A black and white logo

AI-generated content may be incorrect.

Developing Cybersecurity Tutorials

Client Organization: Department of Computer Science at University of Idaho

Client: Daniel Conte de Leon ([dcontedeleon@uidaho.edu](mailto:dcontedeleon@uidaho.edu))

Mentor: Ananth Jillepalli

Preferred weekly meeting method: Individual updates once every week

Scope: 2 or 3 members

**Abstract & motivation:**

Cybersecurity is a field where industry jobs are driven by requirements of hands-on skills. However, cybersecurity coursework at universities is often theoretical in nature. This creates a gap between academia training and industry expectations. Our project CERES (Cybersecurity Education RESources) has been tackling the academia-industry training gap since 2015. We create open-source walkthroughs and tutorials to facilitate hands-on training for cybersecurity topics. Prior student teams have created tutorials on topics such as desktop penetration (pen) testing, web app pen testing, network vulnerability scanning, packet capture and analysis, firewalls, and active directory management.

We seek a team that is interested in developing walkthroughs and/or tutorials for cybersecurity of Wireless and Distributed systems. Such work would involve researching open literature and identifying some technologies, scoping problems, and creating tutorials to solve the scoped problems with the identified technologies.

**Outcomes of Project:**

* Cybersecurity tutorials on topics/tools such as:
  + Mobile app security testing with MobSF (Static), Frida/Burp Suit (Dynamic)
  + Packet capture and analysis of 4G/5G data
  + WPA/2/3 pen testing
  + RAID security using mdadm (Linux), diskmgmt.msc (Windows), diskutil (macOS)
  + Security analyses using PIPE (Petri Net Editor) and PyMC3/Markovify (Markov Chains)
  + Central security using SaltStack or Ansible or Chef or Puppet
* Scholarly academic publication possible upon excellent achievement of project work

**Expectation of Group:**

* Understanding of Python, testing tools, and different OS environments
* Computers powerful enough to run moderately complex tools

**Resources from sponsor & client:**

* Prior tutorials for inspiration: <https://github.com/ajillepalli/HandsOnCyberTutorials>
* Regular mentoring