



The Lytro ILLUM is a next-generation, professional grade light field camera that gives photographers a powerful new creative tool.

Unlike conventional cameras that capture static 2D images, the Lytro ILLUM captures 3D information about the color and intensity of light in a scene, as well as information about the direction the light rays are traveling in space and computes an image based on that to create “living” 3D images. This, along with Lytro’s software allows photographers who use the ILLUM to adjust settings in photos that were previously fixed, such as focus, perspective and the photo’s depth of field.

In addition, photographers can share their “living pictures” online, giving their friends and family the ability to dive into images, refocusing and repositioning their vantage point to continuously reveal new details within the photos.

The physical design of the Lytro ILLUM makes this new technology approachable and modern, completely reimagining camera ergonomics by fusing a modern touchscreen experience with streamlined physical controls, all presented in a gorgeous, minimalist design.

Lytro's software capabilities change the shooting process considerably, allowing people to change aperture and change the point of focus after the fact, as well as convert any image into 3D automatically. This technology completely reimagines a photographer's creative workflow and demands a complete rethinking of camera design.



Familiar but different

While the technology and output of the Lytro ILLUM introduce a fundamentally different paradigm in photography, the strong precedents and conventions from traditional photography still drive user expectations. A key challenge was striking a balance between communicating the innovation the Lytro ILLUM represents, while at the same time maintaining familiarity for experienced photographers.

We needed to create a tool that was familiar to the experienced photographer, aligning with their expectations and conventions and easily understood, while at the same time offering something fundamentally new and different, and expressive of the revolutionary technology inside.

Focus on functionality

Serious photographers consider themselves artists and the ability to control their tools is vital to their craft. The ILLUM is an expensive and high quality piece of technology, which means user expectations for usability, quality of experience and quality of execution are high. Pragmatically, that means the ILLUM needs to give its users a great deal of manual control over the image-capture experience, while at the same time adding new on-screen interactions and introducing new ideas, like the ability to control the refocus range, in a way that enhanced the experience rather than adding confusion.

We aimed to design a highly functional tool for the job, one that strikes an optimal balance between on-screen and physical controls, and which also accentuates the kind of photography Light Field photography excels at.

Finding simplicity in complexity

While we took a very pragmatic approach to the design we were able to create product that is not only highly functional, but also beautiful and iconic.

We sought to eliminate unnecessary complexity and looked for opportunity to add design quality in the details: grip, hot shoe, screen, and physical user interface have all been reinterpreted.

1. **Tilted screen:** The shooting posture for traditional cameras (with an optical viewfinder) is with the camera pressed up to the face. The ILLUM however introduces a hi-definition angled screen, giving users the ability to hold the camera at a more comfortable, neutral stance. Not only is the angled screen clearly the best choice for that posture, it gives the ILLUM its iconic stance.



2. **Screen articulation:** The tilted screen doesn't cover all use cases, so a simple push on the lower edge of the screen flips the display vertically, which is ideal for portrait shots, while pulling it upwards tilts the screen completely horizontally, which is ideal for macro photography.



3. **Tactile controls:** Four customizable buttons and two strategically placed dials deliver everything photographers need in critical moments, while the touchscreen uses smartphone gestures and dynamic menus for walkup usability. Photographers also wield thumb-reachable control over every setting, mode, and variable, while always being able to keep a finger on the shutter release.

4. **The Lytro Button:** To provide intuitive feedback for 3D composition, the Lytro ILLUM introduces a "Lytro" button that engages powerful real-time visualization tools. Colored overlays and interactive histograms dynamically show changes in depth of field, while zoom, focus, and composition are adjusted.
5. **Balance:** A balanced fusion of tradition and technology, Lytro has crafted a camera with a beautifully minimal aesthetic, ergonomic advances, and a powerfully simple user interface. Challenging the status quo while honoring photographers' creative needs, the Lytro ILLUM brings unparalleled innovation to the camera world through elegant design.
6. **Focus:** The ILLUM shifts the burden of photography from optics to computation, making it simpler, more reliable and most importantly, really fast, with an F2.0 - 30-255mm lens with zero to infinity focusing range, giving users the ability to focus on objects that sit directly on the lens.

Challenging the status quo while honoring photographers' creative needs, the Lytro ILLUM brings unparalleled innovation to the camera world through elegant design.



Process

Throughout the development process, Artefact and Lytro teams worked with uncommon closeness, resulting in a true collaboration that seamlessly integrated design, engineering, business, and user goals. The teams worked for entire weeks in each other's offices to ensure all options were explored and the results were successful across the board.

Together we began by surveying the light field and photography space, related markets and influencing trends, working with Lytro's design and engineering teams to unpack the brand and product objectives. We developed a deep understanding and a point of view that informed the direction of the ensuing design effort.

Then we dove deep into the product architecture, possible geometry, and functional needs. We generated and iterated a multitude of initial concepts. Working closely with Lytro's engineering teams, we verified technical and usability implications of potential solutions and selected the most promising design directions for further development.

We further refined and validated the selected concepts through a rapid iterative testing and evaluation process (RITE) to optimize the concepts based on input from the target audience. Focusing on physical interface, handling, and aesthetics, the project teams at Artefact and Lytro, together with a specifically assembled Project Advisory Panel, informed the final design direction.

The team optimized and finalized the selected concept, creating a design spec that defines all the aesthetic and manufacturability details, as well as all aspects of usability, handling and physical controls. Working in close collaboration with Lytro's mechanical and electrical engineering teams throughout, we helped finalize the design of the shipping product.

Impact

The ILLUM represents a fundamentally new technology and a powerful new creative tool. Its computational power make it easier to attain great image quality with a much simpler lens system and fewer optical elements reduce weight and increase the reliability of quality photos. The ILLUM offers a 30-250mm zoom lens with 2.0 aperture and a focusing range of zero to infinity, which means the user can actually place an object on the lens and still be able to bring it into focus.

While the original Lytro camera was proof that Lytro's light field photography is real science, the Lytro ILLUM successfully repositioned Lytro as a company that creates beautiful, functional products for the serious photographer.