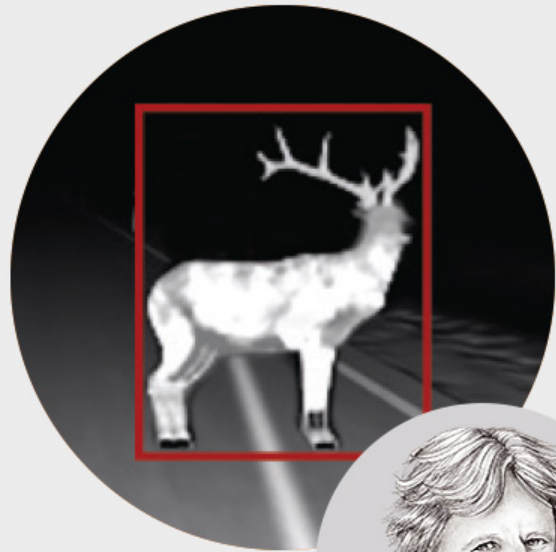


Q&A

NIGHT VISION



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NIGHT VISION

Ford's European research and innovation center in Germany is changing how we drive after dusk

By Rod O'Connor

My Ford has a conversation with Ford lighting systems research engineer Michael Koherr.

MF: Tell us how camera-based front lighting makes night driving safer.

MK: The camera interprets the lane and traffic signs and provides light that adapts to the situation in front of you. For example, it widens beams at roundabouts so the driver can clearly see the exits. If you're turning right at a junction, the right headlamp illuminates the driving direction, while the left one shines to the left to call out any hazards that aren't in the direction of travel—like a cyclist or someone walking along. We expect this technology to be available in Europe in the near term.

MF: What about "spot lighting"?

MK: Spot lighting, which is in predevelopment, uses an infrared camera in the front grille to detect



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oncoming pedestrians or animals at a range of up to 130 yards. If you're driving on an unlit country road, two special LED lamps next to the fog lights deliver a spot or strip of light that warns you if something is in your path.

MF: So, this uses night vision?

MK: Yes, it's a new thing for us. We're always looking at what sorts of technologies can be used to do something clever to help drivers see better at night. We are finding that spot lighting provides detection as much as two seconds earlier, which could be the difference between hitting a deer or safely swerving out of the way.

MF: How does the infrared technology work, exactly?

MK: An algorithm in the system detects the normal body heat from living things on the road ahead. The camera's computer features a list of potential hazards (such as pedestrians or animals) and, after picking up the coordinates of the object, decides whether to mark it with a beam of light. It can track as many as eight people and bigger animals, including large dogs.

MF: What is game changing about your team's approach to lighting?

MK: Well, one way to use lighting is to make things as bright as possible. We took a different route. We want to get the light where the customer needs it, which is not necessarily where he is expecting it.

HOW TO SEE IN THE DARK

"Spot lighting" technology uses three methods to locate hazards in the road.



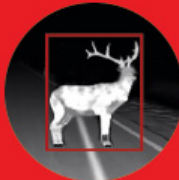
1. HEAT DETECTION

An infrared camera senses and locates pedestrians and large animals in the road. The image data processed by the camera allows for early detection, giving the driver time to avoid a collision.



2. LIGHT BEAMS

Once an animal or a pedestrian is detected, the vehicle's LED headlamps direct a light beam on the object to focus the driver's attention and allow him or her to adjust accordingly.



3. DISPLAY FRAMES

In addition to improved real-world vision, the driver receives a warning on an in-vehicle display. Yellow and

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make the driver aware of any hazards—and provide sufficient time to react accordingly. We want to guide the light where the driver will drive next.

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