

Informatik–Kolloquium WS 2026/27

Montag, 09.11.26, 16.15 Uhr, Raum 12.150, Martensstr.3

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How Prevalent Is Rowhammer? – Insights from Our Large-Scale FlippyR.AM Study

The density of memory cells in modern DRAM is so high that frequently accessing a memory row can flip bits in nearby rows. This effect is called Rowhammer, and an attacker can exploit it to flip bits by rapidly accessing nearby memory rows. In recent years, researchers have developed sophisticated exploits based on this vulnerability, which enable privilege escalation on desktop computers, mobile devices, and even cloud systems without requiring any software vulnerability. However, not much is known about the prevalence of this effect.

We performed a large-scale study on Rowhammer prevalence, thanks to many volunteers who supported our study by measuring their systems. In total, we collected 1006 datasets on 822 different systems (some systems were measured multiple times). We show that 126 of them (12.5%) are affected by Rowhammer using our fully automated setup. This is a lower bound, since the preconditions required for effective tools failed on ~50% of the systems. Among other insights, we learned that fully automated reverse engineering of DRAM addressing functions remains an open problem, and we assume the actual number of affected systems is higher than the 12.5% we measured in our study.

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