

# Cybersecurity Education



A unique perspective about teaching and learning college Cybersecurity

Jessica Rooney & Owen Parkins

# The Hooligans

## Jessica Rooney

- From beautiful Colorado
- Red Team
- Bad time management
- Skier
- Hiccups continuously
- Doesn't know about the hours before 9am
- Legend of Zelda Fan
- Addicted to caffeine
- Obsesses over red pandas
- As intimidating as a bunny

## Owen Parkins

- From New Mexico ('Murica)
- Blue Team
- Good time management
- Snowboarder
- Search & Rescue Vice President
- Doesn't know about the hours after 9pm
- Can't speak Engrish well
- Early adopter of technology
- Can't see in bright light
- Super tacticool

Shares a brain

Closet nerds

Arch Linux

HAM Radio

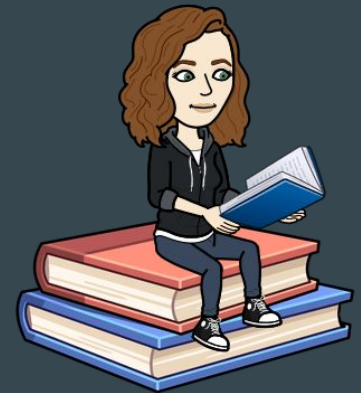
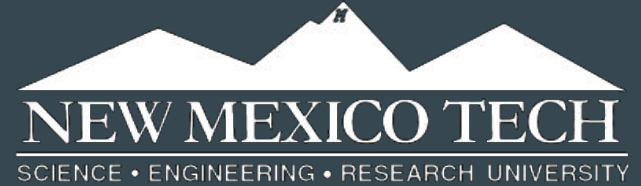
Gamers

Dr. Pepper Lovers



# Education

- New Mexico Institute of Mining and Technology
- Recipients of CyberCorps Scholarship for Service
- 5 year Master Program Students
  - Computer Science focus in Cybersecurity
  - Graduate 2020



# Education

- Notable Courses
  - Foundations of Information Security
  - Secure Systems Administration (a.k.a defending against hacking)
  - Computer Network Security
  - Hardware Based Network Security



# Koala-fications

College Students for 3 ½ years

- + SFS professional development class for 3 years
  - + Official SFS recipients for 1 ½ years
  - + Cybersecurity Internships
  - + Manage Cybersecurity Lab
  - + Manage Security Audits
  - + Present Cybersecurity Topics
  - + Taught Cybersecurity Classes
- 
- = ?



# Being Taught Cybersecurity

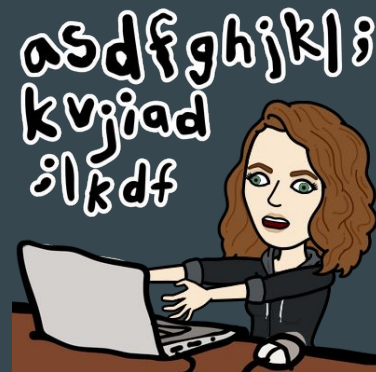
- Basics are abundant
  - We have both research and policy mentors
    - Dr. Lorie Liebrock
    - Dr. Blaine Burnham
  - But, not all professors are created equally
  - News Notes

THINKING...



# Being Taught Cybersecurity

- Technical Items Missing
  - Reverse Engineering, Network Traffic Analysis, etc.
- Real experience is worth more than bookwork
  - Audits
  - Competitions
  - Internships
    - Red Team experience



# Teaching Cybersecurity

- We had to learn how people learn
- Reduce the steep learning curve
- Labs are important
  - Possibly more than theory

SMART!





# Teaching Cybersecurity

- Policy is vital, not just technical skills
- More to Cybersecurity than Red Teaming (who we are)
  - Or Blue Teaming
  - Or Penetration Testing
  - Or Policy Creation
  - Or ...
- Material needs constant updating

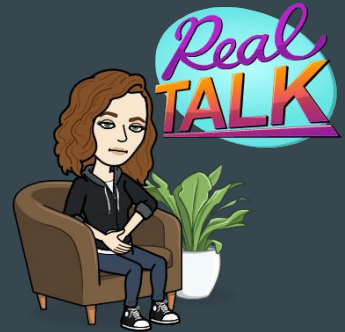


# Future of Cybersecurity Education

- Industry involvement is vital
  - Internships provides experience to those who need it
  - Great instructors come from industry
- Funding isn't everything
  - Need good instructors who understand
    - The field
    - What they are doing
    - What needs to be taught



We need you!



# How to Help

- Contact your CS Departments
  - Ask to teach an elective course
  - Convey internship opportunities
- Fund Senior Research Projects
  - Give students real experience
- Get involved competitions
  - DOE CyberForce
  - CTFs

i helped.



# Thanks to....

- Dr. Lorie Liebrock
- Dr. Blaine Burnham
- Dr. Lyndon Pierson
- Sean Salinas
- Kevin Schmittle

