

CMSC5726 Computer and Network Security (2019-2020 Term 2)

Project

Deadline: 17-May-2020 (Sun) 23:59

Introduction

The objective of this project is to extend what you have learnt in lecture by investigating the modern computer and network security techniques in one of the following areas:

1. Buffer Overflow
2. Sniffing
3. TCP Exploits
4. ARP Spoofing
5. ICMP Redirection
6. Port Scanning
7. Packet Filtering and Firewall
8. Password
9. Cryptography
10. Wireless Security
11. Malicious Software
12. Quantum Cryptanalysis and Cryptography

Please conduct a survey and perform analysis to review the state-of-the-art security techniques in your selected area. For the techniques already covered in lecture, there is no need to include them in details. Instead, you need to include those are not covered (or only barely covered) in lecture. The lecture materials from last year of the topics not yet covered this year are uploaded to Blackboard for your reference. Implementations and experiments are welcome but not mandatory. Please be reminded that the experiments (if any) cannot involve any illegal or unethical activity, including but not limited to unauthorized break-ins, cracking, or denial of service attacks.

As the University requirement, the report needs to be submitted to VeriGuide for similarity checking, which compares your report with resources on the Internet and the reports submitted by other students in this course.

Deliverables

1. Video Presentation
 - Video length: 12-20min
 - Include presentation slides, figures, animations, and demonstrations (if any), etc.
 - Include your name and the topic in the beginning
 - Include subtitles
 - Include a reference section at the end
 - The presentation must be done in English and in your own voice

- Tools for video creation and editing
 - Powtoon (for animated video presentation)
 - Zoom
 - Microsoft Photos app
 - Apple iMovie
 - LightWorks
 - Any desktop recording software or any other tools
- Convert the video to a compressed format with smaller size (e.g., mp4) for uploading
- Name your file as <Student ID>_video (e.g., 1155012345_video.mp4)
- 2. Report
 - In PDF format
 - No page limit
 - A reference section must be included
 - Name your file as <Student ID>_report (e.g., 1155012345_report.pdf)
- 3. VeriGuide Receipt of the Report
- 4. Signed Declaration Form
 - [https://www.cuhk.edu.hk/policy/academichonesty/Eng_html_files_\(2013-14\)/p10.htm](https://www.cuhk.edu.hk/policy/academichonesty/Eng_html_files_(2013-14)/p10.htm)

Assessment Scheme

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|----------------------|-----|
| • Content | 60% |
| • Video Presentation | 20% |
| • Report | 20% |

Submission

1. Compress the following into a file in the ZIP format and name it as <Student ID>_project.zip (e.g., 1155012345_project.zip)
 - a. Report
 - b. VeriGuide receipt of the report
 - c. Signed declaration form

Note: Do NOT include the presentation video in this zip file.
2. Go to <https://blackboard.cuhk.edu.hk> and login with your account.
3. Go to CMSC5726 → Project → Project Submission.
4. Submit the zip file.
5. For the presentation video:
 - a. Convert the video to a compressed format with smaller size (e.g., mp4).
 - b. Go to <https://blackboard.cuhk.edu.hk> and login with your account.
 - c. Go to CMSC5726 → Panopto Video → Project Video Submission (above all videos, with a small folder icon) → Create → Upload media.
 - d. Submit the video.

Resubmissions are allowed. But only the latest one will be counted. Late submissions within three days can only receive 70% of the marks. Late submissions more than three days will not be graded.