Report of Attendance at the COINS Ph.D. Student Seminar 2019

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Introduction

This report is intended to give a brief overview of my attendance at the COINS Ph.D. student seminar 2019 and the 12th annual Norwegian Information Security Conference, NISK 2019. Both events took place in Narvik 25-27 November 2019, co-located with the NIKT conferences. The transportation and accommodation of this trip was provided by COINS funding source. The first section of this report addresses the COINS Ph.D. student seminar, and the second section addresses the NISK Conference 2019.

1 COINS Ph.D. Student Seminar

The seminar started on Monday, November 25, 2019 at 13:00 with an introduction and presentaion of the participant by Professor Hanno Langweg. Then, Seraj Fayyad, Princess Sumaya University for Technology, Jordan, presented what he had learned through his Ph.D. He recommended us to study more and learn new things and techniques, join different research and leisure groups, prepare yourself for criticisms and etc. He continued his presentation with describing the importance of IoT security since the number of connected devices is increasing drastically in the world and more businesses are relying on these new technologies. This part of his presentation drew more attention and the audience asked several question regarding this topic.

After Seraj, several Ph.D. students presented their latest research activities. Ahmed Walid Amro outlined the requirements for maritime autonomous surface ship in urban passenger transportation. He presented his collaboration with the autonomous ships project in Trondheim. He also described how he is going to tackle the existing challenges in his filed of research. The second student, Livinus Obiora Nweke, presented his latest published article on Queuing Networks in Software Defined Networks (SDN). He described how he has employed Markov Chains to propose a technique that enables us to monitor the network traffic analyze the anomalies.

Muhammad Ali Fauzi was in the beginning stages of his Ph.D. project. Therefore he presented his research proposal on the Modelling Healthcare Staffs' Mental State to Minimize Cybersecurity Risk. By using Federated Learning, he is going to human errors that are rooted in the stressful conditions of healthcare systems. The fourth student, Prosper Yeng, also has been studying healthcare system. His focus is on medical data privacy and the vulnerabilities that could be exploited by adversaries and disclose the sensitive information of the patients. The final student, Muhammad Yamin, presented how serious games can be used as a tool to model attack and defense scenarios for cybersecurity exercises. He demonstrated his latest findings on how this approach can enhance the training environments within the context of cybersecurity.

The second part of this seminar was mainly about the Ph.D. life and experience. The presenters of this part were previously a member of COINS and they were sharing some valuable infomration that could be useful for the current students. Oleksandr Kazymyrov talked about his experience in industry. He stated that having a university degree is not enough and certifications can improve the chance of finding a job in industries. He also explained how he faced with several challenges when he was working at EVRY in Norway. Andrii Shalaginov, from NTNU, talked about the life after the Ph.D. by focusing the benefits of networking, collaboration and funding opportunities. This topic was continued by Berglind Fjola Smaradottir, from University of Agder. Berglind revealed some secrets of becoming a leading in researcher in one field of study. She emphasized the networking and research collaboration can make significant difference in our academic life. Finally, this seminar came to an end by the election of two COINS student representatives.

2   NISK Conference 2019

The aim of the NISK conference series is to be the principal Norwegian research venue for presenting and discussing developments in the field of ICT security and privacy, and bringing together people from universities, industry, and public authorities. I am not going into detail about all the sessions that I attended but highlighting three of the ones that were relevant and interesting for me.

Spill deg frisk og smart!

The talk by Alf Inge, the inventor and co-founder of Kahoot! and the chairman of JoinGame, was aimed to provide answers to questions such as "Is it possible to get better health by playing computer games" and "How can you make learning more entertaining with the help of computer games?". He presented hist latest findings in research related to how games affect physical activity and how games affect motivation and commitment to learning. He also addressed important principles from computer games to motivate and engage. His talk was a mix of experience from practical use, demonstration and presentation of research in exergames and game-based learning.

Hvorfor og hvordan digital sikkerhet skal integreres i utdanningen.

Professor Audun Jøsang, from University of Oslo, presented a why and how digital security should be integrated into education. National strategy for digital security, and national strategy for digital security competence from 2019 represent a radical shift from previous national strategies where information security in education has been considered as a crucial part. His presentation showed the development towards the current strategy, concrete initiatives and activities such as working group for IT security in technical education, and outlined challenges in integrating digital security in education at all levels.

A Framework for the Validation of Network Artifacts

Livinus Obiora Nweke presented their proposed framework for the validation of network artifacts. This framework can be used in digital forensics investigations. They have assumed that the validity of network artifacts can be determined based on probabilistic modelling of internal consistency of artifacts. Accordingly. A Monte Carlo Feature Selection and Interdependency Discovery algorithm is applied in selecting the informative features, while logistic regression is used as the probabilistic modelling methodology for the validation process. The experiment results show the validity of the network artifacts and can serve as a scientic methodology to support the initial assertions drawn from the network artifacts.