NEWS STORY

Hacking 4 Defense Project Wraps Up JIDA Challenge

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Matthew D. Way, a program integrator in the Joint Improvised-Threat Defeat Agency's (JIDA) Sensitive Integration Office, briefed Stanford Doctoral candidates and Defense Innovation Unit Experimental (DIUx) members May 12, 2016, at Stanford University on the storyboard for JIDA's Virtual Advise and Assist "Hacking For Defense" challenge. Mr. Way's briefing provided a simple but poignant scenario to clearly articulate the problem for the students as part of the lean methodology as students arrived at solutions for the challenge. (Courtesy Photo) (Released)

STANFORD, Calif. (June 1, 2016) – Stanford University students teamed with the Joint Improvised-Threat Defeat Agency, applying problem solving skills to help the agency with a unique challenge during a new class, Hacking for Defense, which wrapped up its first semester last week.

"They truly brought a fresh perspective to Defense problems," JIDA's liaison to the effort, Matt Way, said about the students.

The Hacking for Defense class, also known as H4D, aims to solve national security issues with lean startup principles often found in Silicon Valley. Teams used a hands-on approach, engaging JIDA staff members and other public sector end users on actual national security problems.

"In a crisis, national security initiatives move at the speed of a startup yet in peacetime they default to decades-long acquisition and procurement cycles," H4D's course website states. "Startups operate with continual speed and urgency 24/7. Over the last

few years they've learned how to be not only fast, but extremely efficient with resources and time using lean startup methodologies."

JIDA submitted two challenges to the class for consideration and one team selected its "Virtual Advise and Assistance Toolkit" to research. This challenge aimed to create tools that would enable the U.S. military to virtually help foreign partners counter improvised threats.

The requirement to virtually assist partners magnified as the U.S. reduced its footprint in Iraq and Afghanistan, lessening the flow of accurate and timely information to JIDA analysts about improvised explosive device (IED) employment on the battlefield. Through H4D, JIDA sought to restart that flow, bolstering its analysts' capabilities.

"This was an eye-opening experience," said Way. "Hacking 4 Defense provided real results and left us understanding there is value in leveraging the technical expertise that resides in the Silicon Valley area. We found through our interactions that there is a unique culture of technical experts, engineers, and entrepreneurs that have a large appetite for trying to tackle tough problems."

JIDA conceived a situation where U.S. Soldiers are not allowed to leave their installation, yet have the responsibility to help Iraqi Security Forces disarm and exploit found IEDs. They imagined a tablet device or augmented reality glasses that Iraqis could use at the site of the IED, allowing the Iraqis to consult with U.S. experts in real time over a network to disarm it, and to document key information about what they found.

"From a technical stand point, solutions to this problem often led to tools like software applications that can be handed to partner forces, like phone apps," Way said. "Who better to help us launch a potential reporting application than the enterprise within Silicon Valley?"

Instead of limiting themselves to coding an app, the students focused more on concepts to incentivize partner nations to leverage technology, Way said. "Hence our interaction with companies that focus on customer experience. These concepts ended up leading us more into identifying key relationships and new approaches for integrating technical solutions."

The final product delivered to JIDA was a series of testable hypotheses and core value propositions. The results were influenced by interaction with Silicon Valley companies and Stanford Doctoral candidates. For JIDA's challenge, the team primarily leaned on representatives from Medallia, Google Translate and Lattice to learn from their related workflows and problems.

A specific example of a recommendation, this one from the head of product for Google Translate, indicated that machine translation would require far too many documents for

languages like Arabic and Pashto. He validated the hypothesis that narrowing translations to a few hundred key terms or short phrases would dramatically increase accuracy.

There were some other recommendations that will be further researched such as concepts that incentivize partner nations to report incidents with higher fidelity.

The results of the H4D team's work will be applied over the next six months through a framework the students helped lay out between partners. The framework re-attacks integration of current solutions and will potentially improve adoption by partner forces.

"The collaboration was effective and in the next few weeks we expect to report that our pathway plan leads to more adoption of available tools to improve the advise and assist mission," Way said.

Other challenges were submitted by the U.S. Navy, National Security Agency, U.S. Special Operations Command, U.S. Army Communications and Electronics Research & Development Engineering Center and other participants.

JIDA teammates hope the H4D spring class will review its other submitted challenge: the necessity to use advanced analytics and visualizations for monitoring and forecasting regional threats. JIDA's goal is to create an integrated regional threat model that creates contextual relationships between disparate categories of information to recognize patterns and indicate the presence of precursors of violent conflict.