs to address some hard resource management issues: Who gets what texture unit at which time? When are imaging programs swapped in? When are they swapped out?

- All multi-pass algorithms need to be implemented using frame buffer objects (FBOs) to store intermediate state. You don't get any street cred for using `glCopyTexSubImage2D( )` anymore dude.

- Don't implement any of the functionality unless it's absolutely necessary. Except the FBOs.