Developing a Full Featured Graphic Design Software for iOS

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When the first iPad came out I instantly wanted to be able to create illustrations freely from anywhere I am. After the introduction of high resolution displays working with vectors instead of bitmaps clearly made more sense. The issue however is that rendering vector art requires a lot of performance that mobile devices don't have and even the most powerful computers lack. From my previous research I've learned that the standard high level APIs for rendering graphics is too slow for creating a smooth experience without using rasterization techniques especially when performing a zoom into a specific area at 60FPS. The prominent answer was a custom rendering and math engine built and optimized for rendering 2D vector paths at a high quality. Combining multiple low-level APIs as for instance SIMD (Single Instruction, Multiple Data) commands together with a combination of high-level API's such as Metal, OpenGL and Core-Graphics on multiple layers depending on the advantages and disadvantages the anticipated performance can be clearly achieved. With many other custom optimizations such as a tile-based rending in combination with an occlusion culling system the user gets a buttery smooth experience without compromising functionality. This study shows the possibility of getting even the most demanding applications to work on a portable and relatively slow device such as an iPad.

Awards Won:
Third Award of $1,000