How headlights got brighter, whiter, and more blinding after dark

As for maintenance, most cars, especially earlier halogen models, would require bulb changes. Depending on the vehicle, this was generally as simple as popping the hood, removing a cap from the back of the headlight, and changing the bulb.

Now, if an LED cluster malfunctions, the entire unit must be swapped out for another, due to much tighter tolerances in LED sources compared to halogen counterparts. As for headlight alignment, the higher intensities and contrasts of LED lights mean greater sensitivity to misalignment than halogen lights.

And there you have it: an unromantic explanation for why night driving now feels like a low-grade assault on your retinas. Modern lighting systems are undeniably better than what came before—brighter, more efficient, and far more capable—but, as ever, those gains come with trade-offs.

Headlights are still evolving; they're now supported by cameras, sensors, and software that's supposed to handle the tedious work of switching between low and high beams—or better yet, shaping the beam itself so you're never blinding other drivers while still being able to see the road.

In theory, it's elegant. In practice, it's a computer trying to interpret a fast-moving, low-light world in real time, deciding whether that reflective flicker is a cyclist, a sign, or just the universe messing with it. And for all their confidence, computers still hesitate in slightly unnerving ways. Object recognition can be imperfect, beam adjustments

aren’t truly instantaneous, and the entire system depends on a stack of assumptions about what a system thinks the road is doing at any given moment.

It usually works. Right up until it doesn’t.

It’s a bit like a Roomba, which will happily clean most of the floor, navigate around obstacles, and declare victory with robotic satisfaction. But it will also miss the awkward corners and stubborn patches that require a human to step in with a more old-fashioned approach (in this case, manually turning off the blinders).

On a good day, modern headlights can take most of the cognitive load out of night driving. But are we comfortable delegating yet another slice of real-time judgment to a system that is still learning how to see in the dark?

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