

AI in Nuclear Safety Faces a Time Crisis

Why the end of leap seconds could break reactor monitoring systems.

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3,600 seconds

Time Drift Threshold

The new threshold for correcting atomic time drift before a leap hour is applied.

The decision to replace leap seconds with a leap hour means that time discrepancies will now accumulate until they reach 3,600 seconds—equivalent to one full hour—before correction. This change, approved by the General Conference on Weights and Measures on October 15, 2026, marks the end of the century-old practice of inserting a leap second to align atomic time with Earth's rotation.

Source: Nature · Published October 15, 2026

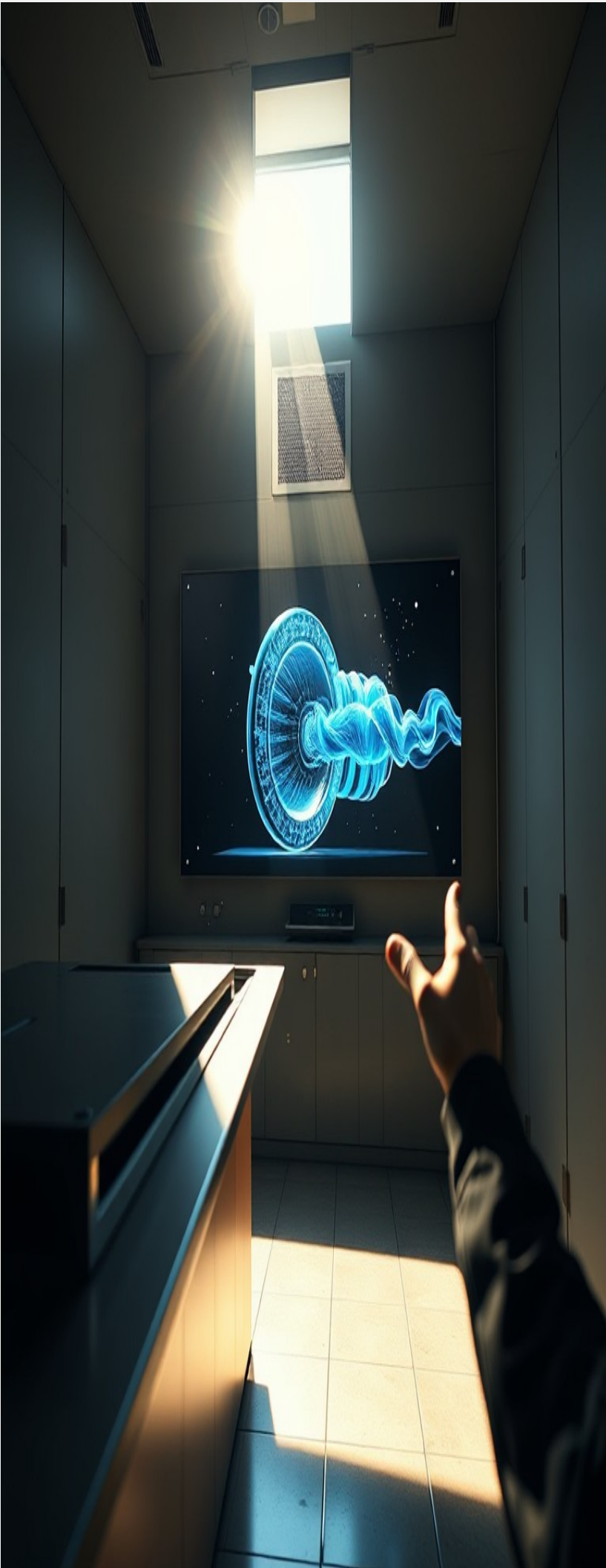
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Time Drift Breaks Predictive Models

This poses a systemic risk in nuclear safety: AI models trained on historical UTC data may fail when faced with a 3,600-second discontinuity, undermining real-time diagnostics and automated safety protocols.



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Safety Case Must Account for Time Jumps

This shift demands a rethinking of certification standards: AI systems must now be validated not just for accuracy, but for resilience against discontinuous time jumps. The safety argument must evolve from 'continuous time' to 'time-resilient time'.

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