

How to Prevent Election Hacking? Paper Ballots

Barbara Simons is a female computer scientist, which means she's in a minority in the male-dominated computer field.

But she is also a part of a significant minority of tech minds who think that we ought to go back to paper ballots in order to ensure proper security.

Simons, a retired pioneer researcher at IBM is the subject of [a feature article](#) in *The Atlantic* magazine. According to the article, Simons' has been a voice in the wilderness on the issue of the risks of electronic voting systems. But with concerns about Russian hacking of voting systems that have arisen since the 2016 election, that is now changing.

At the annual Def Con hacker conference in Las Vegas, Simons participated in a staged attack on voting machines. "I lose sleep over this. I hope you will too," she told the participants, mostly hackers.

Four voting machines had been secured for the event, three of them types still in use. One team of hackers used radio signals to eavesdrop on a machine as it recorded votes. Another found a master password online. Within hours of getting their hands on the machines, the hackers had discovered vulnerabilities in all four.

Reporters who before the 2016 election would have ignored her, crowded around her after the event.

"The problem with cybersecurity," said Simons, "is that you have to protect against everything, but your opponent only has to find one vulnerability."

In addition, ballots must be "anonymous and yet verifiable,

secret and yet accountable,” says Eric Hodge of CyberScout, a security-services company that advises states and counties.

Paper, Simons said, is the best answer to this riddle. Marked clearly and correctly, it’s a portable and transparent record of voter intent, one that voters themselves can verify, at least while the ballot is still in their possession. It’s also a permanent record, unlike computer memory, which can always be overwritten. “There’s no malware that can attack paper,” Simons said. “We can solve this. We know how to do it.”

Sometimes the most primitive technology is the best.