Read about Mayhem, the DARPA engine that can find vulnerabilities and patch them. Comment about what machines such as these mean for the future of cybersecurity. <https://spectrum.ieee.org/computing/software/mayhem-the-machine-that-finds-software-vulnerabilities-then-patches-them>

Mayhem is a machine that automates the functions of white-hat hackers at exceptional speed. Its core components include tools for analysis of programs for finding and exploiting vulnerabilities as well as for automatically patching when appropriate. That is, Mayhem identifies potential vulnerabilities and exploits them by generating a working code that a black-hat hacker might use to break into a system. Hence, it provides assurance that the instances are indeed weaknesses and fixes them automatically.

Mayhem is unique in its capability for various reasons. First, it can analyze programs without the help of the individual who developed it. Second, the machine can be scaled up across hundreds or thousands of nodes, making the security analysis very rapid. This capability can be seen from the work Mayhem did in identifying vulnerabilities for every program in the Debian Linux distribution.

Machines such us Mayhem are significant achievements in cybersecurity. That is, they are capable of finding and fixing security flaws in seconds as compared to months or years that security teams take towards identifying and mitigating vulnerabilities. Additionally, autonomous cyber-defense machines such as Mayhem have led the way for software security vendors to enhance their security solutions. For instance, Trend Micro’s Deep Security solution has a feature to automatically scan systems and identify potential vulnerabilities and apply temporary virtual patching to assets until the system vendor releases a permanent patch. Furthermore, machines like Mayhem are critical in identifying software vulnerabilities and reporting them to the service providers since most providers can’t afford to have bug bounty programs.

That being said, machines such us Mayhem would still require human intervention in providing secure software as they’re not perfect by any means. However, there is a very high chance that the machines will be intelligent enough to handle all the work by themselves.