AUDEAMUS GROUP, LLC

Wi-Fi Sensing & Privacy Weekly Brief

October 23, 2026 | Historical public-summary edition

HISTORICAL PUBLIC SUMMARY

Temporal resolution wins the CSI feedback budget

October 16–23, 2026 · One new preprint met the relevance, date, and evidence checks. It tests how IEEE 802.11bf-style CSI reporting can preserve activity-recognition performance while sharply reducing feedback overhead. No material new standards, regulatory, or consumer-control update was verified. The week's strongest signal is that commercial sensing efficiency may depend more on retaining frequent observations than on reporting every subcarrier.

01 / NEW · arXiv preprint · Zakeri et al. · under review / 2026-10-16

Temporal vs Spectral Resolution in CSI Reporting for Wi-Fi ISAC

Key finding. Zakeri et al. compare periodic, random, and IEEE 802.11bf threshold-based CSI reporting at matched rates, then compare uniform subcarrier decimation with block-mean grouping at matched report sizes. They propose periodic reports that carry the mean CSI accumulated since the prior report, paired with block-mean grouping. Across SignFi, CSI-HAR, and NTU-Fi HAR, the best tested scheme retains 95.7–98.3% of full-CSI accuracy while using no more than 7.7% of full feedback cost. On SignFi, it reaches 61.5% accuracy at 6.5% cost, versus 62.6% with full CSI.

Why it matters for Audeamus. IEEE 802.11bf sensing must share airtime with ordinary data. The results suggest products should spend scarce feedback budget on temporal coverage before fine spectral detail, potentially lowering sensing overhead without sacrificing much task accuracy.

Evidence limits. The study emulates reporting on stored datasets rather than testing live 802.11bf hardware or measuring real throughput. Its headline cost excludes the sounding burden required by mean and threshold schemes, a separate model is trained for every reporting configuration, and the tasks are gestures or activities—not stationary household presence or long-term false alarms.

Read in full? Read in full. It connects sensing accuracy to a standards-level operating cost with unusually careful user-held-out evaluation, while exposing important implementation costs outside the headline metric.

Open original source

ARCHIVE NOTE

This edition preserves the dated public summary and original citations from Wi-Fi Sensing Review. It has been repackaged for the Audeamus Group archive; the historical claims have not been independently reverified during this formatting pass. No private desk analysis is included.

Original public Wi-Fi Sensing Review

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