CIS 447/544: Computer and Network Security

Anys Bacha

Administrivia

About Me

- Ph.D. from The Ohio State University

- Lead Engineer at Hewlett-Packard

- 13 years R&D experience in hardware, firmware, and software

- Research Interests:
    - Security
    - Applied machine learning
    - Operating systems and architecture
    - Cloud and mobile computing (energy efficiency)

You...

- Go to the Google Form below and submit your information

    - https://forms.gle/sSJPffaM76H6J9eLA

Goals

- Introduce you to a broad set of topics in computer and network security

- Learn about threat models and attacks that compromise operating systems, web applications, and networks and how to defend against them

- Expose students to exploring new directions in the field of security

- Gain hands-on experience to building and evaluating secure systems

- Prepare you for a career in cybersecurity

Topics in this Course

- Software Security
  - Buffer overflow
  - Return-oriented programming
  - Malware
- Web Security
  - Browser security model
  - Website attacks and defenses: XSS, SQL injection

- Network Security
  - Protocol security: TCP, DNS
  - Policing packets: firewalls, intrusion detection
  - Censorship
- Crypto
  - Hash functions
  - Symmetric Cryptography
  - Public Cryptography

The above is a tentative list of topics and is subject to change

Syllabus

Paper Presentation