Researcher studies the hacker mind

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Timothy Summers is providing a better understanding about how hackers think through his research and newly formed startup, Summers & Co., LLC, designed to improve cybersecurity.

Located in Silver Spring, Md., Summers & Co. assists businesses, governments and other organizations to protect data. His new website, How Hackers Think, recognizes the brilliance of hackers, who can either be malevolent or highly valued strategists.

Summers recently completed and defended his dissertation, titled "How Hackers Think: A Mixed Method Study of Mental Models and Cognitive Patterns of High-Tech Wizards." He now holds a PhD in Management: Designing Sustainable Systems from Weatherhead School of Management at Case Western Reserve University.

Hacking, the invasion of data meant to be protected, requires exceptional cognitive abilities, according to Summers, who finds that hackers can make mental representations of complex systems. He said his dissertation findings are useful for leaders and managers in private, government and nonprofit sectors with an interest cybersecurity and innovation.

"Tim's study is groundbreaking in revealing the key cognitive processes and behaviors associated with hacking," said Kalle Lyytinen, Weatherhead School Associate Dean for Research and professor of Design & Innovation. "These can be used to hire, manage and retain high-quality hacking resources, which are becoming more critical in many

digital businesses."

Summers considers himself "part of the hacker community," while acknowledging the well-deserved bad press hackers get, for example, when customer data of a major retailer or a financial institution is stolen. He accomplished his research in part through interviews with hackers. In addition, he brings to his research expertise in cognitive psychology. Hackers try to outsmart a computer system, but they make very human choices.

"What my research uncovered is that there is a substantial, very interesting uniqueness to how hackers think versus how the rest of the (human) community thinks," Summers said. "People can choose to be hackers. But it's also as if hackers are chosen because of their cognitive skills and traits. A hacker is a person capable of command and control of a system."

Hackers account for enormous costs associated with data intrusion in a world increasingly reliant on computer and Internet-based technologies.

"Hackers have a compulsion to analyze, to explore and to be curious to the point of obsession. I would say that my research provides a solid framework for understanding the hacker mind," he said.

Provided by Case Western Reserve University

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