

THE MIDDLE SEAT

Your Next Vacation Is Written on Your Face

Travel companies are using facial recognition and other sophisticated tech to better predict how and why their customers shop the way they do



By Scott

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Sometimes it seems like aspects of travel are designed as a cruel joke. Who thought “we are making our final descent” was an appropriate announcement for nervous fliers? Were the bathroom dimensions taken from a preschool? And how is it that Basic Economy is the fare lacking in basics?

Now that design is getting more sophisticated. Researchers measure emotion with facial recognition that captures feelings like joy and sadness. Pair that with eyeball trackers and you can tell exactly what test subjects like or dislike. Some researchers use heart-rate monitors, skin-sweat sensors and even brain-wave detectors to measure reactions.

Airlines use biometric research to plan menus and pick cabin colors. Amtrak has been using it to design new railcars. Online travel agencies like Expedia test every aspect of desktop and phone screens, looking for pain points during shopping that may frustrate buyers, as well as for colors, layouts and elements like photos that lead to increased booking.

“All this scientific data is changing the travel industry,” says Stathis Kefallonitis, a co-founder of consulting firms Branding.aero and Nóesis Labs who has done research projects for American, Delta, Amtrak, catering companies and others.

Travel is an experience, and many factors determine whether it’s a favorable experience. That, Dr. Kefallonitis says, often has to do with crew or employees. A meal won’t taste so great if the flight attendant throws it at the passenger; a hotel is just not as hospitable when the desk clerk is slow.



Mr. White wears eye-tracking glasses and sits in front of a camera that records facial expressions as he shops on Vrbo's vacation rental site with a phone. Facial-recognition software identifies different emotions, and correlating that with what Mr. White looks at tells researchers how travelers react to particular features on the screen. **PHOTO: JULIA ROBINSON FOR THE WALL STREET JOURNAL**

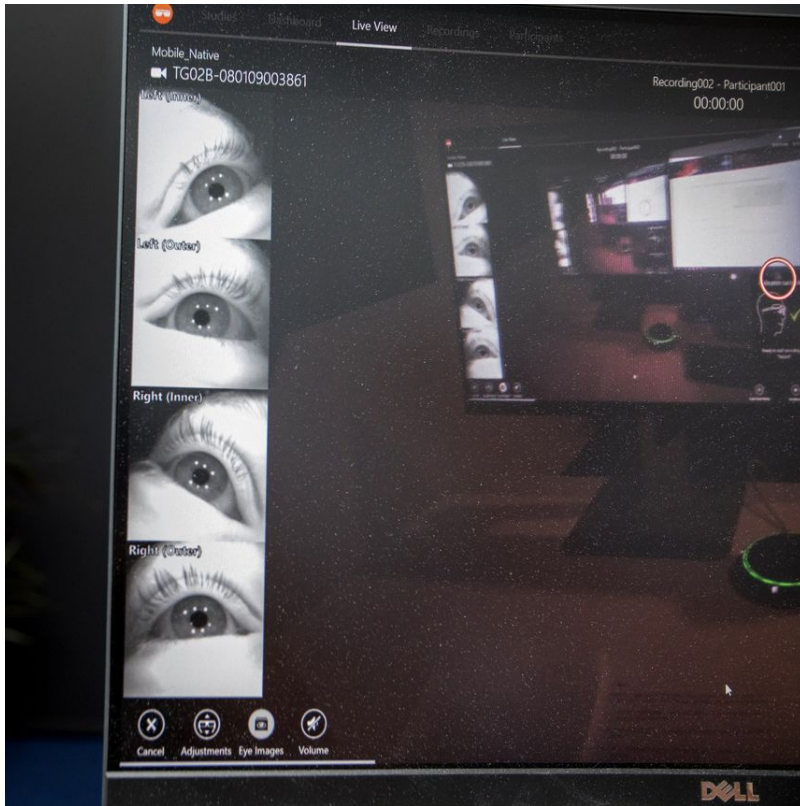
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But travel companies can control plenty, and they are getting smarter about researching what people like.

In a bustling office building here, Vrbo, the home-rental company formerly known as HomeAway, conducts research used throughout parent Expedia Group companies. Some testing is more traditional focus-group work: putting people in a conference room with a product and monitoring their reactions and moves through a glass observation window.

Some tests get quite sophisticated. Using eye-tracking software with facial-recognition emotion detection, a volunteer shops for a vacation cloistered in a room by himself. A group of researchers watches behind a one-way glass window. The Vrbo researcher running the test can call into the room and give the volunteer test subject, Dustin White, instructions.

The monitoring system measures his reaction to each element displayed on the screen and tracks where his eyes are focusing. Why wasn't he navigating through the virtual tour of the rental house, they wonder?



Tracking precisely where an eye is focused lets researchers analyze different elements of a screen, such as whether a picture helps close a sale or a navigation marker is overlooked. PHOTO: JULIA ROBINSON FOR THE WALL STREET JOURNAL

“Did he even notice the arrow?” asks Karl Steiner, senior director for user experience research at Vrbo. The team will check the eye-tracker data, but it looks like the company will have to make the navigation arrow more recognizable.

“We are trying to take today’s experience and fine-tune it, make it more convenient, more efficient, more enjoyable,” Mr. Steiner says.

Expedia uses five of the seven emotions that the facial-recognition system tracks: joy, anger, surprise, sadness and disgust. The other two—contempt and fear—don’t really factor into travel decisions (they hope). The systems detect changes in emotional state and can capture that the second it happens. The eye tracker tells researchers what the person was looking at when the emotion changed.

The reactions shoppers have to different elements on a screen can sway bookings, researchers say.

In one advertisement, one scene of a boy diving into a pool over his father's outstretched arms didn't sit well with test subjects. Attention began to dip 20 seconds into the 30-second spot. They inserted a different scene, of a mother sitting with her son. A voice-over reveals that she's learning about the girl he likes in school. The change led to much higher response rates, Vrbo says.

"The core mission—gaining insights into customers—hasn't changed. But what's leapfrogged ahead is the tools," says Mr. Steiner, who came from the videogame world. The big similarity between travel and videogames: Your product is an experience.

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How do you feel about biometric data being used to figure out shopping patterns? How reliable do you think it is? Join the conversation below.

Researchers found that with some screen designs, people are just blind to some elements. Even making the ignored features bigger and brighter didn't do the trick. The key to some scenes was a question of timing—when new things became visible.

"We built in a bit of delay, a bit of animation, and that did the trick," Mr. Steiner says.

Vrbo has found that booking vacation homes is often a group effort, and the more people involved, the higher the stress. So the company created a tool called Trip Board to make discussion about the merits of particular properties easier. It launched earlier this year and is still under testing.

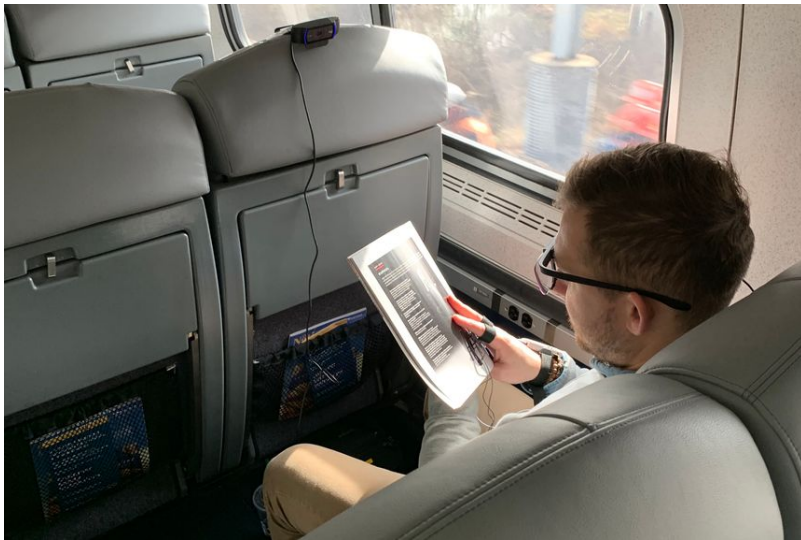
On a recent day researchers tracked the phone screens of a group of four friends collectively planning a reunion trip. Some in the group posted favorites to Trip Board for others to check out.

"How would you communicate that \$999 is too steep?" senior research manager Lukas Hulsey asks. Some don't have a clue—a red flag for Trip Board design.

"Is it OK to remove a house from the 'favorites' board if someone else added it to the board?" Mr. Hulsey asks. Reaction is mixed again.

Dr. Kefallonitis used medical monitors to help Amtrak design new train cars that have been ordered and will replace railcars that are more than 30 years old.

"A seat is not a seat anymore. It's almost like my office away from home," he says.



Matt Hirschy, a frequent Amtrak passenger, wears several sensory devices on a Northeast Regional ride from Washington, D.C., to New York. Amtrak recruited Mr. Hirschy to participate in biometric tests of what passengers like and dislike to help design new railcars. A camera follows facial expressions, an eye-tracker records what he looked at and a galvanic skin response unit on his fingers measures heart rate and oxygen level on his skin. **PHOTO:** STATHIS KEFALLONITIS/BRANDING.AERO/AMTRAK



Data from the eye-tracking on Mr. Hirschy shows not only what he looked at during his ride, but also how long he looked at different items. The larger the circle, the more time spent looking at that item. **PHOTO:** STATHIS KEFALLONITIS/BRANDING.AERO/AMTRAK

Train travelers were shown different designs, from lighting, layout, stop announcements and workspaces right down to crew uniforms, quiet-car and food car setups and even salt-and-pepper shakers. Reactions were monitored by cameras and eye-trackers as well as devices to measure pulse, brain activity and skin sweat gland activity, which tells you the intensity of a response.

“We found out facial recognition is good, yet this is not sufficient for some of the emotionally complex aspects of travel,” he says.

No matter how refined the seats, cabins and food may be, in airplanes or trains the crew is still a bigger determinant of customer satisfaction, he says.

“If you go up and down a car screaming about the next stop when people are trying to sleep, it’s not a good experience,” he says. “Service is still very crucial. The one thing that highlights good experience versus bad experience is the crew.”

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