

Independent study finds Oura Ring data identifies fever with high performance

Summary

A [peer-reviewed study](#), published in *Sensors*, found that Oura Ring data can be used to detect self-reported fevers (above 38 degrees Celsius) with high accuracy by leveraging nightly physiological metrics — specifically temperature trends, heart rate, and sleep data. The study highlights the potential for wearable technology to serve as a passive, early-warning system for individuals, potentially identifying fever the night before a user recognizes symptoms or seeks clinical care.

OVERVIEW OF STUDY



Objective

To develop and validate a machine learning model to detect fevers using physiological data from Oura Ring, enabling earlier individual illness identification ahead of traditional clinical testing.



Participants

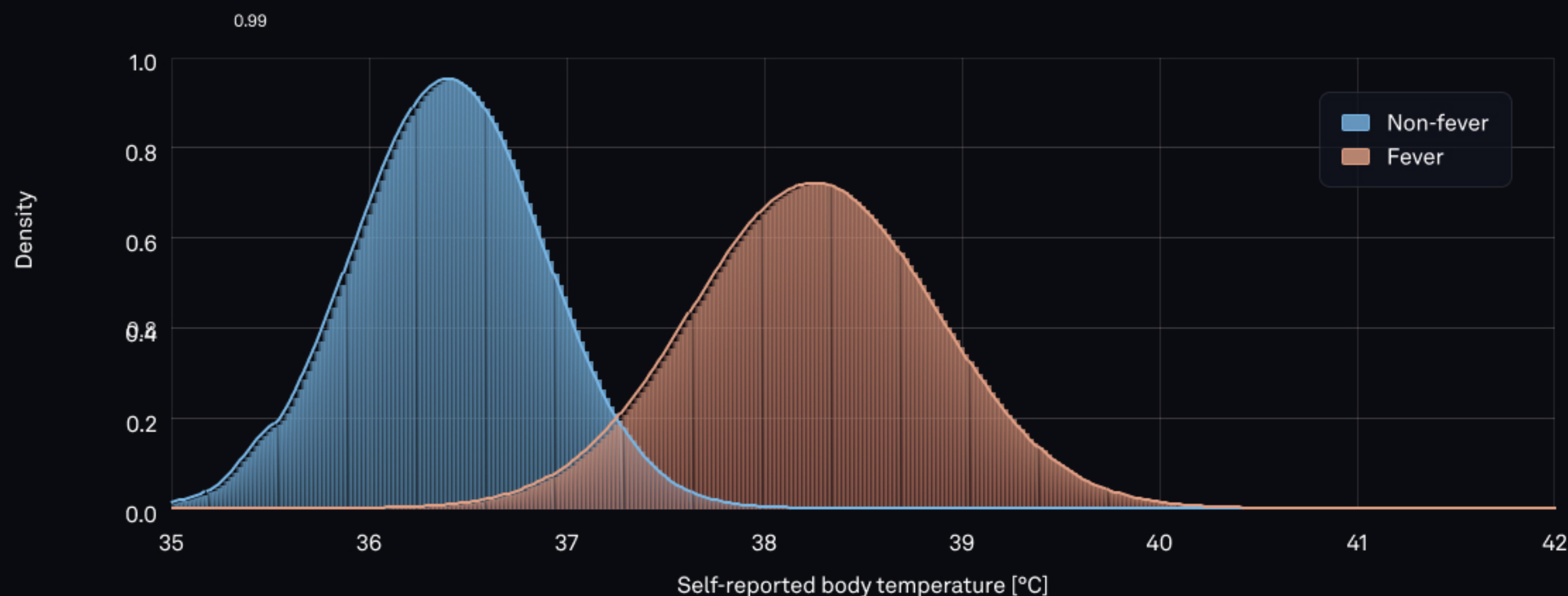
16,794 participants provided valid data from both Oura Ring Gen2 as well as daily online questionnaires which included questions about self-reported fever status and thermometer readings. Days where a participant reported both (1) experiencing a self-reported fever and (2) a self-reported temperature greater than or equal to 38 °C were considered a fever day for analysis.

RESULTS

The fever detection model achieved an Area Under the Receiver Operating Characteristic (AUROC) of 0.85, indicating strong performance in distinguishing fever days from healthy days. Analysis of feature importance revealed that average skin temperature-based metrics on the night before a reported fever was the most critical predictor of fever, followed by respiratory rate.

RESULTS

Self-reported body temperature distribution



KEY TAKEAWAYS



Fever detection

Oura Ring can be used to detect fevers with high accuracy the night after an individual starts to experience a fever.



Early detection

Average distal skin temperature, as measured by Oura Ring, is one of the most sensitive early markers for the body's inflammatory response to infection. By monitoring deviations from an individual's baseline, these models can support early identification of illness, potentially before a user seeks formal medical care.



Illness identification

Oura Ring's continuous, nightly physiological monitoring enables personalized baselines, meaning deviations are measured against an individual's own normal — not population benchmarks — making illness signals detectable even when they fall within a "normal" clinical range for the general population.

LIMITATIONS



Compliance required

The specific algorithmic implementation requires a high and consistent level of user compliance (wearing the device to sleep both the night before and the night after a potential fever day).



Retrospective analysis

The analyses were performed retrospectively using an existing historical dataset.

Learn more about Oura for [healthcare providers](#) and [research](#).

Referenced study: Kasl P, Keeler Bruce L, et al., 2024, Utilizing Wearable Device Data for Syndromic Surveillance: A Fever Detection Approach, *Sensors*. This study was funded by the Department of Defense, the Smart Small foundation, and Oura Health Oy.