A Guide Getting Started with Cybersecurity

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DISCLAIMER

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STOP
ASIAN
HATE

A VERY PROUD CAL POLY ALUMNI!

Spent hours in this library!

Credit: ttps://www.freepik.com/photos/background'>Background photo created by jcomp - www.freepik.com

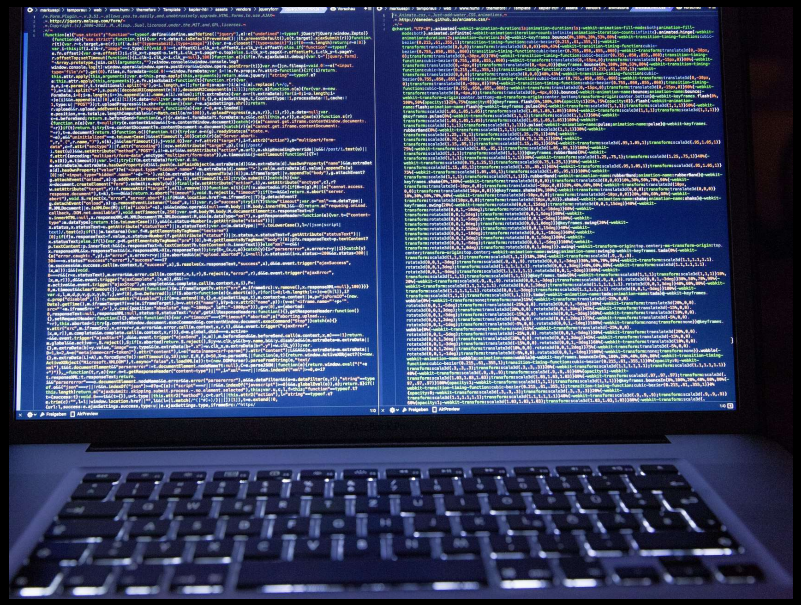
Source: https://commons.wikimedia.org/wiki/File:Calpoly_pomona_university_library.jpg

WHY GETTING STARTED IN CYBERSECURITY?

- Zero Percent Unemployment
- Unlimited Growth
- Plenty of Variety of Fields
- Solve Puzzles

WHY GETTING STARTED IN CYBERSECURITY?

- Competitive salary
- Can hack things and get paid
- Bleeding edge technologies
- Satisfaction when you break into a system successfully



FINDING AN ENTRY LEVEL JOB

- NOT EASY!
- Very Competitive !

https://pixabay.com/photos/women-running-race-racing-athletes-655353/

EVEN ENTRY LEVEL JOBS……

- 3-5 years of experience
- Degrees (CIS, CS, engineering and STEM)
- Certifications

Credit: https://www.careeraddict.com/uploads/article/55295/work-experience-note-pinboard.jpg
Credit: http://www.solano.edu/degrees/images/bnr_degrees_certificates.jpg

FEEDER ROLES INTO ENTRY-LEVEL CYBER JOBS

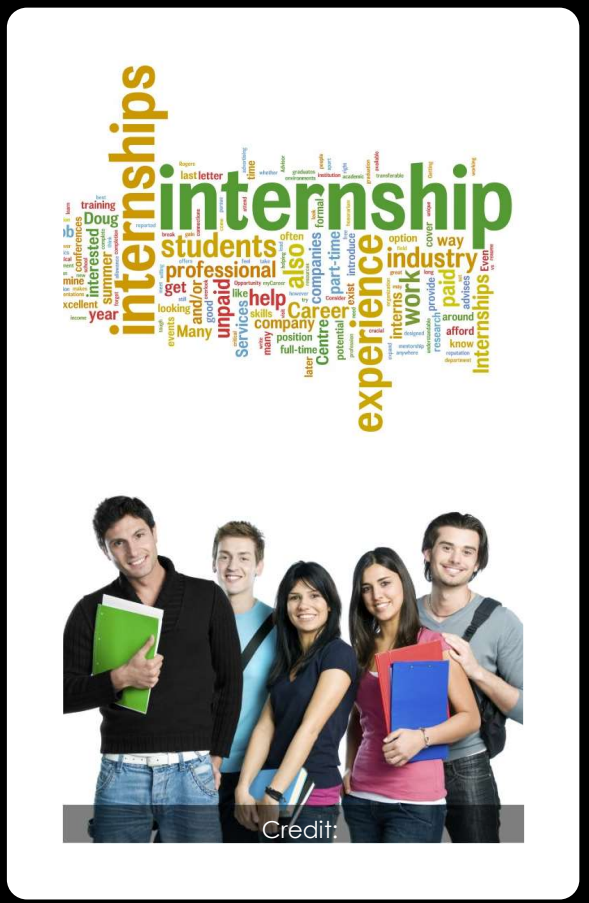
- Feeder Roles
  - Network Engineer
  - Systems Engineer
  - System Administrator
  - Software Developer
  - Help Desk Technician

It is NOT ABOUT YOUR JOB TITLE!!!

Credit: https://asmithblog.com/wp-content/uploads/2016/07/strengths-job-title-titles.png

AN INTERNSHIP CAN LAND YOUR NEXT JOB!

- #1 Recommendation for university students:
  - FIND AN INTERNSHIP!
  - Even if it is far away or in a boring city
  - It is usually about 12 weeks – NOT FOREVER
  - It is totally worth it (start when you are a freshman)



https://www.biginternships.com/freshman-internships


Cyber Security Tools
www.educba.com


BANK


Insurance


CENTRAL INTELLIGENCE AGENCY
UNITED STATES OF AMERICA


Sports

INTERNSHIP CANDIDATES SELECTION PROCESS

- **Well, it depends .....**
- **Large corporations**
  - GPA
  - Key words (might use a resume scanner software, before a resume reaches to a recruiter)
  - Multiple levels
    - Recruiter → Hiring Manager
- **Smaller companies**
  - Can reach out to the hiring manager directly

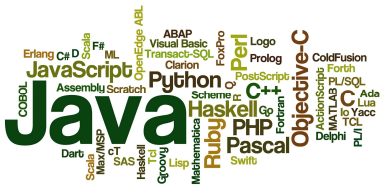
WHAT HIRING MANAGERS ARE LOOKING FOR

- Basic understanding of what cybersecurity is
- Think critically, problem solve and work independently
- Teachable
- Work well with others
- Have a passion for cybersecurity (not just looking for a high paycheck)
- Everything else I'll teach you

FOUR SKILLS

- Networking
- Linux
- Programming Language
- Soft Skills

**Many free resources are there. Especially during covid, the training classes are either free or very low cost



MAKE YOURSELF STANDOUT

- Build a home lab
- Start a blog
  - Write about what you are working on and why/what inspires you
- Get into Capture the Flag (CTF)
- Build a GitHub/GitLab repository
- Contribute to an open source project
- Volunteer at a cybersecurity conference / meetup
- Speak the language (through understanding)
- Doing unpaid internship

Basic Security Home Lab - with Charles Judd

BUILD YOUR PROFESSIONAL NETWORK

- Local security meetups and organizations
  - **In-Person**
  - Virtual
- Conferences and trainings
- Social Media

Credit:
https://www.insidehighered.com/sites/default/server_files/media/networking.jpg

BUILD A STRONG NETWORK

1. Right People
2. Win/win Situations
3. Give Before You Receive

FIND A MENTOR

STRATEGIES FOR EFFECTIVE

MENTOR MENTEE RELATIONSHIP

01 COMMIT TO EACH OTHER

02 DEVELOP TRUST

03 PLAN GOALS

04 ROLES AND RESPONSIBILITIES

05 COLLABORATE FOR RESULTS

Credit:
https://keynotesbh.com/wp-content/uploads/2017/08/mentorshi2.jpg

STAY SAFE !

Source:
https://www.thedoctorstv.com/articles/how-does-coronavirus-covid-19-affect-your-petS

Credit: https://pixabay.com/photos/arrow-books-hand-keep-direction-3029370/

Source: https://pixabay.com/illustrations/thank-you-letters-140227/

Source: https://pixabay.com/illustrations/question-question [illegible] quest-63916/

BACKUP SLIDES

CYBERSECURITY ROLES

Hands-On Roles

- Application Security Engineer
- Cloud Security Engineer
- Cyber Data Scientist
- Cyber Insider Threat Analyst
- Cyber Risk Analyst
- Cyber Threat Intelligence Analyst
- Cybersecurity Administrator
- Cybersecurity Advisor

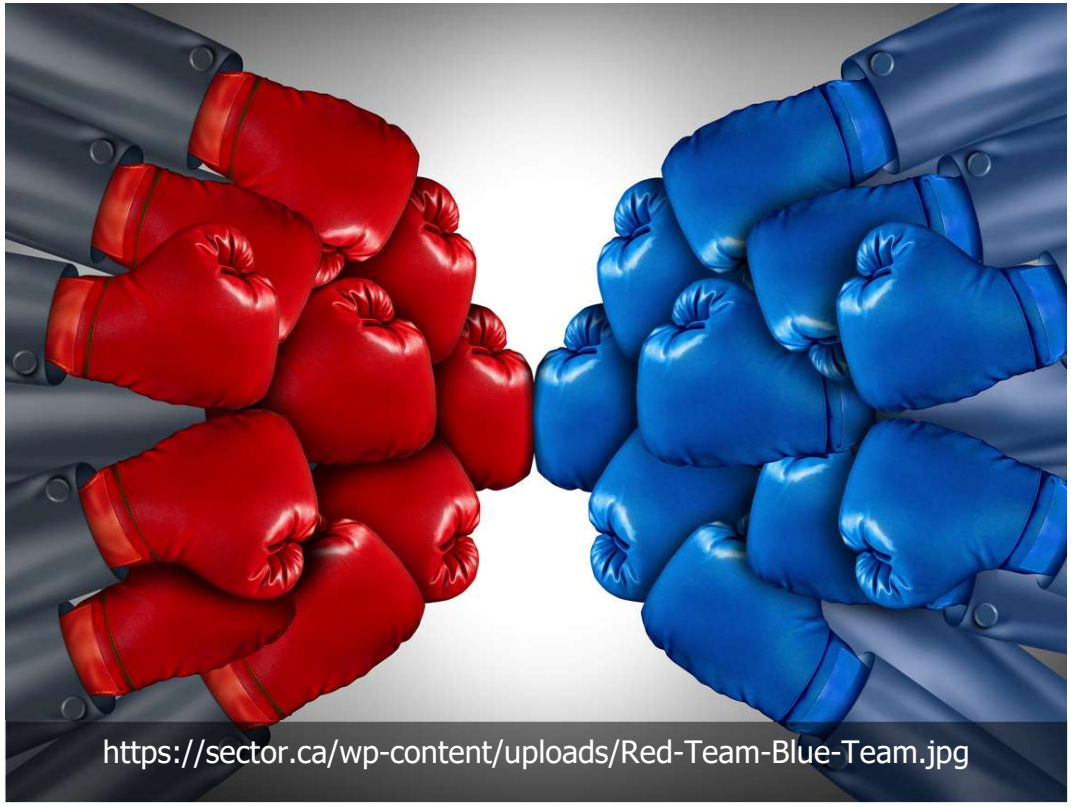
https://www.cybersn.com/cybersecurity-job-categories

- Cybersecurity Advisor
- Cybersecurity Forensics Analyst
- Cybersecurity Intern
- Cybersecurity Sales Engineer
- Cybersecurity Software Engineer
- Cybersecurity Specialist
- Data Loss Prevention Engineer
- Data Security Engineer
- DevSecOps
- Governace & Compliance Analyst
- Identity And Access Management Engineer
- Incident Responder

Source: https://niccs.cisa.gov/formal-education/students-launch-your-cyber-career

ROLES OF RED, BLUE AND PURPLE TEAMS

- Red Team
  - Attack
- Blue Team
  - Defend
- Purple Team
  - Support the process



https://sector.ca/wp-content/uploads/Red-Team-Blue-Team.jpg

RED TEAM ROLE

- Typically, an external team, that hired to test its defenses
- Deploy bleeding edge hacking tools and techniques to infiltrate systems and premises
  - Could extend to writing their own malware
- Traditional penetration testing

RED TEAM METHODS

- Initial Reconnaissance
- Deploy command-and-control servers (C&C or C2) to establish communication with the target's network
- Use decoys to throw the blue team off the scent
- Apply social engineering and phishing techniques

RED TEAM OBJECTIVES AND DUTIES

- Compromise the target's security
  - Extracting information, infiltrating its systems or breaching its physical perimeters
- Avoid detection by the blue team
- Exploit bugs and weakness in the target's infrastructure
- Initiate hostile activity

BLUE TEAM ROLE

- Understand every phase of an incident response
- Notice suspicious traffic patterns and identifying indicators of compromise
- Rapidly shutting down any form of compromise
- Identify the threat actor's command and control (C&C or C2) servers and blocking their connectivity to the target
- Undertake analysis and forensic testing on the different operating systems (including use of third-party systems)

BLUE TEAM METHODS

- Review and analyze log data
- Use a security information and event management (SIEM) platform for detection of live instructions and to triage alarms in real-time
- Gather new threat information
- Perform traffic and data flow analysis

PURPLE TEAM

- Not a permanent team
- Oversee and optimize the red and blue team exercise
- Typically – security analysts or senior security personnel
- If the red and blue teams work well – a purple may become redundant

WHAT YOU NEED TO LEARN

- How computer works **
- Virtualization
  - Build your home lab
- Linux
  - Cybersecurity or hacking distribution is based on Linux (there is now way around it)
- Networking
- Firewall
- Windows Server and domains
  - Each company will run some kind of Active Directory. Windows still being the most dominate
- Install your first security Linux distributions
- Capture the Flag (essential part learning cybersecurity) – permanently working on a CTF


HOW TO GAIN CREDIBILITY WHEN YOU HAVE LITTLE EXPERIENCE
We are looking for someone age 22-26 …. With 15 years of experience ☺

RESOURCES:

Videos

- How to Start a Career in Cyber Security with the Cyber Mentor
- How to Get Into Cybersecurity with No Experience
- 5 Entry Level Cyber Jobs You Need to Know About