IMT6004 — COINS PhD Seminar 2015

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December 2, 2015

This is a reflect report on the COINS PhD Seminar that took place in KTH Royal Institute of Technology, Stockholm, in October 18-19 this year. The seminar hold not only presentation by current PhD students, yet Alumni who graduated and found job in industry in Norway. Some of the students took this seminar as a part of the IMT6004 course provided by COINS.

Day 1

COINS PhD Seminar started with an introduction to a research school, achieved milestones over the last 2 years and planned activities for the near future. Around 20 new PhD students will be employed in the area of Information Security during the next 2016 year. It is important to plan strategy of their enrolment to COINS and educational activities. Moreover, after the success of the first COINS Summer School in Metochi there is a plan to allocate a PhD thesis defence next year there. Moreover, Finse winter school will be organized first time by COINS in 2016, which requires involvement of COINS representative for organizational process.

Then, several working group were created to brain storm on possible collaboration and topics. We found that the variety of topics is quite large and it might note be feasible to produce a small abstract of an article involving all participants. Instead, we discussed possible ways to encourage students to produce prospective common topic while working on the academic courses as a part of COINS outcome. Instead of reports it might be beneficial to write an abstract of a work in overlapping files, which will create an incentive to work together.

The first presentation was *"From Ph.D. to industry"* by former COINS PhD student Ebenezer Paintsil who is currently employed at the Verifone: Payment Solutions & POS Solutions[1]. Ebenezer received his PhD from Høgskolen i Gjøvik in 2013, where he worked with security risk analysis and identity management systems. He told that it was a difficult time to find a job since one of the main requirement is Norwegian language knowledge. However, he managed to find a job that suits his profile and now manages client meetings in English. Ebenezer described his way into a job after receiving a PhD and gave several important advices how to apply knowledge and skills in industry. Firs, the most important skills of PhD students are ability to listen and ability to documents their observation and gained knowledge in a proper academic manner. Many company value it since regular reports are part of core functionality. Another think is ability to work under pressure of deadline on challenging tasks. As a PhD students many experienced a need to deliver results in a very short time interval.

First afternoon session was *"E-health security"* by Mohamed Abomhara from University of Agder, Samson Gejibo from University of Bergem and Leonardo Iwaya from Karkstads University in Sweden. They discussed own research fields in this area. In particular, Mohamed told about the different level of trust and privacy in the healthcare system and health providers

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[1]http://www.verifone.com/

in Norway. Samsom presented his recent work regarding challenges in implementing and End-to-End secure protocols for healthcare. He worked on developing a secure protocol for Java ME mobile phones, which can be integrated as a part of mHealth. Prospective application is for budget phones under 20$ used by doctors in a field. At the end, Leonardo described importance of secure systems that deals with highly sensitive data in mobile environments.

Next session was *"Computational Forensics"* by Andrii Shalaginov and Andrii Shalaginov, Ambika Chitrakar. First, Andrii presented his research in application of Soft Computing methods for network traffic dumps analysis. It is an ongoing research targeted on fuzzy-rules extraction in large-scale datasets with ability to general human-understandable decisions. Ambika described application of approximate seach with constraints on edit operations for highly-demanded areas like email harassments and threats. She proposed to use Sankoff-Indels and CRBP-indels methods to look for slightly modified patterns. According to results, the first method behaves slower that the second one in case if the number of insertions and deletions is larger than the number of substitutions.

As a preparation for real PhD defence there was organized a *"Simulated Ph.D. defence"* by Samson Gejibo, which also included committee members: Slobodan Petrovic and Stefan Axelsson from HiG. Samson gave an extensive presentation of his thesis, considering different aspects of the work he did. The main area is mHealth as we learned from the speech that targeted Java ME enable features. It should be noted that the focus was particularly on a security of low-cost Java phones and not on the advanced smartphones with similar functionality. Afterwards, each of two opponents we asking rigorous questions.

Day 2

Second day of PhD seminar started with *"Halfway to Ph.D.? What will happen next?"* by Oleksandr Kazymyrov who earlier was a PhD student in the University of Bergen and graduated in the end of 2014. Oleksandr dedicated his work to methods and tools for analysis of symmetric cryptographic primitives. The presentation was about the perception of the PhD process and expectation that people carry about their life after. He gave a comparison of academic and administration processes involved in receiving another PhD degree in Ukraine and in Norway. Moreover, Oleksandr describe his way in looking for a job, going to interview and finally received long-awaiting job offer. He mentioned that for him it took about 9 months starting from looking for a job until he started working. Right now he is employed as a part of penetration testing team at EVRY AS[2] in Bergen. Oleksandr stated that right now he does not fully apply his knowledge from PhD field, yet it gives him a broader understanding of cryptography and its challenges in penetration testing. The recommendations were not to focus on a narrow specialization area, yet explore also adjacent fields. From his understanding, PhD helps to develop personal abilities and skills that can be a value for a company and requires years to train. At the end of the semianr, Eugene H. Spafford from Purdue University hold this talk to *"Rethinking Cyber Security"*, where he compared security perception in past and now and how it affects people.

In overall the COINS PhD Seminar was useful for me since I was able to contribute to groups discussions in the beginning, gave my talk and receive some recommendations on things related to a job-seeking process after getting PhD degree. It is obvious that majority of the students will not stay in the academia, which make it more difficult to find area where expertise is useful and job is interesting same way. So, transition from academia to a company is an important step in everyone's career and need more efforts to ensure good results.

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[2]https://www.evry.no/