1200 - Genetic Diseases to Guide Digital Hacks of the Human Genome: How the Cancer Moonshot Program will Enable Almost Anyone to Crash the Operating System that Runs You or to End Civilization...

Sunday at 12:00 in Track 4
45 minutes
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The human genome is, fundamentally, a complex open-source digital operating system (and set of application programs) built on the digital molecules DNA and RNA.

The genome has thousands of publicly documented, unpatchable security vulnerabilities, previously called "genetic diseases." Because emerging DNA/RNA technologies, including CRISPR-Cas9 and especially those arising from the Cancer Moonshot program, will create straightforward methods to digitally reprogram the genome in free-living humans, malicious exploitation of genomic vulnerabilities will soon be possible on a wide scale.

This presentation shows the breathtaking potential for such hacks, most notably the exquisite targeting precision that the genome supports – in effect, population, and time – spanning annoyance to organized crime to civilization-ending pandemics far worse than Ebola.

Because humans are poor at responding to less-than-immediate threats, and because there is no marketplace demand for defensive technologies on the DNA/RNA platform, the hacker community has an important role to play in devising thought-experiments to convince policy makers to initiate defensive works, before offensive hacks can be deployed in the wild. Hackers can literally save the world... from ourselves.
John Sotos
John Sotos is Chief Medical Officer at Intel Corporation. He has been programming computers continuously since 1970, excepting four years of medical school at Johns Hopkins, where he also trained as a transplantation cardiologist. His professional interests include hacking the medical diagnostic process, first with a book on edge cases, called "Zebra Cards: An Aid to Obscure Diagnosis," followed by six years as a medical technical consultant on the popular television series "House, MD." His masters degree in artificial intelligence is from Stanford, and he is a co-founder of Expertscape.com. He is a long-time air rescue flight surgeon for the National Guard; however, the opinions presented here are his own, and do not necessarily represent those of the Department of Defense or Intel.

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