

# Cybersecurity and Privacy (CySeP) Summer School 2017

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July 5, 2017

I have received funding from COINS research school to attend third Cybersecurity and Privacy (CySeP) Summer School in Stockholm, Sweden during the period June 19-22, 2017. The venue for the summer school was at KTH (Kungliga Tekniska Hgskolan) Royal Institute of Technology. CySeP summer school has brought many of the researchers, PhD students, postdocs, security experts from industry and academia. It was a good opportunity for PhD students to meet researchers from the same working domain from various universities and industry.

## 1 Topics covered

Various topics covered in CySeP summer school by professors from different universities and industry experts are:

- Prof. Bart Preneel from KU Leuven, Belgium has presented about the evolution of Bitcoin and Blockchain from the older technologies. Discussed the various details related to the security features integrated in Bitcoins.
- Prof. Ueli Maurer from ETH Zurich, Switzerland has talked about Constructive Cryptography. He had discussed whether we can use secret keys generated by individual and Error correcting codes.
- Prof. Pierangela Samarati from University of Milano, Italy is working in Data security and privacy in the Cloud. She has posed many of the challenges present in the Cloud such as: (1) Protection & fine grained access, (2) Selective information sharing, and (3) Integrity of data and computation.
- Prof. Virgil Gligor from Carnegie Mellon University, USA has summarized their working in Establishing and Maintaining Root of Trust on Commodity Computer Systems. He has discussed about the implementation and verification of the security boot, trusted boot, and said "Malwares were discovered in the Disk controllers, Network interface cards, and DMS device controllers. They are really hard to discover in real time systems."
- Prof. Fred Schneider from Cornell University, USA has talked about the Tagging Security and presented alternative approaches to security.

- Security in Personal Genomics: (Lest We Forget) is presented by Prof. Gene Tsudik from UC Irvine, USA. From his talk it is evident that genomic privacy is important, as it will reveal the information about a person, family, and their ancestors. Which can also be used for understanding for their future generations. So, leakage of most personal genomic sequence leads to security and privacy issues. Genomic sequence of person can be obtained at 1000 USD, now the research is going to reduce to 100 USD. Genome once leaked will not be able to change it.
- Prof. Herbert Lin from Stanford University, USA has covered two topics at the summer school. (1) Some fundamental principles of cyber war and conflict with an emphasis on offensive operations in cyberspace and (2) Research topics regarding cyber war and conflict, we had an interactive session with all the participants of summer school.
- Robin Blokker from National Defence Radio Establishment (FRA), Sweden has carried out a live hacking demonstration with the help of his colleague and presented how a single outdated system in the network can compromise the complete network by utilizing the various vulnerabilities present in different applications.
- Jan Camenisch from IBM Research Zurich, Switzerland has presented about the privacy-preserving cryptographic protocols and various applications on which they are working to build and improve them.
- Prof. Amit Sahai from UC Los Angeles, USA has talked more on the obfuscation and presented various details pertaining to mathematical software obfuscation.
- UI and security: two sides of the story has been covered by Prof. Wenke Lee Georgia Tech University, USA. Which covered various issues present in UI design, which can lead to the security breaches in mobile devices.
- Prof. Steve Bellovin from Columbia University, USA has talked about the authentication and he has discussed various issues which are seen with the present authentication mechanisms.

## 2 Poster presentations

Some of the Ph.D. students who attended the CySeP summer school have presented their research work in poster session. It was a good opportunity to interact with other Ph.D. students and know about their ongoing research work.

## 3 Summary

We had various lectures at CySeP summer school from researchers from different parts of the world related to security. Apart from the learning from the summer school, we got a chance to meet and know many of the researchers from other universities. We even got a chance to meet SWITS members at KTH. I am grateful to COINS for supporting me to go to CySeP Summer School 2017.