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Before the Texas House Elections Committee

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Texas Capitol Extension, Hearing Room E2.028

Dear Chairman Cain, Vice Chair Gonzalez, and members of the committee, I write today about our nation's voting systems, the potential threats they face in modern elections, and the steps we might take to mitigate these threats.

My name is Dan Wallach. I've been a professor of computer science at Rice University, in Houston, Texas, for 23 years. I've worked with a variety of organizations in the voting space, but today I'm only speaking on my own behalf. However, I have coordinated with the nonprofit, nonpartisan organization Verified Voting to ensure they endorse these comments.

My main message for you today is that our election systems face credible cyber-threats from highly skilled actors, including foreign nation-states, and the language in HB 1708 takes important steps to address these threats. In particular, we want to ensure that any risk of malware in voting machines or tabulation systems is adequately mitigated by the opportunity to cross-check against paper ballots.

This bill would require paperless direct recording electronic (DRE) voting systems throughout the state to produce a paper record that can be read by the voter. (Similar language also exists in other bills under consideration in this session. I have previously endorsed SB598, which includes similar language about "auditable voting systems" as well as introduces "risk limiting audits", which are a process that can be used by election administrators to mitigate discrepancies between paper ballots and their electronic tabulations.<sup>1</sup>) Paper records are crucial in creating auditable elections, and will hasten our decommissioning of paperless DRE voting systems, echoing a nationwide trend away from these systems.

Why do we need paper records in this, our high-tech world? Because they mitigate against the risks of malware, in the voting system or elsewhere, that might unobtrusively show the voter one thing while recording and tabulating something completely different on the inside. Having voters see, verify, and have the opportunity to spoil their vote and redo it, if necessary, gives us a valuable strategy to mitigate against the worst risks of software tampering. Indeed, a paper-based

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<sup>1</sup> Dan S. Wallach, *Testimony Before the Texas Senate Committee on State Affairs Concerning SB 598 ("Relating to auditable voting systems")*, March 26, 2021. <https://www.cs.rice.edu/~dwallach/dwallach-testimony-texas-senate-26march2021.pdf>

system is an evidence based system that allows for the voter to verify their choices prior to the ballot being cast. This helps give voters confidence that their votes will be counted as they intended them to be. Election security experts agree that paper-based voting systems are the gold standard in conducting elections.

Thank you for considering this bill and these comments. I look forward to future opportunities to work with Texas officials in implementing more paper records in our elections.