BIOHACKING VILLAGE

2024 Overview

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ADVANCING HEALTHCARE CYBERSECURITY RESEARCH

The Biohacking Village is a non-profit organization (EIN:83-3941279), intersecting and leading global conversations with practical and tactical remedies by real life cybersecurity practitioners and ethical hackers. The Biohacking Village offers a unique opportunity to discuss, learn, and address cybersecurity issues related to medical, pharmaceutical, applications, and consumer devices.The Biohacking Village provides a platform for exploring new avenues for collaboration, innovation, and pursuing improvements of cybersecurity in the bioeconomy.

MISSION

Healthier Tech for Healthier People. Bring the forefront of citizen science and biomedical cybersecurity to deliver action-oriented, safer care delivery in an increasingly IoT, digitally connected, and interoperable healthcare ecosystem.

VISION

We collaborate and build trusting relationships with key senior stakeholders at medical and pharmaceutical manufacturers, healthcare delivery organizations, regulatory and governmental bodies, and the security researcher community. By maintaining the pulse on the biomedical ecosystem and healthcare industry and trends among key external groups, we identify opportunities to collaborate on common objectives to improve patient outcomes. We are keen on finding partners and senior stakeholders who are interested in supporting and growing with us. We provide an environment for industry partners, government officials, security researchers, citizen scientists, and other leading experts to participate in discussions that focus on equity, excellence, participation, respect, integrity, leadership, science and innovative solutions.

INTENT

Our goal is to establish a world where cybersecurity in healthcare is universally recognized. We envision a society where cybersecurity is an integral aspect of everyday life, bringing people together and enriching communities. Our conferences and community endeavors aim to cultivate inclusive spaces that foster dialogue, spark imagination, and challenge perspectives. Our ambition is to be a force for good, promoting cultural diversity, and nurturing the next generation of researchers.

WHO SHOULD ATTEND AND WHY?

Our community includes patients, clinicians, hackers, manufacturers, regulators, hospital administrators, paramedics, and others working towards a healthier future through meaningful technology. The Biohacking Village is driving change in healthcare, industry, and manufacturing through our hands-on, rigorous learning labs.

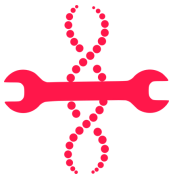
- Governments, Industry Leadership, Legal, Insurers, and Regulatory Bodies: Join the talks on current and future legislative actions and best practices.
- Healthcare Delivery Organizations: Learn about security posture and market research, and normalize conversations outside contract agreements.
- Clinicians, Physicians, and Nurses: Discover the practicality and usability of medical devices from a biological and technical standpoint to provide better patient care.
- Patients: Share your experience and gain insight into privacy and security metrics while surveying for improvements in standards of care.
- Information Technology and Cybersecurity Analysts: Learn about new resources, attack vectors, and solutions from the community.
- Researchers and Development: Participate in discussions with citizen scientists to ideate new devices, and find opportunities for employment and internships.
- Medical and Pharmaceutical Manufacturers: Receive feedback on security posture by bringing equipment and interacting with security researchers.
- Human Resources Recruitment: Identify talent to mitigate difficult obstacles.
- Marketing: Share commitment to cybersecurity with various entities and create desired impacts on customers, stakeholders, and society.

CORE VALUES

Excellence We strive for excellence in all aspects of our work to deliver exceptional experiences for our audiences.	**Creativity** We embrace the power of creativity and celebrate innovation, pushing boundaries and exploring new technology frontiers.
Inclusivity We believe that technology should be accessible to all, and we actively foster inclusivity by creating diverse and welcoming spaces for audiences.	**Collaboration** We value collaboration, that's why we seek partnerships with organizations and sponsors for meaningful cooperative agreements.
Community Engagement We are committed to engaging with our local community and promoting biomedical cybersecurity as a catalyst for social change and dialogue.	**Impact** We aim to make a lasting impact that leaves a legacy which inspires future generations.

By staying true to our mission, vision, and core values, we aspire to make a significant contribution to the cultural fabric of our society and create a lasting legacy of patient safety.

Learning Labs



Device Lab: Collaborative Testing for Medical Devices and Applications

A collaborative and secure environment designed for researchers to test medical instruments, applications, and devices in real-time. This platform is offered to medical device manufacturers to ensure the highest level of security and safety for their products. Any issues discovered are reported directly to the manufacturer, and coordinated vulnerability disclosures are produced.

Catalyst Lab: Uniting Medical Device and Citizen Science Communities

Our goal is to bridge the gap between the medical device and citizen science communities by gathering influential leaders and offering interactive training, hands-on workshops, and solution designs. We strive to explore every aspect of the biomedical device and security ecosystem, inspiring innovation and propelling progress forward.

Discover the World of Healthcare with Tabletop Exercises

Delve into the mysteries of healthcare through engaging tabletop exercises. These immersive activities reveal the industry's weaknesses through a series of cleverly crafted scenarios. Ready to embark on a journey of discovery? Gather your wits and explore the enchanting world of experiential learning.

Speaker Lab: Fostering Critical Thinking, Collaboration, and More

An innovative platform that aims to cultivate critical thinking, problem-solving, ethical debates, human interaction, literacy, creativity, and collaboration. The platform connects subject matter experts and researchers to discuss the future of their research, with a particular focus on biological technologies and emerging threats.

Capture the Flag: St. Elvis Hospital's virtual learning domain

With each step, you enter a world of wonder, encountering challenges that test your mettle and fortitude in the face of arcane technical protocols and enigmatic medical devices. The realm shall reveal vulnerabilities in your knowledge, and your quest shall be to capture the flag by conquering these challenges, sharpening your wits and honing your skills to a razor's edge.

BIOHACKING VILLAGE

DEF CON : Vital Signs

	2023 (in-person)	2022 (in-person)	2021 (virtual)	2020 (virtual)
Attendance	4.923 Attendees 36 Speakers 35 Volunteers	3.500 Attendees 25 Speakers 75 Volunteers	27 Speakers 95 Volunteers	50 Speakers 45 Volunteers
Capture the Flag	692 Players 420 Challenges 65Consecutive hours	670 Players 398 Challenges 50Consecutive hours	184 Players 140 Challenges 75Consecutive hours	125 Players 100 Challenges 90Consecutive hours
Devices	15 devices 1 EMR 10 MDMs 12 Sponsors	19 Devices 9 MDMs 16 Sponsors	30 Devices 7 MDMs 15 Sponsors	9 Devices 15 Sponsors 7 MDMs
Vulnerabilities	18 reported	13 reported	7 reported	4 reported
Commitment	7,200 vol hours 155 content hours	6,500 vol hours 145 content hours	4,500 vol hours 154 content hours	4,500 vol hours 134 content hours
Communications	1 new site 524 tweets 118 linkedin posts	1000+ Discord users DIgital Twin Hospital	2 ISAC Sponsored TTXs Virtual "Loft" Space	500 Discord users YouTube Channel
Collaborations	ICS Village Policy Village Voting Village Blue Team Village	ICS Village Social Engineering Village	ICS Village Darknet Village	ICS Village

CORPORATE SOCIAL RESPONSIBILITY PROJECTIONS

Corporate Social Responsibility (CSR) refers to a company's attitude and efforts toward improving society. CSR helps companies be socially accountable through a variety of avenues, including philanthropic practices, economic factors, and environmental awareness.

Tax Deductible

Businesses can give back to the community and build a positive image around their company brand, and nonprofits can continue working toward their missions with extra support from these companies. Benefits of CSR for corporations:

- Employee engagement
- Community impact
- Improved reputation
- Enhanced talent acquisition
- More chances for innovation

Penetration Testing

The total opportunity amounts to a staggering $1.5 trillion to $2.0 trillion addressable market, with an average payment approximation of $25,000-50,000 per device per test, the Biohacking Village provides a minimum of $400,000 during the event. As part of the critical infrastructure to patient care, health delivery organizations, and the increasingly stringent international requirements for software development, implementation, attestation, as Original Equipment Manufacturers (OEMs), we are liable for the full stack of our devices and should have full awareness of its capabilities and areas of improvement.

Social Media and Communications

If one of the goals is to improve and/or increase visibility in this sector, the 'average cost of a content marketing campaign can vary, anywhere between $6,000 a month to as high as $60,000+ a month for an enterprise business. What matters, though, is not the cost as much as the potential Return On Investment (ROI) that's possible for each campaign' (Siege Media). With the proposed Biohacking Village sponsorship level, website and social media mentions, pre-con prep, and podcast interview this would approximate to a $360,000 marketing plan (from March - August) leading to DEF CON.

If global indicators on Return on Investment (ROI) are any metric of success, the value you get from being at the Biohacking Village is exponential. By providing you with access to a cross-section of the researcher and patient community along with pre-conference resources, each of which bills out at $25,000, thus your ROI is in fact exponentially larger than $25k.

Global Medical Cyber Market:
Vulnerabilities directly translate to breaches in the bio-manufacturing industry. This could lead to disruptions in production, recalls, reputational damage, financial loss, and PII risk: informational damage (data leakage from trials and data generated from medical devices), files being accessed/copied, or malicious code introduced into the system.

- **What is the estimated value of the Global Healthcare Cybersecurity Market?**
  - The Global Healthcare Cybersecurity Market was estimated to be valued at $16.2 Billion in 2021. It is **projected to be $57.25 Billion by 2030**.
- What is the growth rate of the Global Healthcare Cybersecurity Market?
  - The growth rate of the Global Healthcare Cybersecurity Market is 16.3% from 2021 to 2030.

Review of countries defined in the MDSAP: Healthcare Cybersecurity Market Research Report by Type, by Deployment, by End User, by Region - Global Forecast to 2027
https://www.alliedmarketresearch.com/healthcare-cyber-security-market

Return on Investment (ROI): Cybersecurity has traditionally not been an investment that medical devices or pharmaceutical manufacturers have benefited from financially. However, with the updated rules (Examples: US: FDA Omnibus and SEC materiality rule EU Cyber Resiliency Act), cybersecurity has become a paramount concern in contracts.

Growth Drivers:
- Growing cases of healthcare cyber-attacks in developed and developing economies
- Rising security and regulatory compliance-related issues in North America and Europe
- Increasing incidences of data leaks in developing countries
- Technological advancements in healthcare cybersecurity software in Europe and North America

Pitfalls & Challenges:
- High cost of healthcare cybersecurity solutions in developing and underdeveloped regions
- Lack of trained professionals for operating the cybersecurity solutions

Increased number of data security and privacy concerns and a demand for advanced solutions for security operations has increased the demand for the cost-effective solution. The solution segment in the healthcare cybersecurity market will grow due to the rising awareness about electronic health records and the regulatory and protective concerns will contribute to the growth of the market.

Source: https://www.precedenceresearch.com/healthcare-cybersecurity-market

FUTURE CONTENT

We believe that our work has immense potential for future growth and expansion. In the coming years, we plan to collaborate with renowned hackers and cybersecurity researchers, introduce new interactive elements, and extend the capabilities by joining with other conferences and villages. With increased community involvement and sponsor support, we aim to make this event a hallmark of biomedical and device cybersecurity research involvement.

Campus Casona de Las Condes,
Universidad Andrés Bello
Fernandez Concha 700, Las Condes,
Chile
October 12, 2023
https://www.chilean-cybersecurity.ch

SAINTCON

Utah's Premiere Cyber Security
Conference
October 24-27, 2023
Utah Valley Convention Center
Provo, Utah
https://saintcon.org

BSides
Puerto Rico

BSidesPR
San Juan, Puerto Rico
April 12-13 2024
bsides.pr

ICS

Hack The Capitol
Washington, DC
May 2024
icsvillage.com

DEF CON 32
Las Vegas, Nevada
August 8-11, 2024
defcon.org

CORE TEAM

Our leadership team has years of experience in the field and has been on the bleeding edge and setting the tone for biomedical cybersecurity collaboration since its inception, to bring a full and comprehensive view of the complex and diverse ecosystem comprised of researchers, patients, caretakers, engineers coming from the fields of cybersecurity, access point interfaces, medicine, industrial control systems, immersive table tops, medical/laboratory/pharmaceutical devices, digital medicine, and law.

Nina Alli: Executive Director
Regulatory and Compliance Cyber Specialist at ThermoFisher | Electronic Medical Records and Internet of Medical Things SME | Biomedical Informatics, MSc | Translational Medicine, MSc | Digital Medicine (DiMe) Strategic Advisory Board

Scott Hanson: Treasurer and Business Development
Medical Device and Product Security Regulatory Leader

Sydney Swaine-Simon: Board Secretary
Co-founder @District 3, Co-founder of NeuroTechX, Project Lead for the NeuroTech Primer

Jay Radcliffe: Device Lab
Director of Product Security Testing and Research at Thermo Fisher Scientific, Internet Famous Insulin Pump Hacker

Jasmine Jackson: Education
Ecosystem Application Security Engineer at Atlassian and Adjunct Professor

Šárka Pekarova: Capture the Flag
Product Security at ThermoFisher | Medical and Healthcare, Industrial Control Systems Cyber Security Social Engineering | Physical Security

Zena Ahmed: Speaker Lab
MPH Health Policy candidate at Yale School of Public Health | MS in Translational Medicine | Health Justice Fellow at Beyond Flexner Alliance

Jennifer Agüero: Communications
Digital Media Design, Color Theory Enthusiast, Creative Problem Solving, Marketing

Lee Wilkins: Design
Head Of Strategic & Community Initiatives at Milieux Institute, Cyborg, Citizen Scientist, LGBTQIA, Neurodiversity and Human Abilities Advocate

Felicity Millman and Nathan Case: Table Top Exercises
Threat caster through Responsive, Resilient and Agile Global Security Operations Leader

Advisors

Andrea Coravos (CEO of HumanFirst):
HumanFirst serves leading organizations pioneering decentralized clinical trials and virtual care.

Charles Fracchia (CEO of BioBright):
BioBright platform, enables organizations to make better, data-driven decisions in near realtime.

Matias Katz (CEO of Byos):
Byos is a Edge Microsegmentation protects organisations from the risk of ubiquitous remote, guest and IoT network connectivity

Jorge Canabal Acevedo, MD (University of Puerto Rico)
Primary Care Physician with a focus on disaster recovery, rare diseases, and cybersecurity

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NHS

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