Welcome Students and Colleagues

First NISlecture of the Fall Semester 2017

Our Cyber Security Challenges: A Serious Game

Questions: ixc.no  event: nislecture
Outline for the next 45 minutes

- Where and why are we today? Stewart
- Serious Games and Cyber Security Simon
- Cyber 9/12 Challenge Gaute
- Cyber Challenge Sokratis
- ITEMIZE Stig-Frode (Skype)
- Why, where, what you should be this semester? Stewart/Simon

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The Department of Information Security and Communication Technology

- 80 employees in Gjøvik and Trondheim
- Research in areas of biometrics, cyber defence, critical infrastructure protection, cryptography, digital forensics, e-health and well being, intelligent transportation systems, internet of things, information security management, malware, quantitative modelling of dependability and performance
- 1 bachelor (70), 2 master (74 + 25), 1 siv.ing (45) og 2 PhD educations
  Offer flexible and part time study programs
- Forskningsprosjekter: EU H2020 (5), EU FP7 (4), EU Cost (1), EDA (1), IARPA
  Odin Thor (1), NFR FME (1), NFR IKT+ (4), NFR ENERGIIX (1), NFR BIA (2),
  NFR Forskerskole (1), NFR NæringsPhD (1), RFF (4)
  Totally 40 MNOK in 2017 (45% of the department budget)
- Host and operate NTNU Center for Cyber and Information Security
- Academic conferences, Cyber Symposium, SikkertNOK, Sikkerhetstoppmøtet
Why = \{ unique..etc \}
Information Security Management and Privacy

Critical Infrastructure Security and Resilience

Cyber Defence

e-Health and Welfare Security

Norwegian Biometrics Laboratory

NTNU Digital Forensics Group

NTNU

Norges teknisk-naturvitenskapelige universitet

CCIS
Centre for Cyber and Information Security

We are Here Today!

NISlectures
NISSeminar
SikkertNOK2017
Cyber Challenges
Cyber 9/12 Challenge
Student Theses
And More!

Contact: Sofie Nystrøm
sofie.nystrom@ntnu.no
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Our Cyber Security Challenges: A Serious Game

IIK [NTNU]

Venue: K105  Hashtag: nislecture1708

Our Cyber Security Challenges: A Serious Game

Simon McCallum, Associate Professor, Department of Computer Science, Faculty of Information Technology and Electrical Engineering, NTNU Gjøvik, Norway

Gaute Wangen, Postdoctoral Fellow, Department of Information Security and Communication Technology, NTNU Gjøvik, Norway

Stig Frode Mjølsnes, Professor, Department of Information Security and Communication Technology, NTNU Trondheim, Norway
COP – Community of Professors

- Cyber Security is not a single discipline
- It takes a village to raise a PhD
- Working together
- Flexible outcome based on research
- 3 students with overlapping activities
- We will be needing many student volunteers as “beta” game testers and hackers!
Games

- Games are about making choices – interacting
- Designing games is about creating interesting choices
- Security has interesting choices
- Games provide a safe environment for those choices.

- What is a good question?
  - Rating questions – qRate
Questions

- Answerable
- Relevant
- Specific
- Actionable
- Engaging
- Succinct
- Rhetorical
- Educational
- Humourous

Context

Good?
Making Games

• We will make games to try scenarios
• Engage the public
• Engage developers
• Operationalise security ideas
• Provide perspective

• Military games practice for war
• Cyber security games practice to keep the peace.
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A major cyber attack has occurred. How should your nation respond?
Cyber 9/12 Student Challenge: Competition and Scenario

• Scenario: Several Cyber Incidents
  – How to respond at the government level?
  – Make a recommendation on how to handle the incident

• Problem:
  – How to respond?
  – Who to include in the response? (EU, NATO, CERTS, private sectors, others?)
  – Handling media
  – Implications of actions
Competition and Scenario

- Team 4 contestants + 1 coach
- Three round competitions
  - First intelligence report, two Weeks ahead of comp
- Tasks:
  - Written 500 word summary of main points
  - Prep 10 minute brief
  - Provide 4 policy options
  - Deliver 2-page Decision Document
Intelligence Reports

Security

Global Health System at risk from hackers
Patients and physicians peeved, as hospitals buy more bitcoin instead of fixing the problem

Tab 5: CLASSIFIED NATO Joint Security Awareness Report
Tab 4: CLASSIFIED MI6 Memo: Assessment of ISIS Status and Likely Future Action

ZEIT ONLINE
MEMORANDUM FOR THE DIRECTOR OF MI6

Anarchism in Europe
The New Rise of the Black Bloc in Cities and in Cyberspace
Written summary and Policy Brief

• What does the boss want to know?

• Situation report
  – Who, what, where, when, how, why?

• “Policy options” consisting of “Policy Instruments” to prevent “Things that go boom”
What is a policy option? And how to make one?

- **Immediate Response vs. Delayed Response**
  What actions should be considered, if any, if there exists a possibility of European agencies’ involvement? What actions should to be taken immediately after the incident versus those that should be taken later? How should leverage be maintained?

- **Government Response vs. Private Sector Response**
  What actions taken in response to the reports and incidents should be led by the private sector and what actions should be under the government’s leadership? Actions to consider may include public acknowledgements, preventive and preemptive defensive actions, and offensive actions.

- **Explicit Deterrence vs. Implicit Deterrence**
  Should European nations respond openly to deter future attacks? Will the absence of a response – or a covert response – embolden future attackers? How should either option be messaged, if at all? What consideration should be given to escalatory potential of a response meant as deterrence?

- **Direct Response vs. Indirect Response**
  If action is to be taken, should it be a direct or indirect response to the incident? Should those responding act in secret, or reveal their cyber capabilities? Should no action be taken?
Atlantic Council – Geneva Center for Security Policy
Delivering the policy brief
Intelligence report 2

Requesting Country: Belgium
Date and Time of Publication: June 18, 2018, 10:37 a.m.

IMMINENT THREAT

PATIENT CARE HELD HOSTAGE

Ransomware attacks on hospitals across Europe pose acute threat to public safety
When and How to Join the Digital Board Squad

• SikkerhetNOK 26 of October
  – Cyber Ghost Story Competition (Fear Uncertainty and Doubt)
    • Video/audio narrative 30sec -3 minutes
    • Scare you fellow students to change their bad cyber security habits.
  – Practices start in February
  – Weekend workshop 3 weeks before competitions
  – Travel to Geneva 5th and 6th of April

• contact
  – stewart.kowalski@ntnu.no
Final round
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European Cyber Security Challenge

Norwegian Cyber Security Challenge

Hilmar Haraldsson
Center for Cyber and Information Security

Norwegian University of Science and Technology
It is acknowledged that there is a growing need for IT security professionals worldwide. To mitigate this shortage, many countries launch National Cyber Security Competitions. The aim of these competitions are:

1. Find new and young talents in cyber security
2. Encourage young people to pursue a career in cyber security

The European Cyber Security Challenge – ECSC adds a Pan-European layer on these National Competitions.
The European Cyber Security Challenge - ECSC

• It is an initiative of the European Commission supported by ENISA

• Annually, the competition brings together young talents from European Countries to have fun and compete in cyber security

• The goal of ECSC is to place Cyber Security at the service of humankind

• Promoting:
  • An open, safe and secure cyberspace
  • A peaceful society with democratic values
  • Free and critical thinking

• A Cyber Security championship

• Hosted in Malaga (Spain) on 30th of October – 3rd of November
The Norwegian Cyber Security Challenge

- **Qualification round** 19th of August 2017
  - Online competition of a team from 1-5 participants
- **Final competition** at Gjøvik on 30th of September
  - Norwegian citizen or legally reside in Norway
  - Born between 1992-2001
- **National team** is formed after these competitions
  - Maximum 10 persons
  - At least 2 of each gender (M/F)
  - Norwegian citizen
  - Born between 1992-2001
http://itemize.no/about/

In English:

Itemize hackerclub was started in October 2014 at the initiative of prof. Mjølsnes at the Insitute for Telematics at NTNU.

The main goal from the beginning was to attend and attain a respectable position in international Capture-the-flag competitions.

Capture-the-flag (abbrv CTF) is a sort of cyber-wargame with the main goal being to solve tasks within different categories to obtain “flags” (bitstrings) which can be turned in in exchange for points. The goal is to get as many points as possible. The tasks are often in categories such as cryptography, web-hacking, binary analasys and exploitation, forensics etc.

Itemize is thus a platform for students and faculty to learn about information and network security in a practical and fun manner, learning by doing and competing as well as learning from each other.
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See you at the next NISlecture 29.09.2017 K105!

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