UCCS CYBERSECURITY STRATEGY INITIATIVE

2021

UCCS University of Colorado Colorado Springs

INTRODUCTION

The University of Colorado Colorado Springs (UCCS) is a recognized regional leader in cybersecurity providing quality education and industry connections for students, advanced research opportunities for educators and students, and cosmic future possibilities for the Colorado Springs community. Our mission is to broaden our influence and become a national leader in cybersecurity, engage with diverse prospective students and industry professionals, and inspire growth through a multidisciplinary, inclusive, and equitable approach to cybersecurity education. Our magnetic strategy unites many concentric circles in a universe of inclusive collaboration, fusing existing and emerging academic discourses with industry practices, and envisioning future needs in the discipline. These independent yet interdependent fields promote growth in the many facets of cybersecurity at and beyond UCCS and encourage confident branches into the nebulous future applications and unknown jobs not yet discovered in cybersecurity.

To reach this objective, we have developed five concentric **P.O.W.E.R.** fields. These interconnected fields represent **P**artnership, **O**utreach, **W**orkforce development, **E**ducation, and **R**esearch aligned with the UCCS Strategic Plan's core strategies of partnership and outreach, distinctive programs, and research and creative excellence. With these core strategies and our common mission in mind, specialized committees have crafted the unique goals, focus areas, and actionable initiatives of each field. Influenced by the core values of support and inclusion, multi-disciplinarity and excellence, the combined strengths and functions of the fields magnetize the strategy's multi-disciplinary approach to expansion and propel UCCS to the forefront of cybersecurity development on the national scale.

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UCCS CYBERSECURITY STRATEGY

EXPANDING CYBERSECURITY AMONG UCCS, THE GREATER COLORADO SPRINGS COMMUNITY AND THE NATION

SEE YOURSELF IN THIS FUTURE OF POSSIBILITY

Cybersecurity is quickly becoming necessary to all. At UCCS, it is an interconnected web impacting many colleges, majors, and professional fields on and beyond campus. Where do you see your own educational dreams manifesting in this abstract canvas of potential?

BACKGROUND

FROM DREAMING TO DOING TO FUTURE DISCOVERY

Cybersecurity at UCCS has demonstrated circles of growth since its initial designation in 2012. Originally a shared dream among educators and professionals, the cybersecurity strategy emerged as reverberations in the local Colorado Springs community. From there, the dream materialized into waves of influence involving the UCCS campus and eventually the CU System. Further collaborations with industry and military partnerships cycled cybersecurity expansions inward, increasing student and faculty research opportunities and education excellence, and outward, propelling UCCS alumni into the ever-growing universe of cybersecurity developments in local, regional, national, and international spheres. The program's history and future interweave the ongoing cycles of expansion within the UCCS Cybersecurity Strategy, and energize future branches into unknown possibilities.

REVERBERATIONS

In 2002, the Information Assurance (IA) certificate, planned by Cybersecurity Chair Dr. Sebesta and Dr. Ayen, was offered at Peterson Air Force Base. This program acted as an early vibration for developing successes in cybersecurity in the Colorado Springs community. The Secure Software Engineering certificate, offered at the Lockheed Martin facility, followed suit. Soon after, in 2003, the Masters of Education in Information Technology (MEIA) and Bachelor of Innovation (BI) degrees were offered at UCCS and continued to send ripples across campuses, eventually synchronizing with the CU system. The degree programs continued to expand and influence both the campus and Colorado Springs communities as collaborations within the UCCS College of Engineering and Applied Science.

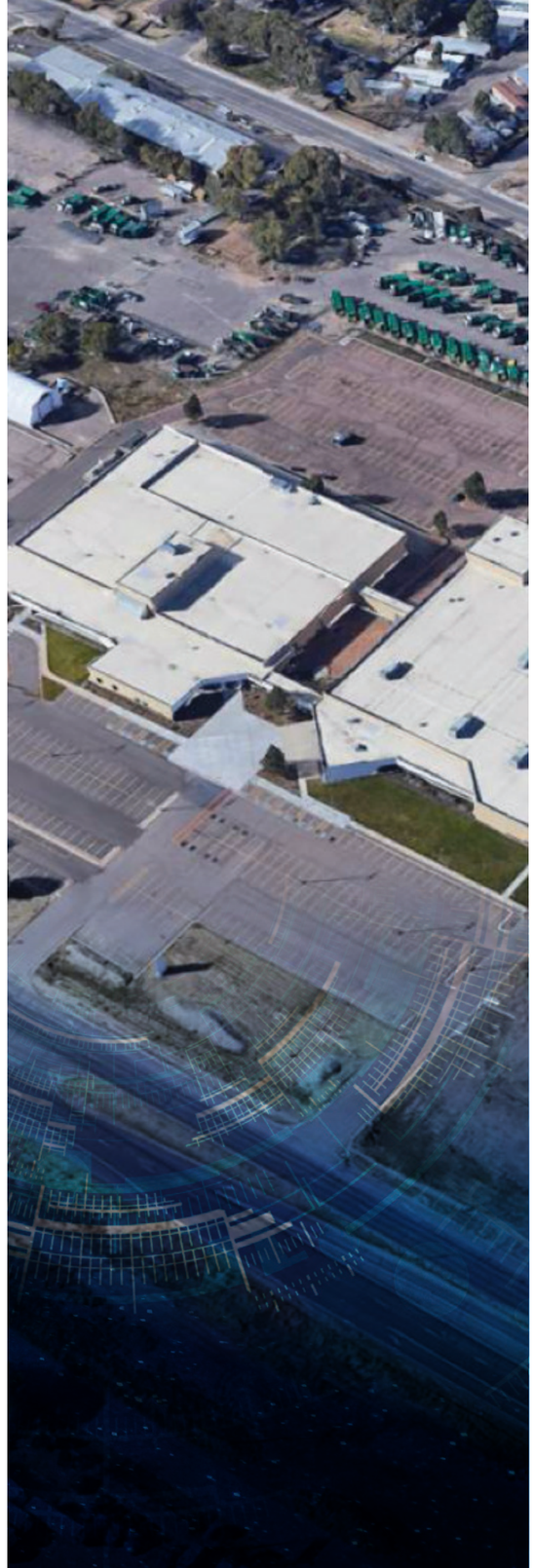
BACKGROUND CONT.

WAVES

The colleges and degree programs foundational to the UCCS Cybersecurity Program continued to inspire local, regional, and national attention. In 2006, the UCCS College of Engineering and Applied Science was ranked 4th among state institutions and 16th overall and has maintained this impressive track record in innovation. Three cybersecurity programs designated by the National Security Agency's (NSA) Center of Academic Excellence (CAE) in Cybersecurity exist within the UCCS Computer Science Department of Engineering and the College of Applied Science. These programs have trained security professionals in workforce skills to ensure our nation's security. These three UCCS Cybersecurity degree pathways, at the Bachelors, Masters and PhD level, received initial designation in 2012 and are expanding cybersecurity programs across campus in all six colleges including the College of Business, School of Public Affairs, the College of Education, and the College of Letters, Arts and Sciences. Our cybersecurity faculty have been awarded federal cybersecurity research grants and shared their research results, developed techniques, systems, and tools with the broader cybersecurity community in Colorado Springs and beyond.

FIELDS

In 2020, a UCCS campus-wide cybersecurity strategy emerged across colleges: **P.O.W.E.R** (**P**artnership, **O**utreach, **W**orkforce Development, **E**ducation, and **R**esearch). These interwoven initiatives are the context in which UCCS is pursuing expanding their cybersecurity programs. UCCS has formed strategic cybersecurity partnerships across campus, with industry, government, military, academic institutions, and the National Cybersecurity Center. These partnerships identified industry and government cybersecurity needs, internship and employment opportunities, collaborative research, hands-on activities, and programs to benefit the security and intelligence communities. The UCCS cybersecurity program has used these partnerships to pursue research, share collected information to increase and improve application implementation, define educational cybersecurity objectives, and provide cybersecurity and other security education. In 2020, UCCS awarded over 200 security degrees at the bachelor's, master's and doctorate levels. Due to a generous Colorado state funding of cybersecurity education efforts, over 200 students received a total of $500,000 in security degree scholarships. Additionally in 2021, UCCS added the Gallogly Endowed Chair in Cybersecurity in EAS to demonstrate its commitment to expanding and deepening cybersecurity research at UCCS.



EXPANDING BRANCHES

UCCS will continue to expand and lead the cybersecurity ecosystem in the region by hosting cybersecurity Capture the Flags (CTF) with industry sponsors, building new cybersecurity programs across colleges, and leveraging the $19M in cybersecurity grants awarded to UCCS in 2020 to support cybersecurity apprenticeships, cybersecurity faculty development, and cybersecurity camps for K-12 institutions across the state and region. In addition to our outstanding cybersecurity programs in the College of Engineering and Applied Science, the UCCS College of Business is launching the Cybersecurity Management degree and certificate programs in Fall 2021. Cybersecurity concentrations are also being developed in the College of Letters Arts and Sciences and the School of Public Affairs. These initiatives will act as branches into the vast future possibilities in cybersecurity. The long-standing partnership with the National Cybersecurity Center and UCCS's role as a founding board member of the Space Information Sharing and Analysis Center (Space-ISAC) demonstrate how this cybersecurity dream has become a reality for many students at UCCS. It represents the tangible presence of each P.O.W.E.R. field and their interconnected influences on the community of UCCS, city of Colorado Springs, and local, national and international industries. The development of the cybersecurity building on North Nevada Avenue (collocated with the NCC, Space ISAC and other partners) will continue to expand and influence current and future students at UCCS as well as act as a beacon of continuous inspiration for scholars, industry professionals, and K-12 students.

CORE VALUES
OUR CENTERS OF GRAVITY

Cybersecurity initiatives at UCCS are gathered around values that comprise our centers of gravity, and our strategic plan places our initiatives within the pull and interactions of those centers: Support and Inclusion, Multi-Disciplinarity, and Excellence in all our endeavors. These values inform and connect initiatives in each field of our strategy and tie our work directly to core values that inform the UCCS strategic plan.

We value **Support and Inclusion** of all stakeholders who are part of our cybersecurity ecosystem, including existing and potential industry and government partners, local K-12 education communities and especially students and faculty. This means supporting their roles in cybersecurity and keeping the values of equity, diversity, and inclusion at the center of everything we do. Inclusion means seeking and welcoming individuals from diverse backgrounds and abilities, but because cybersecurity crosses the boundaries of academic disciplines and all sectors of our lives, inclusion also means drawing energy, creativity, and expertise from all disciplines and sectors into our cybersecurity initiatives. Diverse, inclusive systems are robust and viable systems.

We value **Multi-Disciplinarity** in our approach to cybersecurity. We embrace the disciplinary diversity of cybersecurity across all sectors because cybersecurity is not only a technical endeavor. It is pervasive in our social ecosystem, so bringing the disciplinary diversity of cybersecurity into our programs will support cybersecurity across academics, experiences and cultures. Our goal is to understand and engage with industry need as it expands and flexes and bring comprehensive solutions and approaches to our cybersecurity programs increasing our student workforce potential. By opening up to multidisciplinary approaches, moving cybersecurity into new lanes, we will learn how to anticipate problems and be more effective in our responses via these multidisciplinary approaches. Collaborative, multidisciplinary thinking produces more encompassing and lasting solutions to serious and global cybersecurity issues.

We value **Excellence** in every field of our cybersecurity initiatives: in our partnership and outreach initiatives, all that we do to contribute to workforce development, and excellence at the most central aspects of our work—education and research. Excellence in cybersecurity is gravitationally bound to safety; when we encounter the unknown, we will be prepared having drawn together different systems and disciplines to work closely toward robust solutions. UCCS has an existing reputation for excellence in many academic areas. Adding cybersecurity will demonstrate the commitment of UCCS to tackle evolving, challenging technology and processes in our academic programming in order to ensure more encompassing and lasting solutions to serious and global cybersecurity issues.

These values function not in isolation, but as dynamically integrated parts of a whole. Support and inclusion, multi-disciplinarity, and excellence are fundamentally entangled, each supporting and influencing aspects of the other. Like the arms of a vast spiral galaxy exploding with the creative production of stellar birth, these values come together at the same center and send their ripples of influence outward: from students and faculty on our campus, to stakeholders in our local community of education, industry, and government partners, and ultimately to encompass state, national, and international partnerships.

P.O.W.E.R. FIELDS

PARTNERSHIP

Create strong long-term partnerships to build awareness and involvement and facilitate diversity, inclusion, and equity in UCCS cybersecurity programs.

OUTREACH

Generate internal and external support leading to sustainable UCCS cybersecurity initiatives that promote diversity, inclusion, and equity.

WORKFORCE DEVELOPMENT

Align WFD efforts with career landscapes for cybersecurity workforce trends, skills, and job openings, with commitment to diversity, inclusion, and equity.

EDUCATION

Become a national leader in cybersecurity education, unique in our multidisciplinary approach and commitment to diversity, inclusion, and equity.

RESEARCH

Become a national leader in vital cybersecurity research areas and cultivate diversity, inclusion, and equity in research initiatives.

UCCS CYBERSECURITY STRATEGY

PARTNERSHIP FIELD

FORMING A CONSTELLATION OF SECURITY AND OPPORTUNITY

Our Strategic Goal is to create strong long-term partnerships to build awareness and involvement and facilitate diversity, inclusion, and equity in UCCS cybersecurity programs.

CENTERS OF GRAVITY IN PARTNERSHIP INITIATIVES

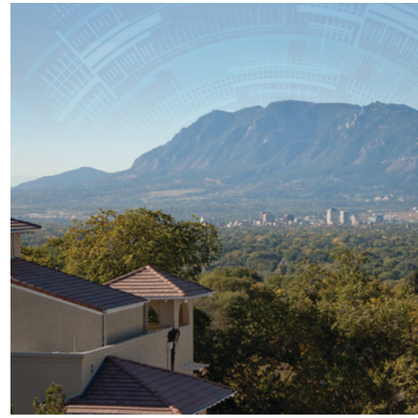
The Partnership Field of our Cybersecurity Strategy is the network that interconnects campus, local, regional, national, and international communities in a bright constellation of shimmering future opportunities in cybersecurity. The focus of this field involves assessing current ties between UCCS and the CU system, K-12 schools, industries, and military connections to ascertain present forces of influence and catalyze promising future stars in cyber-related arenas. This initial assessment will encourage a multidisciplinary approach to partnerships, improving existing connections and creating new celestial potentials in future networks. The Partnership Field will also work with Outreach, developing best practices for securing equitable and inclusive ties with local, regional, national and international entities.

HOW WILL WE DO THIS? EXPANDING PARTNERSHIPS FROM THE CENTER OUTWARD

As these partnerships continue to evolve in response to technological developments and societal changes, the Partnership Field will likewise grow and diversify over time in its actionable initiatives. These initiatives involve inward and outward circles of expansion; like planets revolving around a central star, these local, regional, national, and international-focused initiatives spiral influences across many social spheres while maintaining momentum within the gravitational pull of our Cybersecurity Strategy.

FROM UCCS INTO COMMUNITY

We will develop internal UCCS tabletop exercises to capture current and desirable cybersecurity partnerships. These exercises will encourage a comprehensive UCCS Cybersecurity Partnership status with clear projections and active strategy development. We will hold quarterly meetings to assess partnership status where we will develop a process document for collaborative partnership best practices. This document will engage the role of the Office of Sponsored Programs and Research Integrity (OSPRI) in grants and utilize general format Non-Disclosure Agreements (NDAs). Partnerships will maintain and refine a general format Memorandum of Understanding (MOU) where benefits and outcomes will be evaluated over time to ensure we explore mutual benefits.



FROM LOCAL AND STATE COMMUNITIES OUTWARD

Guided by the core values of this strategy, the internal UCCS initiatives will circle outward into the community to enhance bonds with local cybersecurity businesses, educational institutions, and military entities. External tabletop exercises will determine needed industry partnerships with local and national entities, while equitable pathways will be established with K-12 underserved districts, enhancing diverse student access. We will also work with local military branches to form security lifelines for long-term local and national stability.

FROM NATIONAL COMMUNITIES AND BEYOND INTO UCCS

The broader circles of cybersecurity influences in national partnerships will support benefits and expansion within UCCS as well as inspire pathways outward into a nebula of possibility. We will leverage add-on elements to large existing partnerships with industries including Microsoft, Cisco, and Dell. We will also refine existing partnerships with the National Cybersecurity Center (NCC) and Space Information Sharing Analysis Center (Space-ISAC) to synchronize with comprehensive messaging. These centers represent the fusion of national partnerships with UCCS values and cybersecurity highlights.

UCCS CYBERSECURITY STRATEGY

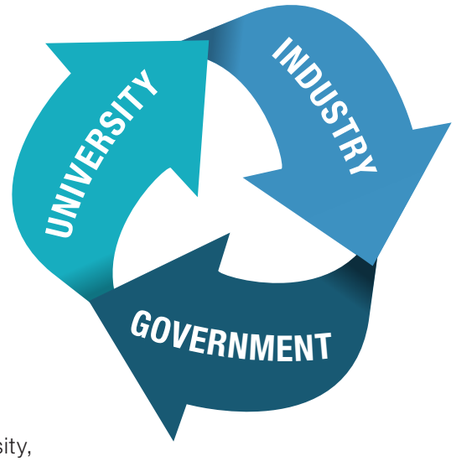
OUTREACH FIELD

CATALYZING STARS AND MAGNETIZING CYBERSECURITY EXCITEMENT

Our **Strategic Goal** is to generate internal and external support leading to sustainable UCCS cybersecurity initiatives that promote diversity, equity, and inclusion.

CENTERS OF GRAVITY IN OUTREACH INITIATIVES

The Outreach Field of our Cybersecurity Strategy is the catalyst energizing diverse, inclusive, and equitable pathways within and beyond UCCS. The focus of this field involves capturing the breadth and depth of cross-campus cybersecurity activities in inclusive, multi-disciplinary pursuits. We will generate engaging media and marketing materials to reflect this depth and breadth in a coordinated, campuswide cybersecurity effort. This exciting effort will utilize campus and community-centered activities and magnetize the greater community through e-communication including public relations, social media, marketing, and publicity. We will continuously catalyze diversity, equity, and inclusion in cybersecurity outreach. This emphasis will be accomplished by developing innovative cybersecurity activities for students, faculty, industry professionals, and government stakeholders and tracking their success stories as they traverse into the mysteriously luminous future of cybersecurity.



HOW WILL WE DO THIS? EXPANDING OUTREACH FROM THE CENTER OUTWARD

Outreach must continuously reflect the ever-changing space of cybersecurity in present and future society. This space must not be a vacuum of similar voices and backgrounds but a vibrant galaxy of diverse perspectives and identities. Actionable efforts will be made to inspire diverse, equitable, and inclusive cybersecurity involvement with people from a range of different social and ethnic backgrounds and of different genders, sexual orientations, and other students and professionals from varying levels of expertise in STEM fields as well as the social sciences, arts, and humanities. The Outreach initiatives will circle outward from the central core of UCCS to local and regional communities and beyond.

FROM UCCS INTO COMMUNITY

We will create a comprehensive video and print snapshot of cybersecurity at UCCS to share with the larger community. This measure will showcase the innovations in cybersecurity practices and programs currently existing on campus to magnetize interest from the outer community. We will continuously monitor and coordinate cybersecurity engagements and outreach presentations to maintain the luminous vigor of our program and spark new innovations. We will also develop programs specifically to inspire students from minority backgrounds to pursue cybersecurity. These initiatives will light promising pathways through the ambiguous universe of cybersecurity and attract new, innovative talents to UCCS.

FROM LOCAL AND STATE COMMUNITIES OUTWARD

We will work within the Colorado Springs community in tangent with local K-12 school partnerships to catalyze future stars in cybersecurity. We will work in high schools to host counselor events on the scope and depth of cybersecurity at UCCS and a scalable, one-day student outreach event, emphasizing sponsorship initiatives. We will develop a middle school cybersecurity outreach plan to instill early connections and comfortability with cybersecurity practices and facilitate teacher summer camps to enhance their cybersecurity interests, knowledge and abilities to facilitate exposure in bringing cybersecurity into classroom applications. We will continuously expand cybersecurity awareness for parents and community members through fostered events in partnership with the National Cybersecurity Center (NCC).

FROM NATIONAL COMMUNITIES AND BEYOND INTO UCCS

To access communities beyond UCCS and Colorado Springs, we will continue to leverage grant funding and state legislation funded initiatives including research funds to support broader outreach efforts. These funds will propel faculty and students into new horizons in cybersecurity in industry and the military, connecting research to real world challenges.

UCCS CYBERSECURITY STRATEGY

WORKFORCE DEVELOPMENT FIELD

AMPLIFYING ASTRONOMIC CONNECTIONS
TO CYBERSECURITY CAREERS

Our **Strategic Goal** is to align workforce development efforts with career landscapes for cybersecurity workforce trends, skills, and job openings, with commitment to diversity, equity, and inclusion.

CENTERS OF GRAVITY IN WORKFORCE DEVELOPMENT INITIATIVES

The Workforce Development Field of our Cybersecurity Strategy is the echo chamber where cybersecurity success stories in the university transfer to cybersecurity excellence in the workplace. The focus of this field involves aligning workforce development efforts in the cybersecurity program with the National Initiative for Cybersecurity Education (NICE) framework, cultivating an actionable trend of diversity, equity, and inclusion in support of students transitioning into unknown future careers. Excellence in support and inclusion will also be demonstrated in the focus areas of UCCS cybersecurity students in degree programs, nondegree-seeking students and professionals looking to expand their professional qualifications, transitional military personnel, professional re-trainees, and executive trainees. This diverse approach to workforce development will ensure the most inclusivity while amplifying profound impacts on future professionals.

HOW WILL WE DO THIS? EXPANDING WORKFORCE DEVELOPMENT FROM THE CENTER OUTWARD

Workforce Development in cybersecurity will begin with present relationships in cybersecurity careers and industry, growing into profound technology and employment possibilities in future industries currently unknown. The ambiguous and universal tendencies of future cybersecurity careers require initiatives that speak to expansion and recursive design in their conception.

FROM UCCS INTO COMMUNITY

We will begin our process by developing cyber-specific awareness and dedicated personnel and resources in Career Services at UCCS. We will then develop, plan, and execute a National Collegiate Cybersecurity Case Competition whereby students can test their skills in the context of organizational practice.

FROM LOCAL AND STATE COMMUNITIES OUTWARD

Because of the quick expansion and transformation of cybersecurity in industry, programs to support industry employees to stay abreast of the ever-evolving technology and process changes are necessary. We will expand academic certificate programs and work-based aligned industry certification offerings to encourage a student-to-workplace pipeline.

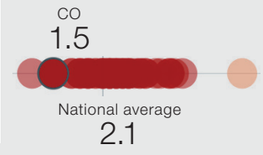
COLORADO CYBERSECURITY SUPPLY/DEMAND HEAT MAP

TOTAL CYBERSECURITY JOB OPENINGS
17,271

TOTAL EMPLOYED CYBERSECURITY WORKFORCE
26,448

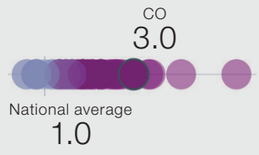
SUPPLY OF CYBERSECURITY WORKERS
Very Low

CYBERSECURITY WORKFORCE SUPPLY/DEMAND RATIO



GEOGRAPHIC CONCENTRATION
Very High

LOCATION QUOTIENT



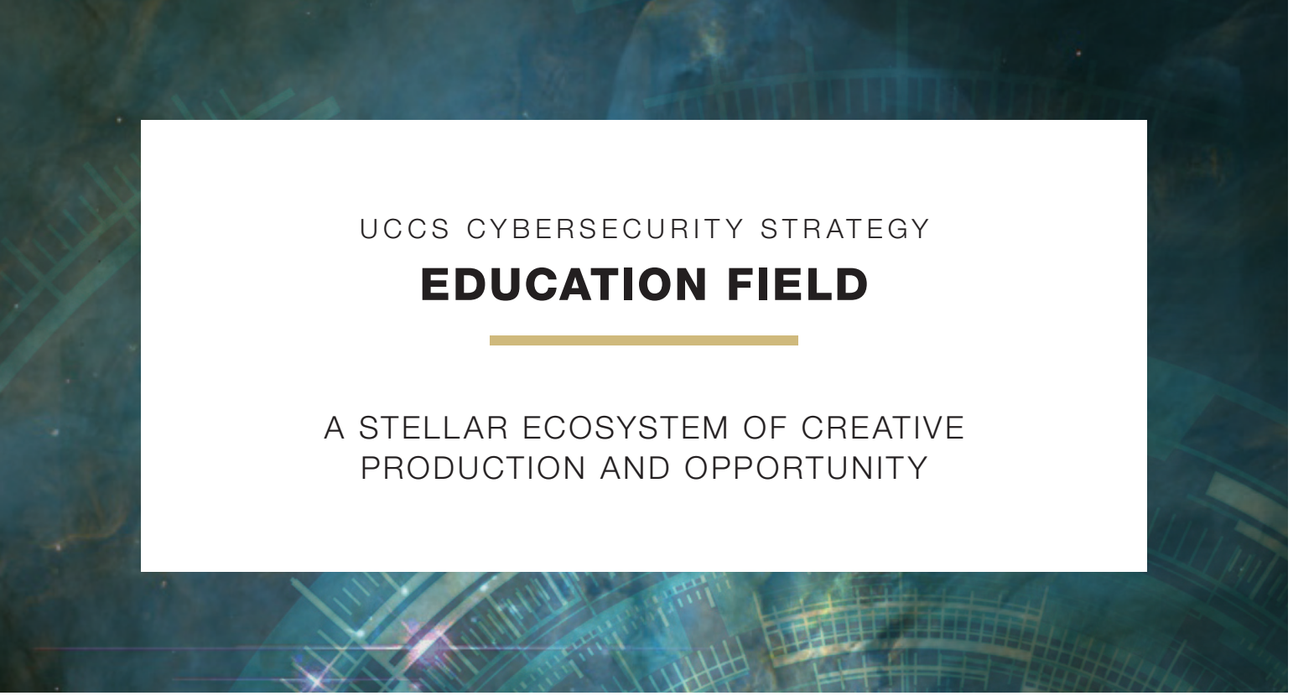
TOP CYBERSECURITY JOB TITLES

- Cyber Security Analyst
- Systems Engineer
- Software Developer / Engineer
- Cyber Security Manager / Administrator
- Cyber Security Consultant
- Network Engineer / Architect
- Vulnerability Analyst / Penetration Tester
- Systems Administrator
- Senior Software Developer / Engineer

Cyber Seek. (n.d.). Cybersecurity Supply/Demand Heat Map. Retrieved June 14, 2021, from https://www.cyberseek.org/heatmap.html

FROM NATIONAL COMMUNITIES AND BEYOND INTO UCCS

Understanding the need for industry academic partnerships in cybersecurity to ensure that theoretical and practical knowledge are assimilated into work-ready students, we will expand and position UCCS as a state and national leader in cybersecurity apprenticeships, encouraging student connectivity to industries on the regional and national levels.



UCCS CYBERSECURITY STRATEGY

EDUCATION FIELD

A STELLAR ECOSYSTEM OF CREATIVE PRODUCTION AND OPPORTUNITY

Our Strategic Goal is to be a national leader in cybersecurity education, unique in our multidisciplinary approach and commitment to equity, diversity, and inclusion.

CENTERS OF GRAVITY IN EDUCATION INITIATIVES

The Education Field of our strategy is a creative center of production where cybersecurity solutions and opportunities are born. We have set our focus on support and inclusion of students and faculty, promoting equity, diversity, and inclusion, and building excellence. We will support students by providing scholarships, developing curriculum and experiential learning opportunities, bolstering employability. We will provide logistical and financial support to faculty for cybersecurity curriculum and program development. Our initiatives will invite diverse students and provide support along the way of their education. By supporting all faculty in their participation of cybersecurity initiatives, we will amplify cross-disciplinary and interdisciplinarity to cultivate excellence in our cybersecurity programs.

Since 2012, UCCS has been integrating into the national cybersecurity ecosystem. We have done this by earning our current designation in Cybersecurity Defense Education (CAE-E) from the National Security Agency/Department of Homeland Security (NSA/DHS) Center of Academic Excellence. By maintaining that designation and expanding to include Cybersecurity Operations (CAE-CO)and Cybersecurity Research (CAE-R), we will deepen and broaden our involvement with meeting the cybersecurity needs of the nation and the world.

HOW WILL WE DO THIS? EXPANDING EDUCATION FROM THE CENTER OUTWARD

Educational excellence must continuously reflect the ever-changing space of cybersecurity in present and future society. This space must not be a vacuum of similar voices and backgrounds but a vibrant galaxy of diverse perspectives and identities. Actionable efforts in education will ensure that UCCS students are prepared to meet the evolving needs of industry with a baseline of understanding that can assist in tackling the difficult and yet unknown cybersecurity challenges. The Education initiatives will circle outward from the central core of UCCS, its faculty, students and staff, to local and regional industry, government, community and beyond.

FROM UCCS INTO COMMUNITY

We will engage in initiatives to gather diverse perspectives to the pursuit and study of cybersecurity, drawing students of all backgrounds, ethnicities, genders, and interests to enter the cybersecurity universe. We will do this by providing economic support in the form of scholarships for cybersecurity students and fully funding top cybersecurity scholars. We will promote diversity of thought and approach by creating new, multi-disciplinary cybersecurity courses, certificates, and degree programs, inviting high school, first-year college students, and industry employees to explore the breadth and depths of cybersecurity at UCCS. We will provide existing students with robust and engaging opportunities to bring their perspectives to dynamic, multi-dimensional cybersecurity solutions. To support the work of faculty and, in turn, our students, we will fund fellowships and seed grants for faculty to expand cybersecurity educational pathways and interdisciplinary programs in cybersecurity defense and operations.

FROM LOCAL AND STATE COMMUNITIES OUTWARD

Internships across the cybersecurity spectrum with local industry and government will allow our students and faculty to carry their expertise from UCCS to our local community and beyond. Industry and government partners bring real-world challenges to the classroom by providing senior projects for students. Increasing industry awareness and appreciation for UCCS quality cybersecurity programs and students will assist the state and nation in significantly increasing the cybersecurity posture by raising the bar across society.

FROM NATIONAL COMMUNITIES AND BEYOND INTO UCCS

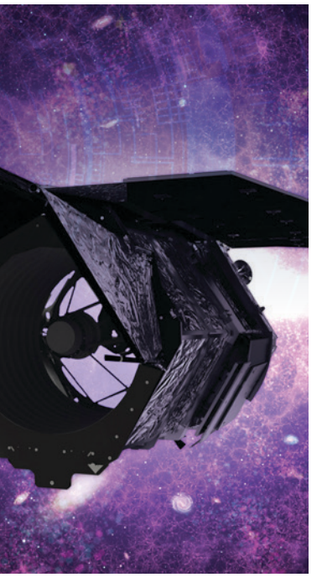
UCCS will continue to be active in the CAE community working as part of a national galaxy of institutions that are expanding the knowledge and potential of cybersecurity to become more integrated into our educational systems and daily life. UCCS will continue to work closely with Colorado educational institutions to create new and expanded educational pathways. As we continue to develop and add new online cybersecurity courses and increase scholarship support for out of-state and international students, we will draw new perspectives and expertise into our cybersecurity universe, coalescing the cybersecurity world community and ideas into bright new stars.

UCCS CYBERSECURITY STRATEGY

RESEARCH FIELD

DEEP SPACE EXPLORATION OF VITAL CYBERSECURITY WORLDS

Our Strategic Goal is to be a national leader in vital cybersecurity research areas, working collaboratively and cultivating equity, diversity, and inclusion in research initiatives.



CENTERS OF GRAVITY IN RESEARCH INITIATIVES

The Research Field of our Cybersecurity Strategy is the starship discovering and exploring new worlds and building solid and robust solutions to carry with us into the unknown future. Our lenses are focused on facilitating cross-disciplinary and cross-sector collaborative research and promoting excellence by bringing diverse perspectives and approaches to cybersecurity solutions. We are poised for national leadership in exploring new vistas in cybersecurity and to earn NSA/DHS National Centers of Academic Excellence in Cybersecurity in Research (CAE-R) certification.

Our cybersecurity research initiatives will spread far and wide, encompassing all aspects of cybersecurity, balancing the technical and non-technical. UCCS can be the flagship in researching aspects within the broad areas of cybersecurity to include blockchain cybersecurity, cyber-physical security for smart cities, data analytics for artificial intelligence and machine learning, cybersecurity management policy, metrics and quantification, networking and communications cybersecurity (space 5g, 6g, satcom interference), cryptography for privacy, and social, behavioral, economic and public policy approaches to cybersecurity.

HOW WILL WE DO THIS? EXPANDING RESEARCH FROM THE CENTER OUTWARD

To fuel research excellence in these areas and propel UCCS to national leadership, we will institute programs to provide incentives for our faculty to conduct high-quality research and compete for federal grants. We will foster collaborations among faculty and campus supports to lead investment in UCCS cybersecurity research grants. To foster research collaborations, we will facilitate campus-wide, cross-disciplinary, and cross-sector cybersecurity research seminars with opportunities for student participation.

DID YOU KNOW?

UCCS saw a

600%

INCREASE

in research funds for cybersecurity from 2019 – 2020.

FROM UCCS INTO COMMUNITY

Our research explorations will expand and gather momentum as we promote student interests and student-led initiatives and include local institutions and industry. To do this, we will facilitate publication of students' work, industry days where the students share their cybersecurity research and work with local industry and government, provide undergraduate and graduate research assistant scholarships, and facilitate cross-sector competition in cybersecurity.

FROM LOCAL AND STATE COMMUNITIES OUTWARD

We will showcase federal research grant proposal results and state funded faculty seed grant efforts in an effort to extend the influence of our faculty research efforts, and we will strengthen and elevate cybersecurity research collaboration with DHS's National Coordinating Center for Communications and the Space Information Sharing and Analysis Center (SPACE-ISAC).

FROM NATIONAL COMMUNITIES AND BEYOND INTO UCCS

Being the only CU system Designated Center of Academic Excellence in Cybersecurity, UCCS is already recognized as a shining star for their work in this area. The commitment by UCCS leadership to expand and deepen cybersecurity research will ensure UCCS a role in leading the nation in solving challenging, difficult, and developing cybersecurity problems while expanding the student population vested and exploring the unknown.

UNIVERSAL FABRIC

RELATIONSHIPS AMONG THE POWER FIELDS OF THE UCCS CYBERSECURITY STRATEGY

The P.O.W.E.R. Fields are not isolated worlds unto themselves, but entwined parts of the fabric of the UCCS cybersecurity universe. Each Field functions synergistically with the others: Partnership, Outreach, and Workforce Development initiatives function as reciprocal supports, each helping to generate awareness of cybersecurity opportunities on campus and beyond, to expand engagement with cybersecurity with a wider community of professionals, and to let industry partners drive training opportunities. Outreach efforts facilitate student and faculty ambassadorship to attract top students to cybersecurity at UCCS, from courses and certificates, to bachelor's degrees, to master's degrees, to research and PhD programs. Workforce Development initiatives to add industry certifications build excellence in cybersecurity academics, and a national reputation for research in cybersecurity engenders research collaboration opportunities with partners. Education and Research initiatives encourage partnerships with the community in the form of apprenticeships, internships, competitions, and research showcases. These partnerships in turn cultivate funding to support the expansion of educational and research programs.

CONCLUSION

PROPULSION INTO THE UNKNOWN

The UCCS Cybersecurity Strategy Initiative is the kaleidoscopic lens in which to view the many moving systems within the cybersecurity universe. With so many moving fields growing interconnectedly and exponentially into the future cosmos, the promising possibilities in cybersecurity are endless. With our focus on equity, diversity, and inclusion, we can propel new, unique voices like luminous comets into future applications of cybersecurity, inspiring pathways in spheres of existence yet unknown. Our multi-disciplinary efforts will weave a support system that fuses science, technology, engineering, and math with the arts, social sciences, and humanities, promoting greater exposure, access, and ethical professionalism in the pursuit of a more secure technological tomorrow. How do we see ourselves in cybersecurity? Like in a repeating infinite mirror loop, we must look to the future through our present actions in cybersecurity. We are engineers. We are programmers. We are instructors. We are scientists. We are artists. We are innovators. We are so many stars shining in the universe of cybersecurity potentials. Reach out, interact, and be in awe of where this cybersecurity journey takes us.

STRATEGY WORKING GROUP TEAM

DIRECTOR OF CYBERSECURITY PROGRAMS	GRETCHEN BLISS
UCCS OIT DIRECTOR OF OPERATIONS/ CAMPUS CYBERSECURITY PRACTICES LEAD	GREG WILLIAMS
COLLEGE OF BUSINESS	GURIVENDER TEJAY GARY KLEIN MEGHAN STIDD ROB BLOCK MORGAN SHEPHERD JULIA COSTIN
ENGINEERING APPLIED SCIENCES	SANG-YOON CHANG JUGAL KALITA SHOUHUAI XU
LETTERS, ARTS AND SCIENCE	ALEX ILYASOVA SEAN WILLIAMS
SCHOOL OF PUBLIC AFFAIRS/PSI	DAN OLSON JANET VANCAMPEN
NCC	HARRY RADEUGE FORREST SENTI
SPACE ISAC	ERIN MILLER
ADMISSIONS	CHRIS BEISWANGER
OUTREACH	TOM DEWAR JEN FURDA
STUDENT LIFE AND LEADERSHIP	STEPHEN CUCCHIARA

FOR MORE INFORMATION

cyberpo@uccs.edu
cybersecurity.uccs.edu

UCCS University of Colorado Colorado Springs

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