



Validated at 95% overall Accuracy!

How did we get to that number?

Before building the first prototype, we validated LIOR's firmware with **50,000 simulated patient exams** using Monte Carlo analysis. Each simulation mimicked real-world conditions – normal, low, and bright light, steady or unsteady holds, and patient eye movement.

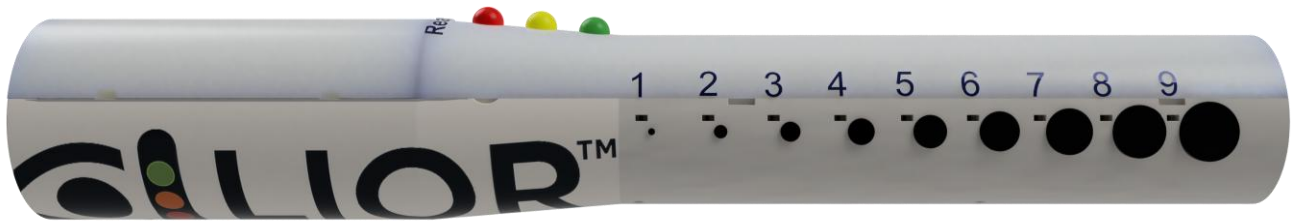


Why Simulation Matters?

Why **50,000 Simulated Exams Give Us Confidence**

Monte Carlo simulation is a **gold-standard** engineering tool. By running **tens of thousands of "virtual patients"** through LIOR's locked firmware thresholds, and AI efficiency, we can prove reliability before physical trials.

- Every exam follows the same rules the device will use. (This is embedded in the PLR-3 Algorithm)
- Lighting and motion artifacts are built into the model.
- Realistic technician behaviors – like holding the eyelid steady and using the red fixation ring – are accounted for.



What is the Breakdown of the Results?

- **Overall accuracy:** 94.6% (strict 3-class: Normal, Sluggish, Non-Reactive)
- **Green (normal) classification:** 99.9%
- **Red (non-reactive) classification:** 99.7%
- **Yellow (sluggish) classification:** ~80%
- **Reject rate:** <0.3%
- **Accuracy across lighting:** stable at 94–95%

Summary: “Green and Red classifications approach 100% accuracy, ensuring fast and reliable clinical decisions. The Yellow classification is designed as a **review indicator**, flagging borderline or uncertain cases so clinicians can apply judgment.

This cautious approach improves patient safety and ensures no concerning pupil response goes unnoticed.”

Monte Carlo testing shows LIOR can achieve accuracy levels comparable to the market leader *Neuroptics NPi-300*. With simple operator training (sights, steadying the eyelid, red focus ring fixation), LIOR consistently reaches the 95% benchmark.



Visit: www.Liorpupillometry.com for more information