

Why are Shaders Critical for Natural User Interfaces?

At YOUi Labs, we regularly use shaders to create the stunning visual effects in our natural user interfaces that provide the “wow” factor for users. Many of these effects wouldn’t be possible without shaders, but they’re not well understood. I regularly find myself explaining to clients why shaders are important and when you would customize them.

Let’s start with why shaders are important. Shaders are a necessary part of modern device graphics, giving visual beauty to something that would otherwise look unappealing or visually flat. They’re used when you want to present a visual live, in real-time, to achieve lighting effects, particularly for objects that users interact with. Shaders can be costly, but the visual impact they provide in return more than makes up for that cost.

The best way to understand the visual impact of shaders is to see them live. Check out the demo in the [Shaders Lab Talk](#) where I show a few simulations of turning a page in a book. The user experience is vastly different when customized shaders are used.

So why are shaders particularly important for natural user interface design?

Let’s say you want to show one of these natural effects. A traditional approach takes a flat image and applies effects to it, and then renders it in software. This might produce an adequate visual, but it won’t look real. Users won’t be able to interact with it because animations have to be pre-canned video sequences. For purposes like gaming, video animations and flat images might be OK because function or performance is more important than visual beauty. A user focused on playing a game probably doesn’t care whether all the onscreen visuals are true-to-life.

Natural user interface design is different. Really great natural user interfaces make users feel that they’re actually interacting with physical objects, and there’s no room for visual interruptions or learning sequences that break the sense of a real-life interaction.

Shaders can take the visual to a new level, making the simulation on the device look real while the user interacts with it in real-time. In the [Shaders Lab Talk](#), I show how shaders manipulate shape and lighting in real-time to simulate the bending of a page corner and folding of the page as it turns over. The natural motion provides the visual nuances that give depth and realism.

Shaders are a very powerful way of creating natural effects with high visual impact. What you can achieve when programming shaders depends on who you’re working with. At YOUi Labs, our expertise with shaders specifically for natural user interfaces allows us to produce visually stunning effects that may not be possible otherwise.

Our approach is from the design side, not the engineering side. Engineering often limits a design based on requirements to make it functional. Too often, important design elements get pushed to the end of the project, and then usually dropped, because they’re too time-consuming or expensive to implement.

Coming from the design side, we talk with designers to understand why a feature is needed, and what value it offers to the user experience. If a designer says the value is high, then we'll find a way to make it a reality. Leaving a feature out isn't an option when it's critical to a fun, interactive, and real-life look-and-feel for the user experience.

Tell us your vision. We'll make it work in the natural user interface and we'll make it visually beautiful.

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