Addressing The Cybersecurity Skills Gap

A Commitment to Diversity and Workforce Development

Heather Ricciuto

Academic Outreach Leader - IBM Security

https://www.linkedin.com/in/heatherricciuto/



"Always walk through life as if you have something new to learn, and you will."

Vernon Howard

2.93M

The number of open and unfilled cybersecurity jobs around the world



What are the forces shaping the Future of Work?

- Accelerating Technological Changes
- 2. Growing Demand For Skills
- 3. Changing Employer Expectations
- 4. Shifting Labor Demographics
- 5. Transitioning Work Models
- 6. Evolving Business Environment



IBM can help...

IBM is dedicated to addressing the skills gap through...

- Academic Programs
- New Collar Initiative
- Commitment to Diversity
- Workforce
 Development

- P-TECH
- Veteran programs
- Apprenticeships
- Tech Re-Entry

- Collaboration amongst Industry, Gov't & Academia
- Community outreach

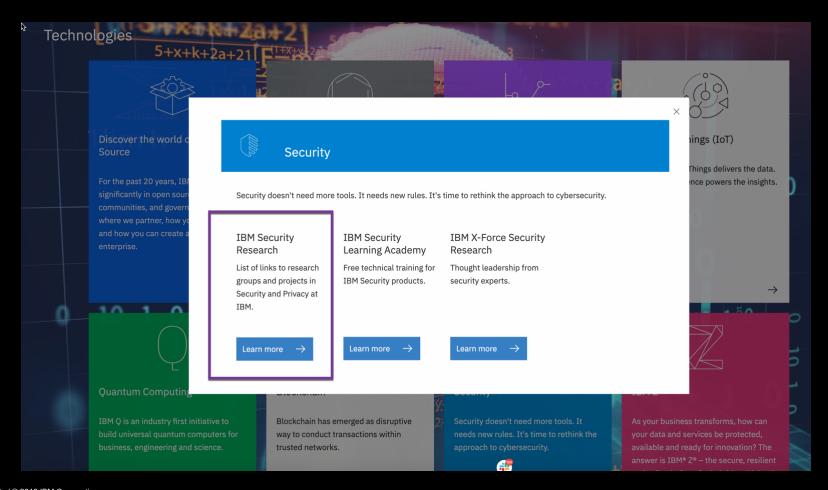
IBM Academic Programs (With a Security Focus)

https://www.research.ibm.com/university

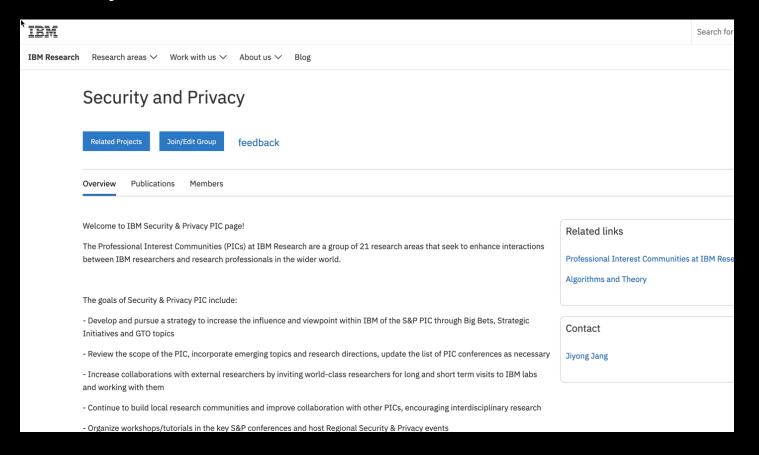
Building relationships of mutual value

IBM University Awards Programs	IBM Skills Academy Program	IBM Academic Initiative Program
PhD Fellowships	Train the trainers	Courseware
Faculty Awards	On-demand Skills	Software
Shared University Research Awards	Cloud-based Hands-on Labs	Cloud Access
Open Collaborative Research Awards	Industry Use Cases Proctored Exams approved by IBM Open Badges/Digital Credentials	

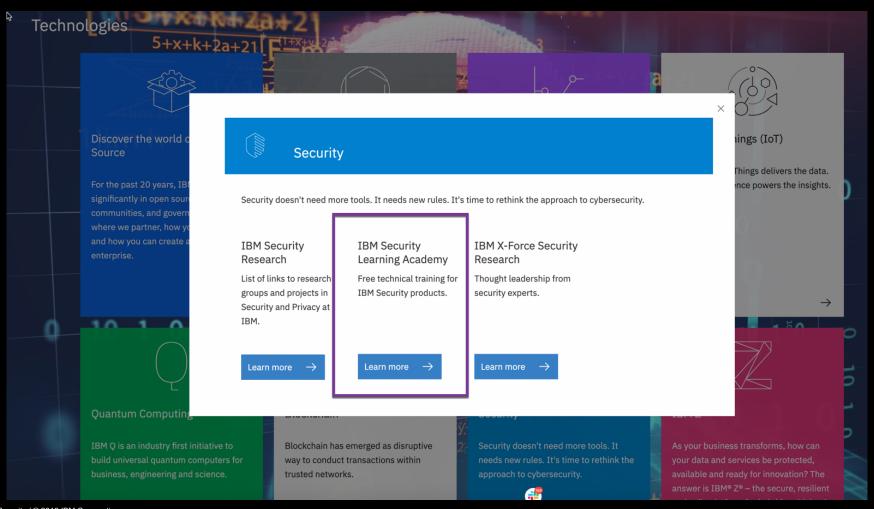
IBM Security Research



IBM Security Research

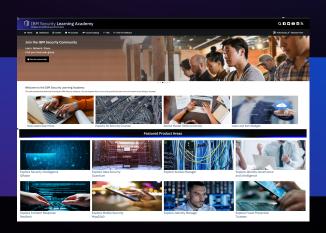


IBM Security Learning Academy



IBM Security Learning Academy

www.securitylearningacademy.com



Learning at no cost!

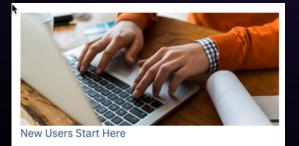
The Security Learning Academy is a *full service learning platform*, providing a variety of training objects and instruction options.

- Single portal, easy to navigate
- · Interactive and individualized learning
- Role and task based roadmaps can be followed as-is or users can select from the catalog



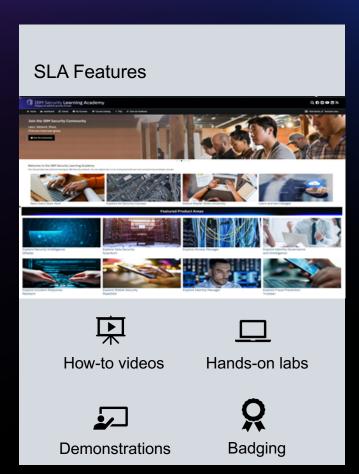
Security Learning Academy

New to the Security Learning Academy? Take a tour via the Start Here course.

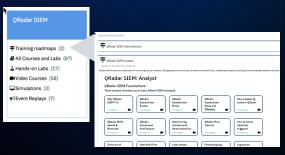


Select QRadar from the Featured Product list on the Home Page or Browse the Full Catalog





Select a Training Roadmap to see courses by role

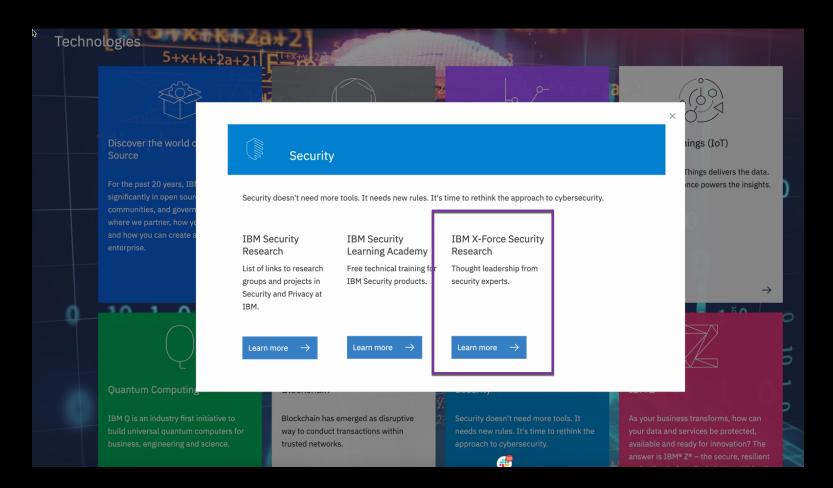


Enroll in learning activities, complete lessons or labs, assess your skills and earn badges for select courses (2H2019)

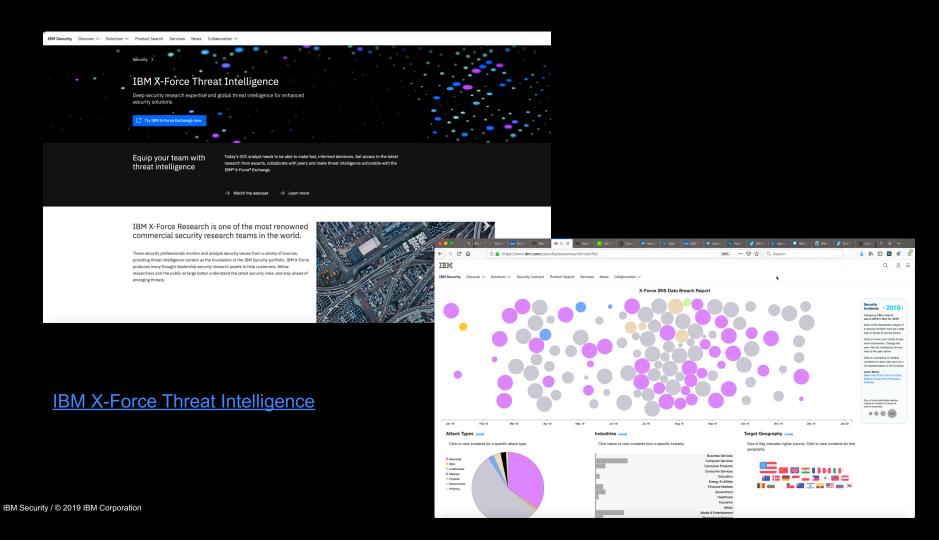
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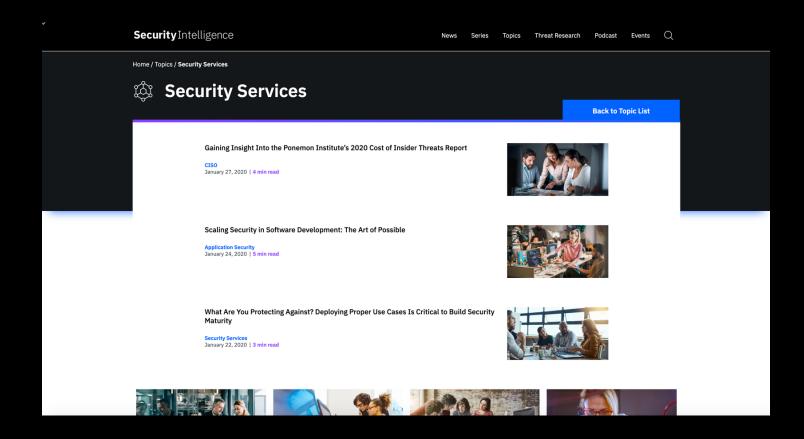
IBM X-Force Security Research



IBM X-Force Security Research

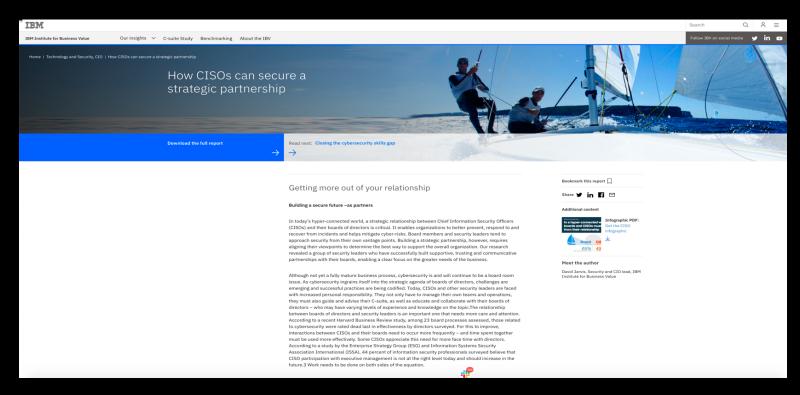


SecurityIntelligence



SecurityIntelligence.com

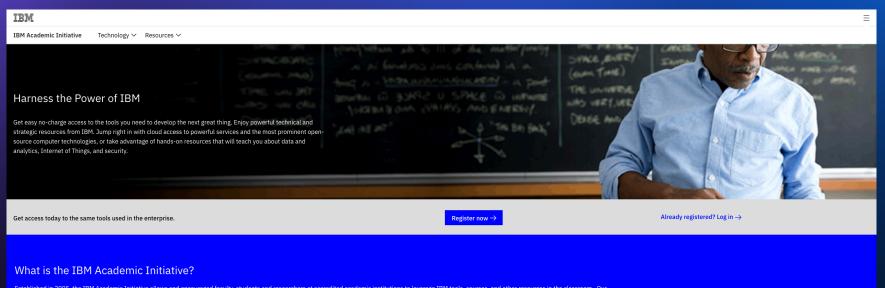
IBM Institute for Business Value



https://www.ibm.com/thought-leadership/institute-business-value

The IBM Academic Initiative

https://ibm.com/academic



Established in 2005, the IBM Academic Initiative allows and encouraged faculty, students and researchers at accredited academic institutions to leverage IBM tools, courses, and other resources in the classroom. Our mission is to enable students to graduate with direct hands-on experience on "industrial strength" tools that will help them in their chosen career.

Most popular topics covered

See all →



Cloud

Cloud skills are required for virtually any career in today's global marketplace. Get hands-on access to the industry's most open standards-based cloud platforms and technologies. Cloud skills are required for virtually any career in today's global marketplace.



IBM Watson

IBM Watson is a technology platform that uses natural language processing and machine learning to reveal insights from large amounts of unstructured data. Watson can extract key information from documents, reveal insights and patterns in data, and more, reveal insights and patterns in data, and more



Data Science

IBM's complete portfolio of analytics solutions enables students to engage with data to answer the toughest business questions, uncover patterns, and pursue breakthrough ideas.

Self-service for **teaching**, **learning** and **non-commercial** research

Cloud Access

Enhanced access to the IBM Cloud and select cloud-based resources and applications, such as the Watson APIs and Analytics Engine

Software

Access to the same software used by our commercial customers leading to practical training for today's jobs

Courseware

Faculty access to enterprise quality courses for inclusion in part or whole into existing and new curriculum



Learning topics



Cloud

Cloud skills are required for virtually any career in today's global marketplace. Get hands-on access to the industry's most open standards-based cloud platforms and technologies. Cloud skills are required for virtually any career in today's global marketplace.

Learn more →



Data Science

IBM's complete portfolio of analytics solutions enables students to engage with data to answer the toughest business questions, uncover patterns, and pursue breakthrough ideas.

Learn more →



Blockchain

Blockchain has emerged as disruptive way to conduct transactions within trusted networks. As companies in many industries are looking to start and join networks, demand for blockchain skills has far exceeded supply.

Learn more →



Quantum

Discover the IBM Quantum Experience and our connections that enable you to access tools, simulators, and systems to explore, experiment, and

Learn more →



IBM Watson

IBM Watson is a technology platform that uses natural language processing and machine learning to reveal insights from large amounts of unstructured data. Watsocan extract key information from documents, reveal insights and patterns in data, and more, reveal insights and patterns in data, and more



Security

In today's world, there are serious security threats that must be addressed head-on. IBM Security delivers an advanced system of protection with analytics to help you monitor your data.



IBM Z

IBM Z enables you to create outstanding customer experiences. Leverage mobile, analytics, cloud, and data protection for great user benefits.



Power Systems

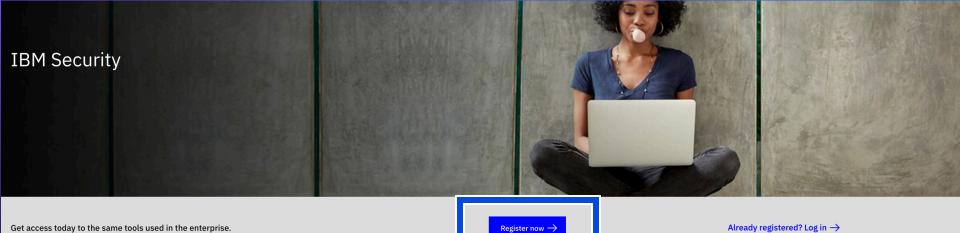
Power Systems are used in today's marketplace across all industries, providing companies with a single, energy-efficient, and easy way to deploy a platform for AIX, IBM i, and Linux. Power server architecture analyzes big data for patterns to give you new insights.

Learn more →

Learn more →

Learn more →

Learn more ->



We are in the process of transitioning the IBM Academic Initiative to this new and improved website.

This new site will allow faculty and students to access valuable cloud access, software, and courseware more easily and efficiently. We look forward to remaining your chosen partner in the journey to skills on emerging technologies.

What is IBM Security?

IBM Security develops intelligent enterprise security solutions and services to help businesses prepare today for the cyber security threats of tomorrow.



Why is IBM Security important?

We confront the world's most challenging cybersecurity problems and passionately protect the faces behind the data.

Important are skills when working in Security?

Curiosity, collaboration and communication are critical keys to success in Security. Learn from industry experts, explore IBM Security products and use our learning materials to understand the importance of these 3 C's.

Resources Software Courseware Careers



QRadar Community Edition

With all the functionality of QRadar, Community Edition is your place to start or extend your skills and passion for QRadar. We'll guide you along the way, with a set of instructional videos to help you get started and access to IBM Learning Academy to deepen those skills.

Register or login to access this resource



i2 Analyst's Notebook Premium

i2 Analyst's Notebook Premium collects, manages, and organizes information and intelligence. Using i2 Analyst's Notebook Premium, it is easy for analysts and investigators to uncover networks, patterns, and trends within increasing volumes of structured and unstructured data.

Register or login to access this resource



QRadar SIEM

IBM QRadar SIEM helps security teams accurately detect and prioritize threats across the enterprise, and it provides intelligent insights that enable teams to respond quickly to reduce the impact of incidents.



Explore the IBM Software Catalog

Access a comprehensive library of professional software resources for use in the classroom or non-commercial research projects.

Courseware

Resources Software Courseware Careers



IBM Security Learning Academy

Get free technical training for IBM Security products. You can explore the course catalog and build your own curriculum by enrolling in courses.

Register or login to access this resource



Security Fundamentals - Why Security

These materials provide fundamental training for those new to the key areas of cyber security. In this module we cover Concepts & Principles of Security and ISO27001 & 27002 Security Standards

Register or login to access this resource



Security Fundamentals - People Security

These materials provide fundamental training for those new to the key areas of cyber security. In this module we cover Access Control; Digital Certificates and Public Key Infrastructure; Authentication; Digital Identity and Identity Management; Federation and SOA; Single Sign On



Security Fundamentals - Application Security

These materials provide fundamental training for those new to the key areas of cyber security. In this module we cover Introduction to Web Application Security; Business to Business vs Web to Business; Hybrid Analysis

SUNY Plattsburgh IBM Security Leadership Challenge

This 12-week program piloted February to May of 2019 leveraged the IBM Security Learning Academy • Security Intelligence Track to provide hands-on learning to 13 students. The 13 students were split • into 2 Agile teams for the duration of the program. •

Students acquired both technical and soft skills expected of a SOC analysist monitoring an organization's network for intrusions.

All students completing the program earned this new digital credential.



Technical skills included:

- Understanding the function of a SIEM in an enterprise network
- Understanding the architecture of a SIEM
- Hands-on experience with the interface of a SIEM
- Investigating an offense triggered by events in a SIEM
- Using dashboards in a SIEM
- Creating reports in a SIEM
- Using filters in a SIEM

Each week, student teams presented to up to 9 IBM mentors, affording them the opportunity to develop soft skills, such as:

- Presentation skills
- Leadership skills
- Collaboration
- Professional networking

IBM can help

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- Academic Programs
- NEW COLLAR INITIATIVE
- Commitment to Diversity
- Workforce
 Development

- P-TECH
- Apprenticeships & Pre-Apprenticeships
- Veteran programs
- Tech Re-Entry

- Collaboration amongst Industry, Gov't & Academia
- Community outreach

It's Not Where You Start – It's How You Finish

Addressing the Cybersecurity Skills Gap with a New Collar Approach

New Collar is

- ...about skills, not degrees
- ...about opening up the aperture on talent pipelines to take advantage of underutilized sources of talent for new types of work
- ...about developing new partnerships to address the skills gap **together**
- ...about attracting, developing and retaining employees with diverse backgrounds and skillsets

Source:: IBM Institute for Business Value, May2017

What is Apprenticeship?

Apprenticeship Programs provide an "earn while you learn" opportunity to build skills while getting hands-on experience and mentorship. In apprenticeship, we hire for aptitude and knowledge and train for skills.

Apprenticeship is often referred to as the "gold standard" of work-based learning, given the robustness of learning and hands-on experiences, and direct connections to employment.

Apprenticeship Programs are registered with the US Department of Labor or participating State Agencies. This registration ensures consistency with **industry standard** and becomes **a credentialed program** eligible for training grants and wage offsets

https://www.ibm.com/us-en/employment/newcollar/apprenticeships.html

IBM Apprenticeship Offerings

- + Software Engineer/Application Developer
- + Cyber Security
- + Network Administrator
- + Computer/IT Support
- + Mainframe System Administrator
- + Data Scientist
- + Data Analyst
- + Chemical Technician
- + Electronics Technician
- + Human Resources

- + Marketing
- + Hardware Design Technician
- + Technical Solution Specialist
- + Technical Solution Seller
- + Project Manager
- + UX Designer
- + Visual Designer
- + Visual Researcher
- + IT Specialist
- + Hardware Hacker

So, What is a Pre-Apprenticeship?

Pre-apprenticeship programs are training initiatives designed to prepare participants to enter and succeed in a Registered Apprenticeship or another high-quality apprenticeship program, and ultimately a career.

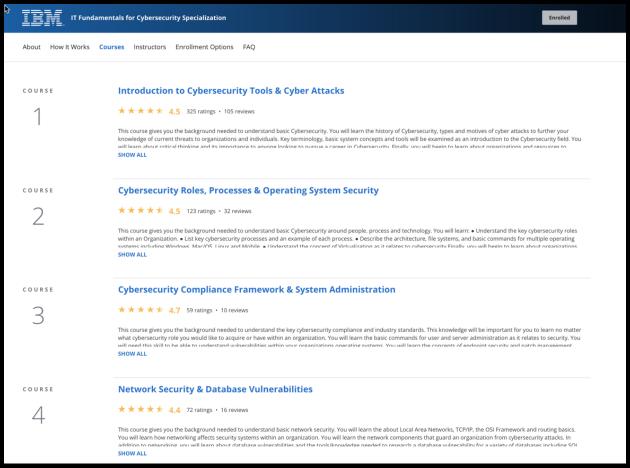


Why Are Pre-Apprenticeships Important to the Future of Work?

- There are currently 700,000 open IT jobs in the United States and our universities are only producing 70,0000 computer science grads
- We need to do more to create opportunity and access for everyone in the era of digital and Al.
- Educational systems cannot keep up with rapid change, nor do they always understand what industry needs.
- Pre-apprenticeship offers a solution by partnering with universities, community colleges and high schools to offer "supplemental" learning pathways to ready students into in-demand jobs



Coursera - IT Fundamentals for Cybersecurity Specialization



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- COMMITMENT TO DIVERSITY
- Workforce
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- P-TECH
- Veteran programs
- Apprenticeships
- Tech Re-Entry
- COLLABORATION AMONGST INDUSTRY, GOV'T & ACADEMIA
- COMMUNITY
 OUTREACH

A Strong Belief in the Value of Diversity



IBM Security...

Sponsors an internal Women in Security Excelling (WISE) Business Resource Group to help get more women engaged with security within the company (~1000 participants across the globe)

Reaches girls at an early age to get them informed and interested in cybersecurity careers by hosting IBMCyberDay4Girls events to provide preteen and teenage girls with the opportunity to learn more about cyber security careers

Sponsors a **scholarship program** for women to attend EC-Council's Hacker Halted security conference free of charge

Sponsors Women in Cybersecurity (WiCyS), ICMCP and more









Our mission: Launched in October 2016, IBMCyberDay4Girls promotes awareness of security as a career among middle school girls while teaching them cyber hygiene and introducing them to cyber security topics and role models.

Program Results as of Dec 2019: 100 events reaching 5405 girls in cities crossing 10 countries* and 6 continents

Our 2019 Goal: Reach 2000 Girls in partnership Corporate Social Responsibility (2959 reached)

^{*} Argentina, Australia, Canada, Costa Rica, India, Ireland, Nigeria, South Africa, UK, US

Commitment to Collaboration - IBM Security Sponsored Academic Conferences and Student Competitions in 2019



















How can educators work to create **opportunity and access for students**?

Engage with other schools in your area

Engage with your local business community

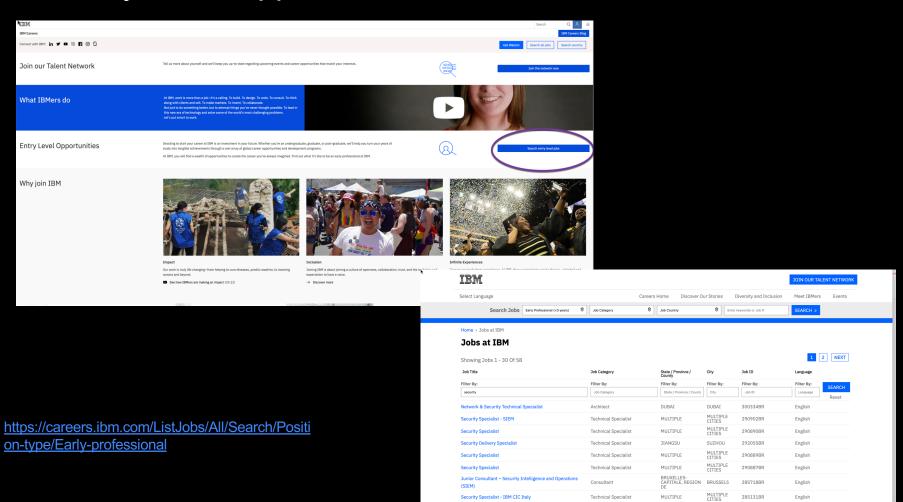
Explore youth apprenticeship and pre-apprenticeship programs

Encourage students to engage in conferences, competitions and clubs

Imagine the possibilities

IBM Entry Level Opportunities

IBM Security / © 2019 IBM Corporation



Security on site support (T2 local)

Technical Specialist

ANTIQUUIA

MEDELLIN

291298BR

English

Thank you

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Statement of Good Security Practices: IT system security involves protecting systems and information through prevention, detection and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, misappropriated or misused or can result in damage to or misuse of your systems, including for use in attacks on others. No IT system or product should be considered completely secure and no single product, service or security measure can be completely effective in preventing improper use or access. IBM systems, products and services are designed to be part of a lawful, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products or services to be most effective. IBM does not warrant that any systems, products or services are immune from, or will make your enterprise immune from, the malicious or illegal conduct of any party.





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