ANNUAL REPORT

CAL POLY CALIFORNIA CYBERSECURITY INSTITUTE
HEWLETT FOUNDATION CYBER INITIATIVE - NARRATIVE
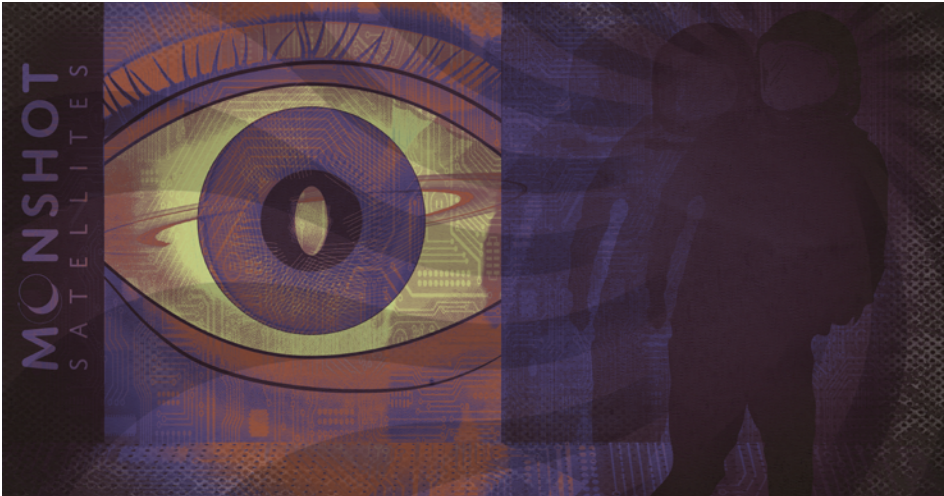
cci.calpoly.edu

Figure 1. Story artwork created by CCI graphic designer Ron Patanavin for the California Cyber Innovation Challenge 2021, an event for high school students that is part of CCI's new Cyber to Schools initiative (see page 3).
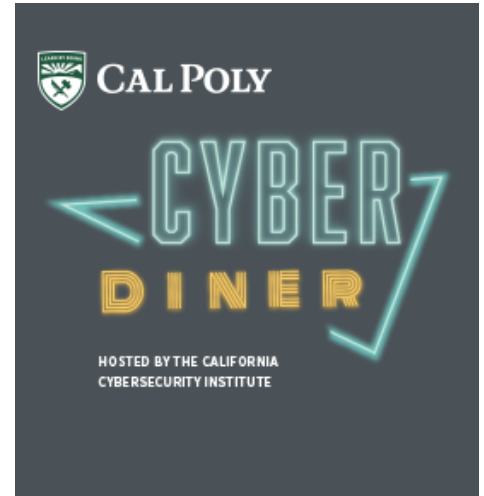
Figure 2. Cover artwork for CCI's new cybersecurity artwork for students and career changers.

REPORT OVERVIEW

Cal Poly California Cybersecurity Institute (CCI) is reporting on an unrestricted general support grant that covered expenses over the grant period August 1st, 2020 to July 31st 2021. To help the Hewlett Foundation evaluate this grant, Cal Poly CCI is providing a general overview of the organization's institutional progress, as well as providing the following summary of the kinds of work we conducted during the grant period. As you are aware, the Foundation did not impose any restrictions on the use of the grant in order to leave us the discretion to spend the grant funds on activities not described here, including administrative expenses, provided that any activity paid for with grant funds was consistent with Cal Poly CCI's tax-exempt status under section 501(c)(3), or its recognition as a U.S. public charity equivalent. This report describes our work generally during the grant period and is not limited to activities charged to the Foundation's grant.

The following report will outline discuss the various interrelated programs that CCI has accomplished in the past two years related to cyber initiative. The four major programs that have grow from the support are the new website redesign project, the development of a cybersecurity podcast and space & cybersecurity newsletter, and the launch of the Cyber to Schools initiative for k-12 students.

WEBSITE REDESIGN

The website redesign project was an essential component of establishing a strong, effective brand and reputation in the modern cybersecurity field. The former site template, which was originally developed in 2007, was outdated both visually and technically, and documentation was limited. Thus, it was time-consuming to create and publish content, and extremely difficult to train new employees, who were often Cal Poly students with high turnover, on site management skills and practices. The outdated design also undermined CCI's ability to visually appear credible and innovative in a tech-related field.

CCI contracted with web development vendor Rolling Orange to develop and aid deployment of the new site, and a retained a dedicated CCI staff member to design the site and implement a new set of site management procedures and guidelines. The new site features several improvements, including the new design template, an integrated clickable training course catalog for training customers, a reorganized site structure to better reflect CCI programs, and even original cyber artwork inspired by the Hewlett Foundation's CyberVisuals campaign.

Figure 3. A screenshot of the old CCI website homepage displays a number of design and accessibility problems including mixed formatting, using images as buttons, and vague imagery.
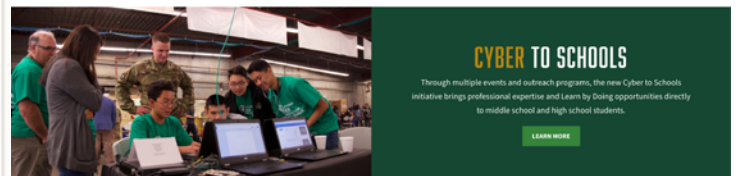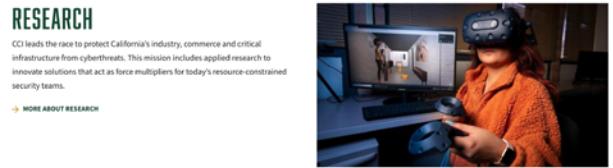

Figure 4. A screenshot of the new CCI website homepage displays the incorpora- tion of design solutions such as consistent formatting, block structure, clear calls to action, and contextual imagery.

The impact of the new website was almost immediate, as browsing sessions have increased 15% since May, and sessions last 25% percent longer over the same period. We have also noticed an uptick in email contacts, likely driven by our focus on calls to action in the new site. During the development period, CCI's team worked with vendor Rolling Orange and the main Cal Poly marketing team. Both organizations shared resources with CCI that have improved adherence to design standards, ADA compliance, content creation speed and quality, and site design principles. The internal website team now has a sprint-based work management system for content updates and access to various site and page design method- ologies for different contexts, which represents a crucial shift away from the slower, less consistent process on the old site.

Figure 5. The Research page on the CCI website features artwork from cybervisuals.org. CCI graphic design student employees are developing artwork for certain contexts that is inspired by the cybervisuals campaign.

DEVELOPING A CYBERSECURITY PODCAST

As an additional arm of the CCI outreach engine, CCI has been gradually developing process and internal support for a new video podcast called the Cyber Diner to increase community awareness and establish thought leadership. The podcast is geared towards cybersecurity students and career-changers, and CCI plans to rely on the strengths of podcasting to generate trust and topic interest from younger audiences. The video component was added as a means of sharply increasing online promotional capabilities, since visual content is highly successful on most social media platforms. It will be an interview format podcast that allows experts from industry to provide insight directly to tech students in bite-sized, easily digestible 25 to 30-minute sessions.

Figure 6. Cyber Diner Podcast host and producer Ryan Vannucci pictured in the podcast studio during a recording with one of the first guests in an interview centered around vulnerabilities in satellites.

CCI worked with consultant Tracey Madigan, 15 Minutes Group, to train staff members on podcast hosting and coordination, create an internship program for Cal Poly students, and define production process from initial guest engagement to post-release promotion. The podcast team currently consists of a lead producer/host and two student interns who drive all seven steps of the episode production cycle: Research, Script, Produce, Edit, Review, Publish, and Promote. The production team has created a documentation template for building comprehensive guest research profiles and follows a checklist for each of the seven steps of the production cycle.

Since the visual component is viewed as critical to the success of the podcast in terms of garnering a wide audience, CCI's team created the show concept and brand design centered around a diner theme as a relatable setting which ironically draws on nostalgia from before the information age as a context for promoting the integration of cybersecurity in every aspect of modern life. CCI's social media team is currently defining social media promotion schedules for the lifecycles of each episode, which include standards and templates for different types of audio-visual content assembled from each episode.

The podcast is currently in late stages of production for the first three episodes, and plans to start releasing content after a few weeks of initial social media promotion at the end of the July. Episodes will be released every two to three weeks on most major hosting platforms, including YouTube, Apple Podcasts, Spotify, and the Google Play Store.

DEVELOPING A SPACE & CYBERSECURITY NEWSLETTER

The CCI team started releasing a Space & Cybersecurity newsletter to provide industry leaders with the latest cyberthreat news that pertains to the space industry. Our team, led by consultant Sid Voorakkara, Strategies360, started working in July of 2020 and created a monthly curation and editorial process characterized by trendsetting, selection rounds and original commentary. The resulting plan defined that each of edition of the newsletter would include 15 to 20 of the most important news articles related to space and cybersecurity. By interviewing experts in the Space & Cyber field as well as providing analysis of news articles each month, lead writers Alex Ebrahimi and Jake Watkins also create unique and original content that adds value to the newsletter.

The monthly newsletter has been regularly released since October 2020, and our most recent edition went out to an audience of 1142 subscribers. Open and click rates have fluctuated monthly but show steady growth to date. A future vision for the newsletter is to add value to synthesize new and existing cybersecurity threat scenarios to space assets. Our goal is to have the most comprehensive list of risks in this cutting-edge field, shared in a Bi-Annual Report.

WORKFORCE DEVELOPMENT

614th Air & Space Communications Squadron redesignated as 65th Cyber Squadron

At Vandenberg Space Force Base, the U.S. Space Force relinquished "command, redesignation, and assumption of command ceremony for the 614th Air and Space Communications Squadron and 65th Cyber Squadron." This redesignation will allow for the 65th Cyber Squadron (CYS) to assist the Space Delta 6 at Schriever Air Force Base, and will provide access to the $6.8B Air Force Satellite Control Network and "defensive cyberspace capabilities for space mission systems." The 65th CYS will now defend computer systems and networks used by Space Delta 5 and the Combined Space Operations Center from adversarial cyber attacks.

PERSPECTIVE: How universities can help counter space threats to national security

Despite the barrier that academia has in accessing military related projects given their classified nature, universities possess a talent pool in the evolving space and cyber effort that could assist in counter space threats. Universities are "a key source of advanced technology innovation," with major projects being fulfilled by graduate level students and staff. With numerous certifications, hands-on experience, and a space focused minor for undergraduates, CU Boulder has demonstrated the ability for universities to contribute to this in demand workforce. Creating this pipeline is an invaluable tool that is yet to be fully tapped into, and can dramatically increase the number of young professionals with training and experience needed to bolster our space workforce

Figure 7. Sample from the Space & Cybersecurity Newsletter July 2021 edition

LAUNCHING THE CYBER TO SCHOOLS INITIATIVE

The Cyber to Schools initiative is a new overarching program led by CCI that prepares K-12 students for careers in the digital revolution through professional training and free industry-recognized certification programs with an emphasis on inclusivity and hands-on learning. The initiative also includes expanding California Cyber Innovation Challenge (CCIC) for middle and high school students, and implementing new programming. Among the new are summer school programs, a week-long Space Camp powered by GenCyber, and guidance for K-12 students to start local chapters of tech clubs modeled after Cal Poly's new Digital Transformation Club (DxClub).

There are two pilot summer school programs currently underway with both the Cherokee Nation and the Kansas City Black Chamber of Commerce. vGenCyber Space Camp has closed registration and will commence the first week of August 2021. The CCIC is in its fifth year, and 2021 is the second year that the competition will be held entirely online. While previously confined to California, this year students from the Royal Melbourne Institute of Technology will also be participating. The event will evolve into an even larger competition in 2022 dubbed the Space Grand Challenge and will be open to student teams across the U.S., Australia, and Argentina.

Figure 8. Addtional story artwork created by CCI graphic designer Ron Patanavin for the California Cyber Innovation Challenge (CCIC) 2021.

The events and summer programs serve as entry points for students who have little to no experience with cybersecurity. All students that participate in the above programs will have access to the professional training and certification pathways which provide the next step of tangible career development. CCI student interns are currently auditing each professional training program and creating documentation to provide Cyber to Schools trainees with customized and streamlined training pathways, which will be published in full on the new website in late August.

Figure 9. Students analyizing digital evidence that was collected from a set at the CCIC 2019 in San Luis Obispo California. This event has been made virtual which allows for more participation at lower cost.