

The background features a large, faint watermark of the Arizona State University seal. The seal is circular with a serrated outer edge. It contains the text "ARIZONA STATE UNIVERSITY" around the top, "1885" at the bottom, and "SEAL OF THE UNIVERSITY OF ARIZONA" in the center. The seal is rendered in a light purple or lavender color.

Reconciling the **Hacker** **Spirit**

...with **Ethical Cybersecurity Education**

Yan Shoshitaishvili
Arizona State University

We need more and more (ethical) hackers!





password













The Hacker's Manifesto, 1986

Another one got caught today. It's all over the papers.
"Teenager Arrested in Computer Crime Scandal" ... "Hacker Arrested after Bank Tampering" ...
Damn kids. They're all ALIKE ...
But **did you**. In your three-piece psychology and 1950's techno-brain, ever take a look behind the eyes of the hacker?
Did you ever wonder what made him tick, what forces shaped him, what may have molded him?
I ^{am} a hacker, enter my world ...
Mine is a world that begins with school. I'm smarter than most of the other kids, this crap they teach us bores me ...
Damn underachiever. They're all alike. I'm in junior high or high school.
I've listened to teachers **EXPLAIN** for the fifteenth time how to reduce a fraction. I understand it.
Damn kid. "No, Ms. Smith, I didn't show my work. I did it in my head..."
Probably copied it. They're all alike.
I made a discovery today. I found a **computer**. Wait a second; this is cool. It does what I want it to. If it makes a mistake, it's because I screwed it up.
Not because it doesn't like me... Or feels threatened by me... Or thinks I'm a smart ass... Or doesn't like teaching and shouldn't be here...
And then it happened... a door opened to a world... rushing through the phone line like **heroin** THROUGH AN ADDICT'S VEINS.
an electronic pulse is sent out, a refuge from the day-to-day incompetencies is sought... a board is found
"This is it... **this is where I belong...**"
I know everyone here... even if I've never met them, never talked to them, may never hear from them again... I know you all...
Damn kid. Tying up the phone line again. They're all alike... You bet your ass we're all alike...
We've been spoon-fed baby food at school when we hungered for steak... the bits of **meat** that you did in slip through were pre-chewed and **tasteless**
We've been dominated by **sadists** or ignored by the apathetic. The few that had something to **teach** found us willing pupils, but those few are like drops of water in the desert.
This is our world now... the world of the electron and the switch, the **beauty** of the baud. We make use of a service **already existing** without paying for what could be dirt-cheap if it wasn't run by profiteering **gluttons**, and you call us criminals.
We exist without skin color, without nationality, without religious bias... We explore... We seek after knowledge... **and YOU call us criminals.**
You build atomic bombs, you wage wars, you murder, cheat, and lie to us and try to make us believe it's FOR OUR OWN GOOD, yet we're the criminals.
Yes, I am a criminal. My crime is that of curiosity. My CRIME is that of outsmarting you, not what they look like, something that you will **NEVER** forgive me for.
My crime is that of judging people by what they **SOY** and think, **I am a hacker, and this is my manifesto.**
You may **stop** this individual, but you can't stop us all...
after all...
WE'RE ALL ALIKE.

This is our world now... the world of the electron and the switch,
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without nationality, without religious bias... and you call us
criminals.

You build atomic bombs, you wage wars, you murder, cheat



~~Engineering~~ Cybersecurity Ethics?



CSE 194: Cybersecurity History and Culture


Weaves ethics through a course exploring different facets of the hacker ethos:

- Pop-culture perceptions
 - Hackers, Sneakers, Wargames
- Phone phreakers (and resulting legal battles)
- Early hacker crews and organizations
 - Phrack (and resulting legal battles!)
- Prominent early figures (and resulting legal battles)
 - Mitnick, Morris, others chosen by students
- Hacktivists
 - Anonymous, Swartz, Fisher
- Cybercriminals
 - Gonzales

Alongside these discussions, introduce hacker-adjacent skills (such as lockpicking).

Freshman course: get students set up with the foundation early.

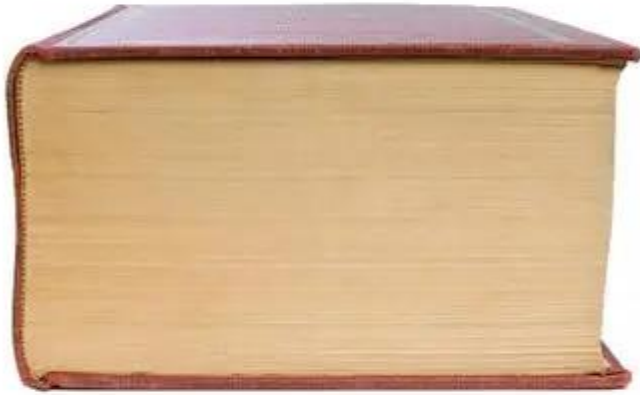




Practical Skills

Theoretical Knowledge

Base Context



The practical cybersecurity skills needed to fill the "Cybersecurity Skill Gap".



The practical cybersecurity skills taught in a typical college curriculum.

CAPTURE THE FLAG

S ANGELO

For
-Celebri



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Current Courses

CSE 365 -
Spring 2023

4 Modules

Topics

Fundamentals

4 Modules

Intro to
Cybersecurity

5 Modules

Program
Security

4 Modules

System Security

5 Modules

Software
Exploitation

Archived
Modules

Inclusive education?

ASU Charter

ASU is a comprehensive **public research university**, measured not by whom it excludes, but by **whom it includes** and how they **succeed**; advancing **research and discovery** of public value, and assuming **fundamental responsibility** for the economic, social, cultural and overall health of the **communities** it serves.

The ASU logo is displayed in white on a dark stone block. It features the letters 'ASU' in a bold, sans-serif font. The letter 'S' is stylized with a sunburst or gear-like pattern behind it.

No Computer? No Problem!

We put a computer in your browser so you can hack while you hack!

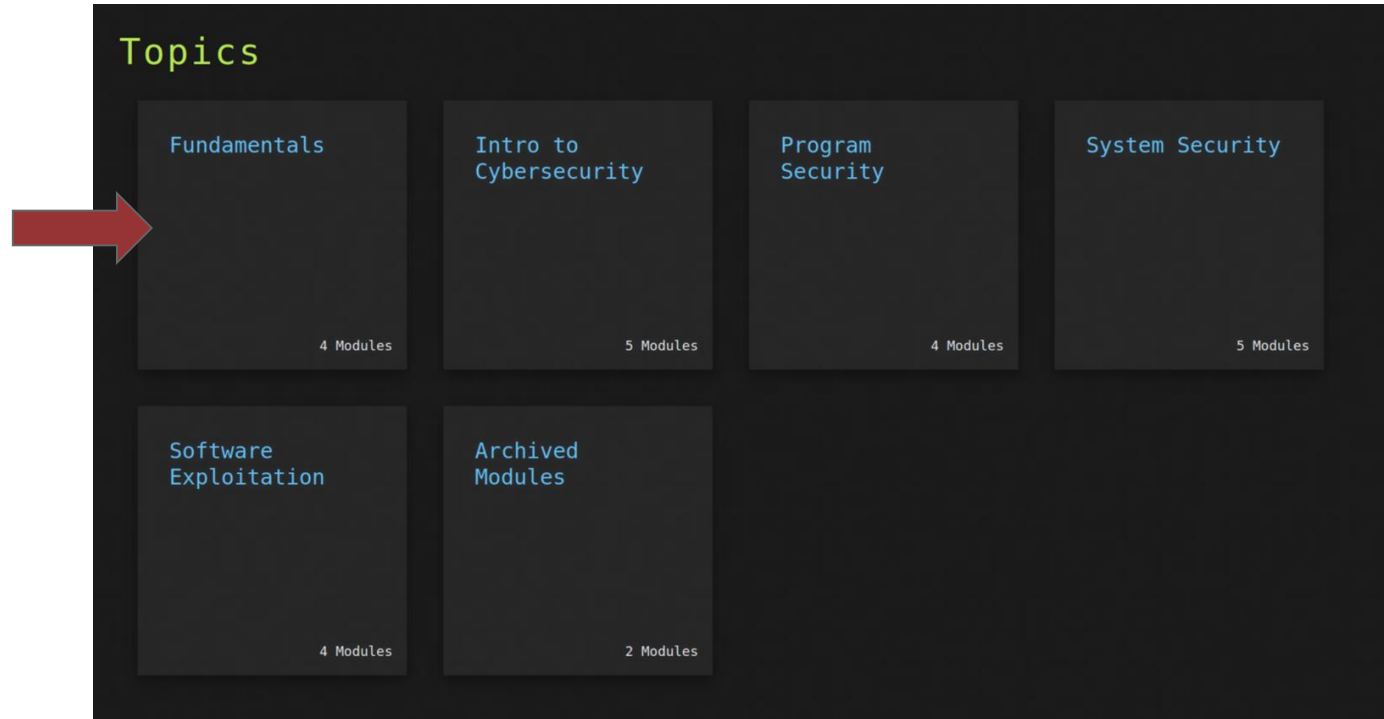
The image shows a browser window displaying a web-based hacking environment. The browser's address bar shows `./ pwn.c`. The navigation menu includes `Challenges`, `Scoreboard`, `_Workspace`, `Desktop`, `Chat`, `Profile`, and `Settings`. The desktop environment has a dark red background with a yellow logo at the bottom. A terminal window is open in the foreground, showing the prompt `hacker@practice_babysuid_level1: ~` and a command prompt `$`. Three callout boxes provide additional information: one points to the navigation menu with the text "With preinstalled hacking tools for learning!", another points to the desktop area with "Launches a full desktop...", and a third points to the "Home" directory icon with "With a persistent home directory!".

With preinstalled hacking tools for learning!

Launches a full desktop...

With a persistent home directory!

No Foundation?





BACKPACK PLANET

Success?

The Good:

Zero issues for students that don't have their own computers (and have to rely on phones, tablets, or shared computer labs)!

The Bad:

Under-represented student share has remained roughly the same low rate.

The Ugly:

Constantly battling the administration to keep pwn.college open...

Practical education. ✓

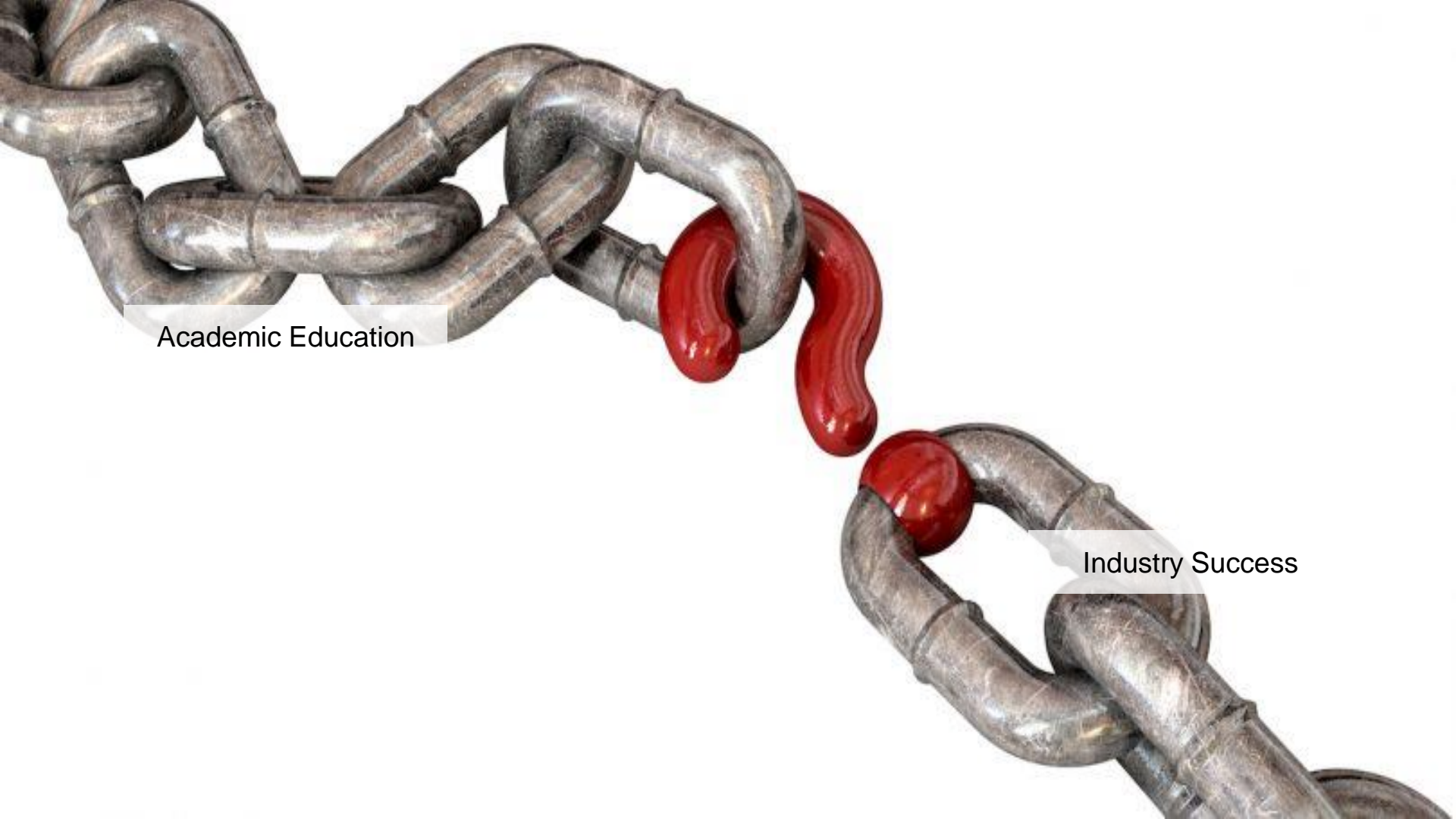
Comprehensive education. ✓

Inclusive education. ?

Then what?







Academic Education

Industry Success

Bridging the Missing Link

Ideally, students would demonstrate some impact...

... such as bug bounties!

... but bug bounties aren't so easy.

Idea! CSE 598: Applied Vulnerability Research.

Students ran a Vulnerability Research lab: picked a (real-world) target, found vulnerabilities, reported them, got CVEs!

Very successful, except a Hacktoberfest effect: some real-world projects got overwhelmed, drama ensued...

Back to the drawing board...



Thank you!

Yan Shoshitaishvili
yans@asu.edu
@Zardus

Come visit the lab: sefcom.asu.edu/apprenticeship.html
High School Internships: sefcom.asu.edu/internship.html
pwn-college: pwn.college

