Report Overview:

The following report follows the reporting criteria as required by Cal Poly for approved Campus Centers and Institutes with Academic Affiliation (Academic Senate, March 11, 2014). This report delves into the state of cybersecurity in California, summarizes the institute activities for the year, provides a financial report, and illustrates how faculty and students are supported by the institute.
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San Luis Obispo, California  93407
Office Phone: (805) 756-2948
www.cci.calpoly.edu

California Cybersecurity Institute Annual Report

Bill Britton, Chief Information Officer, Vice President for Information Technology Services and California Cybersecurity Institute Director

Martin Minnich, California Cybersecurity Institute Program Manager
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Message from Director

William J. Britton

It is no longer a question of “IF” a cyberattack will happen on an organization, but “WHEN.” As the level of sophistication and devastation increase from cybercriminals, so must the training for our state and both current and future cybersecurity professionals. Cybercrime is on the rise with no sign of stopping. This last year we watched devastating cyber attacks on government, academia, and hospital systems. According to cyberseek.org, the State of California has 35,000 unfilled cybersecurity jobs. Cal Poly’s California Cybersecurity Institute (CCI) is focused on a serious and growing workforce development problem by addressing the growing cybersecurity defense challenges facing our state. The future vision of the CCI is to create a world-class training and research facility dedicated to the complex and emerging cybersecurity challenges facing America, State of California, and Cal Poly. Additionally, the CCI will serve as a focal point for cybersecurity collaboration through strategic relationships with academia, government, and industry.

The CCI consists of three buildings (over 100,000 square feet) including a forensics lab, operations and training facility, and cyber range suitable for hosting large-scale, immersive training events. Our industry partners have donated thousands of dollars for cyber defense equipment for use by our staff, students, and faculty. Through a combination of training courses, grants, special events, donations, and research efforts, the CCI offers an attractive environment for students from both technical as well as liberal arts majors to Learn by Doing. Professors will continue to partner with the CCI on cyber research and projects.

Over the last year, we have successfully leveraged the CCI to accomplish several critical stepping stones toward success, and set the stage for some exciting future accomplishments in collaboration with faculty, staff, and students. The CCI currently supports a team of dedicated employees that drive the vision of the CCI. A major milestone this year was the CCI’s support to the recently submitted California Military Department (CMD) budget change proposal to Governor Brown, which requested funding to further develop the CCI.

I look forward to the exciting road ahead for the California Cybersecurity Institute and the impact this amazing institute will continue to have on Cal Poly’s students, staff, and faculty.
Section I Mission

Executive Summary

California Polytechnic State University (Cal Poly) in San Luis Obispo, California aspires to become the leading supplier of cyber-ready professionals through a comprehensive and collaborative program that spans our polytechnic university and partners with public and private organizations. Our goal is to educate:

- Thousands of Cal Poly students in a basic level of cybersecurity awareness (readiness) as part of their educational requirements - Cal Poly graduates will then carry this readiness forward as they become the next generation of industry and agency professionals.

- Hundreds of students in engineering, science, and business can study cyber technologies and systems (experts) through programmatic concentrations and major requirements.

- Those tens of students (innovators) who will serve in the military as cyber experts (warriors).

- Those tens of students (innovators) who will pursue advanced study and applied research with their associated faculty in the many emerging issues of this tightly-coupled, complex system.

Mission Statement

Educating and empowering well-prepared, socially conscious, and career-ready students to be leaders.

1. **Produce Security Cognizant Graduates:** that ultimately create opportunities to ignite social change and create innovative, purposeful cybersecurity solutions no matter what their field or work.

2. **Enhance the Growth of the University:** through increased research projects, increased desire for enrollment applications, and increased public and private partnerships through the creation of a Center for Security Studies that will have the ability to boldly address a security issue but also transform all the people involved.
Core Values

1. **Learn by Doing** - Demonstrated by hands-on, student-centered, interdisciplinary education and an approach to continuous improvement in the fields of Cybersecurity.

2. **Excellence** - Demonstrated through a collegial community and industry partnerships that pursues responsive scholarship, innovation, leadership, and service.

3. **Knowledge** - Demonstrated by scientific integrity, responsiveness to the security space, industry, and social needs through dedication to fostering lifelong learning.

4. **Student Success** - Demonstrated by students who are prepared to contribute to the diverse needs of society.

5. **Integrity** - Demonstrated by the highest possible ethical standards and accountability for working in cybersecurity.

6. **Passionate Professionalism** - Demonstrated by respectful collaboration in collegial, industry, and government communities in the pursuit of excellence in teaching and learning, resulting in meaningful research and scholarship.

<table>
<thead>
<tr>
<th>STRATEGIC OBJECTIVES</th>
<th>ACTION OWNER</th>
<th>ACTIONS</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATE UNIVERSITY ATMOSPHERE THAT GENERATES A CYBERSECURITY STUDENT</td>
<td>A) CCI DIRECTOR</td>
<td>• DEVELOP STRATEGY TO IMPLEMENT A CORE OFFERING TO THE COMPUTER SCIENCE DEGREE. • DEFINE A STRATEGY FOR DELIVERY OF CYBER ATTRIBUTES.</td>
<td>ONGOING</td>
</tr>
<tr>
<td>POSITION CAL POLY AS A &quot;THOUGHT LEADER&quot; IN CYBERSECURITY</td>
<td>A) CCI DIRECTOR</td>
<td>• THE MISSION OF THE CCI IS TO INCREASE THE VISIBILITY AND UNDERSTANDING OF THE CCI’S MISSION AND RESEARCH IN SUPPORTING INDUSTRY, COMMUNITIES, AND STATE AND LOCAL GOVERNMENTS IN DEVELOPING A CYBERSECURITY WORKFORCE. • PRESENT CAL POLY IN AS MANY FORUMS AND MEETINGS AS POSSIBLE. • MAKE CAL POLY SYNONYMOUS WITH CYBER LEADERSHIP</td>
<td>ONGOING</td>
</tr>
<tr>
<td>B) FACULTY</td>
<td></td>
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</tbody>
</table>
The CCI changed its name affective August 1, 2017 from the California Cyber Training Complex to the California Cybersecurity Institute. This rebranding was based on consultation with stakeholders who agreed the name change was appropriate.

Throughout America, there are several key states and universities (Georgia, Virginia, Arizona, Michigan) that lead a model of cyber excellence as well as a balanced public-private partnership to enhance the overall good and safety of the citizens and students they serve.

The California Cybersecurity Institute enhances Cal Poly and the College of Engineering by bringing our university into the forefront of the nation and world discussion on cybersecurity and threat prevention. Additionally, the CCI helps prepare the current and next generation of cyber defenders through training and internship opportunities.

The CCI also serves as a focal point of collaboration for Cal Poly's faculty, staff, and students to multiple organizations in both the private and public sectors in new areas of cybersecurity research and training. The CCI in the last year has worked with 19 faculty throughout 11

<table>
<thead>
<tr>
<th>STRATEGIC OBJECTIVES</th>
<th>ACTION OWNER</th>
<th>ACTIONS</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build new and leverage existing cyber facilities</td>
<td>A) CCI</td>
<td>• Security Technology Training Environment</td>
<td>On hold for CCI development.</td>
</tr>
<tr>
<td></td>
<td>B) Director</td>
<td>• SCADA/ICS Innovation Lab - Waste Water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C) Engineering</td>
<td>• SCADA/ICS Innovation Lab - Energy, Transportation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C) Civil &amp; Other Departments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify and hire exceptional faculty</td>
<td>A) Computer Science Department</td>
<td>• Support/supervise existing cyber work</td>
<td>Ongoing Four FTE’s at CCI.</td>
</tr>
<tr>
<td>Provide research opportunities for students and faculty</td>
<td>A) CCI Director</td>
<td>• Made several outreaches</td>
<td>Ongoing See projects listed in report.</td>
</tr>
<tr>
<td></td>
<td>B) Director</td>
<td>• New program agreements</td>
<td></td>
</tr>
<tr>
<td>Advance key differentiating advanced cybersecurity technology offerings and intellectual property development</td>
<td>ALL</td>
<td>• Develop new projects for students and faculty</td>
<td>Ongoing See projects listed in report.</td>
</tr>
<tr>
<td></td>
<td>ALL</td>
<td>• Support submittal for funding</td>
<td></td>
</tr>
<tr>
<td>Build research and grant opportunities</td>
<td>ALL</td>
<td>• Working with Computer Science and EE</td>
<td>Ongoing See grants section of report.</td>
</tr>
</tbody>
</table>
Benefits to Cal Poly’s Faculty and Students

The CCI has accomplished several critical stepping stones to success during the past year as well as set the stage for some exciting future accomplishments through the help of our faculty, staff, and students. The CCI’s goal is for student participation to be at the forefront of everything we do. Cal Poly’s students participate at the CCI in support of daily operations, event planning, digital evidence creation, story creation, live acting and roleplaying, app development, data analytics, cyber training events, cybersecurity research, and outreach. The institute offers distinctive interdisciplinary learning opportunities through class projects, senior projects, employment opportunities, and professional internships. The number of student employees varies depending on the time of the year, typically 12-15 students are employed part-time during the academic year. Students are compensated at a very competitive rate, work in an emerging field, and get invaluable exposure and training in a real-world setting. From January 2018 through June of 2018, the CCI employed four CENG students, four College of Liberal Arts (CLA) students, and two COED students. These students participated in the following projects.
In addition to the students referenced above, the CCI leveraged 65 additional students and faculty through the Cal Poly Learn by Doing pedagogy to incorporate faculty and class led projects into our efforts to rapidly address our many areas of need.

<table>
<thead>
<tr>
<th>Project</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CCIC - Digital Forensics Challenge</strong></td>
<td>Redesigned CA DOJ forensic manual, designed digital forensics challenge, and created evidence in virtual machines.</td>
</tr>
<tr>
<td><strong>Forensics in the Cloud</strong></td>
<td>Created forensics computer in the cloud and developed forensics dashboard.</td>
</tr>
<tr>
<td><strong>CA DOJ Warrant Data Analysis</strong></td>
<td>Used tools to clean and analyze data for CA DOJ eCrime office. Results will be used in Supreme Court Case.</td>
</tr>
<tr>
<td><strong>Digital Production</strong></td>
<td>Created multiple promotional videos for CCIC as well as developed and maintained CCI’s website pages.</td>
</tr>
<tr>
<td><strong>Architectural Room Drawings</strong></td>
<td>Created building and room drawings for CCI facilities as well as mock-ups for training scenes.</td>
</tr>
<tr>
<td><strong>Research</strong></td>
<td>Provided research assistance for grants.</td>
</tr>
</tbody>
</table>

In addition to the students referenced above, the CCI leveraged 65 additional students and faculty through the Cal Poly Learn by Doing pedagogy to incorporate faculty and class led projects into our efforts to rapidly address our many areas of need.

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<tr>
<th>Project</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>CCIC - Digital Forensics Challenge</strong></td>
<td>Worked on set design, script development, evidence creation, live acting, and roleplaying.</td>
</tr>
<tr>
<td><strong>Forensics in the Cloud</strong></td>
<td>Created a digital forensic assistant app.</td>
</tr>
<tr>
<td><strong>Graphic Art and Design</strong></td>
<td>Created streamlined and consistent marketing materials and infographics that are all in compliance with Cal Poly guidelines.</td>
</tr>
</tbody>
</table>
Students also participate in a variety of cyber training workshops and events. Students may also earn cyber certifications through the more than 30 certifications that the CCI offers onsite, self-paced, and online.

<table>
<thead>
<tr>
<th>Digital Production</th>
<th>Created multiple promotional videos for CCIC as well as developed and maintained CCI’s website pages.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR Strategy</td>
<td>Developed a public relations plan to ensure consistency of messaging and selective targeting.</td>
</tr>
<tr>
<td>Interior Design</td>
<td>Fully integrated the classroom spaces into a functional and inviting learning environment. Also incorporated the SLO Museum of Art into providing artwork on a rotating basis.</td>
</tr>
<tr>
<td>Research</td>
<td>Provided research assistance for grants.</td>
</tr>
<tr>
<td>Journalism</td>
<td>Developed backstory and current stories for our blog and outbound content.</td>
</tr>
<tr>
<td>Marketing</td>
<td>Designed a multifaceted marketing plan, competitor analysis, and social media marketing strategy.</td>
</tr>
<tr>
<td>Construction</td>
<td>Participated in set design, permits, plan submission and review with base fire marshal.</td>
</tr>
<tr>
<td>Business</td>
<td>Participated in project management, business development, and event planning.</td>
</tr>
<tr>
<td>Architecture</td>
<td>Participated in building redesign discussions and initial planning efforts.</td>
</tr>
</tbody>
</table>
Training

The CCI serves as a training center for CENG while functioning as an interdisciplinary organization to support Cal Poly graduate and undergraduate programs by providing opportunities for training, research, and special studies in cybersecurity. During the last year, the CCI has worked with both Cal Poly students and faculty to create cybertraining for K-12 teachers, digital forensics, industry control systems, medical, anti-human trafficking, digital privacy, and vehicular vulnerabilities.

For the second year in a row, the CCI hosted the State of California Governor’s Office of Business Development, California Cyber Innovation Challenge (CCIC) which featured 19 high school teams and one junior high school team for a total of 116 students. The teams competed in an immersive, cyber challenge around medical security. The CCI received funding from Go-Biz as well as technology and medical organizations to support this event.

Building off of the success of the 2017 CCIC event, which featured a mobile, digital forensics challenge on 16-Subaru Outback sport utility vehicles; in 2018, the event featured a 10-room hospital with medical equipment to highlight the challenges of ransomware impacting many medical organizations throughout the country. The CCI created a physical and digital crime scene in one of the apartments on base requiring participants to find the location through analyzing GPS coordinates planted as evidence at various areas throughout the base. Students also faced digital forensics challenges throughout the day and were required to present their findings to a panel of judges from academia, industry, government, military, and law enforcement. The following video provides a brief one and a half minute overview on the California Cyber Innovation Challenge: https://youtu.be/GA-lantdn2Q.
Grants

2017 continued to see an increase in the grants received by the CCI. The following are highlights reflecting some of our grants wins:

- For the second year in a row, the CCI hosted the State of California Governor’s Office of Business Development, California Cyber Innovation Challenge that featured 19 high school teams and one junior high school team competing in an immersive, cyber challenge focusing on medical security. The CCI received funding from Go-Biz and partnerships to support this event. The following video provides a brief one and a half minute overview on the California Cyber Innovation Challenge: https://youtu.be/GA-lantdn2Q

- GenCyber Grant to train high school teachers on cybersecurity was awarded by the National Security Agency to John Oliver and Zachary Peterson. The classroom training for GenCyber utilized the new classrooms at the CCI.

- In collaboration with the County of San Luis Obispo, Cal Poly students created an app on the Amazon platform.

- Cisco Research Center University awarded the CCI with a grant for research on “Critical Infrastructure and Cyber.”

- The CCI is making a large push for grant funding in the next year with exciting updates from the Hewlett Foundation of a forthcoming award.

- The CCI is working to create a more robust grants program focused on public and private organizations.
Events

The CCI supports interaction with Cal Poly’s students, faculty, and staff through a variety of activities that encompass the goals of the State of California as they relate to cybersecurity. This past year, the CCI continued to serve as a training center to not only support the CENG but create an interdisciplinary organization to support the Cal Poly graduate and undergraduate programs by providing opportunities for training, research, and special studies in cybersecurity. Additionally, the CCI will continue to offer cyber events for youth as well as cyber professionals. The CCI created several cyber related events for the community, state, and Cal Poly students over the last year including:

- Cyber Girl with the Girl Scouts of America (November 2017)
- Law Enforcement Technology Advancement Day (May 2018)
- Women in Cyber Event (May 2018)
- Cyber Workforce Summit (June 2018)
- California Cyber Innovation Challenge (June 2018)
- GenCyber Training for Educators (June 2018)
- Multiple visits from congressional leaders and key State of California delegates and legislators

Cal Poly Students on the Women in Cyber Event

“I thought it was really cool how in such a male dominated industry, the women on this panel came together to further explore the expansion of cyber to women.”

“After attending this conference, my interest in cybersecurity and the entire cyber field definitely grew. There are so many different opportunities and career paths available...”

“Before listening in on this leadership panel, I did not expect to learn as much as I did. Walking in, I saw 12 women that are involved in cybersecurity in their everyday jobs...”
Cybersecurity Case Library

The “Cybersecurity Case Library” is an undergraduate research journal that explores contemporary topics in cybersecurity. The CCI assembled students from multiple disciplines to co-write case studies regarding specific cyber events with the purpose of educating students campus-wide about cybersecurity. As the cybersecurity field continues to change and expand, our goal is to provide students and faculty with a class resource that will foster a deeper understanding of issues in cybersecurity and their real-world consequences.

The most recent case library featured articles on:

- Posthumous harm and privacy
- Blockchain
- Cyber threats in autonomous vehicles
- Ethics and doxing
- Prosecuting cyber-attacks on cloud computing

This effort has clearly lead to meaningful student success. Brian Kinnee, a recent Cal Poly graduate, majored in English and worked with the CCI and Amazon Digital Transformation Hub last year. Kinnee helped write the portion of the digital case library on Blockchain. Kinnee presented the Blockchain paper at a technical conference in Boston, MA. Kinnee received numerous accolades on his presentation. Kinnee is now pursuing a PhD in cybersecurity at the University of Washington as a result of his exposure to the CCI and cybersecurity.

The digital case library has also been shared with other universities around the country. The CCI is currently planning digital case libraries next year in vehicular vulnerabilities, medical security enclaves, and digital ethics. Read the latest edition of the “Cybersecurity Case Library” at https://tinyurl.com/digital-case-library

“I'm reaching out to express my warmest thanks to you and the whole team at ITS for helping make my dream into a reality. You provided me with countless opportunities for professional experience and unwavering support throughout my time at Cal Poly. I feel very lucky and grateful. I'm eager to begin this next chapter with what you've taught me in mind. Thanks again for everything!”

- BRIAN KINNEE, ENGLISH MAJOR CAL POLY CLASS OF 2018
Accomplishments

This past spring, the CCI transitioned former Program Manager Bruce Burton into a consulting role and brought in new Program Manager Martin Minnich. Prior to joining the CCI, Minnich served as a captain in the United States Marine Corps. In 2012 he received the prestigious Fed 100 award for the performance of his team and the Emergency Operation Center after the devastating Tomodachi Earthquake in Japan. Danielle Borrelli was recently awarded the Cal Poly Employee of the Year Award for her work at the CCI as well as community efforts both in San Luis Obispo and internationally to combat human trafficking.

With the leadership team in place, the CCI has been deeply involved in the cybersecurity community, increasing Cal Poly’s cybersecurity profile locally, regionally, and nationally. The CCI’s community engagement included:

• CCI is an active participant in the Governor’s Cybersecurity Task Force and Subcommittees.

• State of California’s Annual Cybersecurity Education Summit featured Minnich as a keynote speaker on the closing cyber panel.

• Regular engagement with government and law enforcement events hosted by InfraGuard on cybersecurity.

• Participation in industry conferences such as RSA, BlackHat, NICE, and DEFCON.

• CCI was a key note speaker at the 2018 University of California, Office of the President (UCOP) Oakland Cybersecurity Summit. The CCI will participate in next year’s UCOP’s Cybersecurity Summit in San Francisco and Santa Barbara as well as in the planning stages of a cyber summit at the CCI for UCOP leadership.

• Multiple invitations to speak at law enforcement and justice events such as the SoCal Justice and Public Safety Working Group and Orange County Sheriff’s Quarterly Working Group.

• The CCI has been requested to conduct sessions at the next California Peace Officers Association’s Cops West conference in August of 2019.
• The CCI is working with California District Attorneys Association (CDAA) on hosting training on the dark web.

• CCI is part of numerous groups focused on fighting human trafficking including the Central Coast Freedom Network, Freedom Calling, and the SLO D.A.’s Human Trafficking Task Force.

Financial Plan

The California Military Department (CMD) requested funding through the State of California in the Fall of 2018 to further develop the CCI. The CCI also has a strategy in place for additional revenue through grants, donations, and training revenues. The CCI is currently preparing a new business plan that will focus on the following areas of funding through government wide acquisition contracts, certifications, grants, training revenue, and donations through strategic relationships. Our planned progress for the next 12 months focuses on the following areas:

As we look forward to the exciting year ahead for the CCI, a great deal of time during this fiscal year was spent towards cultivating relationships with Cisco and the Hewlett Foundation. The CCI is positioned to receive funding in the next reporting period from these organizations.
Section II Unit Organization, Resources, and Management

Organization

The California Cybersecurity Institute Fall 2018 Organizational Chart highlights the significant contributions the Cal Poly student body is having on sustaining our operational tempo while being intimately involved in their own professional development. We ensure that the Cal Poly student is front and center in all of our engagements and activities to demonstrate the intellectual prowess and capabilities of the university.

Resources

1. Outdoor Facilities

By operating our facilities at Camp San Luis Obispo, the CCI’s training opportunities are significantly enhanced. Camp SLO offers a secured military environment as well as multiple training spaces spread throughout the base that enable the CCI to conduct a wide array of different training opportunities. A prime example is the California Cyber Innovation Challenge this past June. During this year’s competition, the CCI created a physical digital crime scene in one of the apartments on base allowing participants to find the location through analyzing the GPS coordinates planted as evidence at various areas throughout the base.
2. Indoor Facilities

Significant improvements to our facilities have taken place this year to make the space operational as rapidly as possible. With a small capital investment of two temporary walls in our training facility, the CCI converted one large empty space into three separate and operational classrooms that are being used for cyber training as well as university activities. Additionally, modifications to the fire alarm systems were completed.

3. Visualization to the Classroom

The CCI has introduced the Oblong Mezzanine system. Mezzanine transforms conference rooms and learning spaces into dynamic collaborative spaces by enabling multiple users to share multiple streams of content simultaneously, and with multiple modes of control including a gestural wand, tablet, smart phone, or laptop. Cal Poly with Oblong Industries marks a paradigm shift in how organizations may train in the future. Instead of a purely lecture driven model, training becomes more participatory and engaging.

The CCI continues to utilize the warehouse as a modular training space featuring the Cal Poly Learn by Doing immersive training environment for our cyber innovation challenges, vehicle vulnerabilities exercises, and cyber strategies to combat human trafficking courses.

The California Central Coast Forensics Lab (CCCFL) is also located at Camp San Luis Obispo adjacent to the CCI. Cal Poly's students, staff, and faculty were involved in creating the modern forensics lab at the CCCFL that has been actively used by law enforcement officers to solve cases in our region.
4. Partnerships

The CCI is truly focused on integrating public, private, and academia sectors together as a community to fight cybercrime, cyberterrorism, and address the critical skill shortage through workforce development. Partnerships with the public and private sector are critical to the success of the CCI. Below are highlights from the last year with our partners:

- The California Military Department continues to provide the CCI with the use of three buildings for cybersecurity research and training at Camp San Luis Obispo.

- Amazon AWS awarded the CCI credits to be used for research, development, and training. Three students embarked on multiple training tracks via Amazon Educate and worked directly with law enforcement and first responders.

- Cal Poly LAES provides the CCI with an ability to create live immersive set designs, live actors and role players, script development, and stories that bring our training venues to life in real-world scenarios.

- Bugcrowd has partnered with the CCI through the funding of internships and creating Learn by Doing events with the Cal Poly student body. Our first Bugcrowd sponsored student is learning penetration testing and ethical hacking.

- CrowdStrike has one of the industry’s best cyber threat intelligence reports and is actively providing the CCI with regular updates on current threats and actors. In addition, they regularly provide gifts and marketing support for our engagements throughout the year.

- Cisco has been an active partner over the last year and donated a suite of lab equipment and full account access to Cisco Net Academy in order to help us continue to expand our curriculum library. This lab will be utilized to teach the Grizzly Youth Academy (a state-based program to help provide opportunities to disadvantaged and truant youths in the community) the basic of cyber fundamentals and digital literacy.

- MSAB provided an entire suite of mobile digital forensics software and hardware that allows for the extraction and examination of cell phone data. This equipment has been utilized for
our live immersive set designs and in classroom instruction. MSAB has also generously donated financial and marketing support for a multitude of events.

- Oblong Industries has provided a system that allows for remote distance learning and is being injected into the student learning environment.

Management and Internal Review

Internal strategic and long-range planning is done on a continuous basis to identify and provide a steady stream of partnerships and/or projects for the CCI. The director and program manager meet weekly to discuss priority of efforts and targets of opportunity. Based on discussions with Dean Deb Larson in 2015, the advisory board was placed on hold. Due to the success of the CCI this past year, the critical infrastructure advisory board is being reconstituted in 2018/2019.

Future Training Opportunities

The CCI offers a variety of learning opportunities for students. Currently the CCI offers over 30 different cyber certifications. This curriculum will continue to evolve based upon the identified needs of Cal Poly, affiliated state agencies, and the CMD. The CCI is working to include professional training certifications focused on other sectors connected to the Department of Homeland Security’s (DHS) identified “16 Sectors of Critical Infrastructure.”

The CCI Course Catalogue may be downloaded at: https://tinyurl.com/CCI-courses
The chart below highlights additional opportunities during the last year that were offered by the California Cybersecurity Institute to Cal Poly Students.

<table>
<thead>
<tr>
<th>Education Experience</th>
<th>Activity Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Student</td>
<td>Amazon Educate Cybersecurity Engineer, Mobile Applications Engineer,</td>
</tr>
<tr>
<td>1 Student</td>
<td>Amazon Educate Cloud Practitioner, Solutions Architect, Security, Technical</td>
</tr>
<tr>
<td></td>
<td>Essentials, Business Essentials, Application Services, Storage Tracks</td>
</tr>
<tr>
<td>2 Students</td>
<td>Product and Application development for the Central Coast Forensic Lab</td>
</tr>
<tr>
<td>1 Student</td>
<td>Data Analytics for the State Attorney General’s Office on Search Warrant admissibility</td>
</tr>
<tr>
<td>1 Student</td>
<td>Amazon Educate Augmented/ Virtual Reality Tracks</td>
</tr>
<tr>
<td>1 Student</td>
<td>Bugcrowd University modules including, introduction to BCU, How to make a good</td>
</tr>
<tr>
<td></td>
<td>submission, Introduction to BURP suite, Broken Access Control Testing, Cross Site</td>
</tr>
<tr>
<td></td>
<td>Scripting</td>
</tr>
<tr>
<td>2 Students</td>
<td>Served as Cal Poly Scholars at Blackhat and Defcon</td>
</tr>
<tr>
<td>1 Student</td>
<td>Business Development</td>
</tr>
</tbody>
</table>

**SUMMARY**

Our Institute is focused on a serious and growing problem for the State of California: addressing the cybersecurity defense and workforce shortage. In the coming year, the CCI will continue to focus on our key strategic objectives. The CCI will continuously emphasize student participation at the forefront of everything we do while addressing the training and research challenges facing government, law enforcement, military, and education.

We have successfully leveraged the CCI to accomplish several critical stepping stones to success during the past year and set the stage for some exciting future accomplishments through the help of our faculty, staff, and students. The CCI is now on the path to sustainable growth through a combination of funding avenues via the state of California, grants, donations, and volunteers.
To Learn more about the CCI, please contact:

James Baker, Director of Industry Outreach

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“I am a second year Computer Engineering student here at Cal Poly. Having found my great interest in solving crimes and a unique ability to protect millions of lives through technology. With these goals as my direction, I have worked as a student assistant at the CCI since March of 2017 and I am pursing opportunities with the public sector. At the CCI, my main contribution has been the creation and implementation of the 2017 and 2018 CCIC digital forensic challenges, including the redesign of the DOJ Windows Forensics Manual and the creation of an Android Forensics manual. These opportunities have given me the skill set to teach students about cyber investigation, find my desire to work with military, government or law enforcement, and to especially be able to outreach to students of all ages from across California to find their passions within the cyber realm.”

CASSIDY ELWELL
CAL POLY UNDERGRAD
CCI INTERN REMARKS FROM WOMEN IN CYBER PANEL