SATIS'18 SUMMER SCHOOL

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AUGUST 14-17, 2018
Tromsø, Norway

In August, COINS supported me to attend The 1st ACM SIGOPS Summer School on Advanced Topics in Systems (SATIS'18).The school was held in Sommarøy in Tromsø from the 14th to the 17th of August.

"ACM SIGOPS is sponsoring a series of summer schools on Advanced Topics in Systems to be held once every two years. The summer schools will feature a teaching staff of well-known researchers and are targeted at Ph.D. students, engineers, and junior faculty. The first summer school will focus on advanced topics in Distributed Systems and is held on the 30th anniversary of the renowned "Arctic'88 Advanced Course on Distributed Systems," with a target audience of about 120 students.
The summer school will feature five 50-minute lectures a day on August 15, 16, and 17, for a total of 15 lectures. The summer school will be co-sponsored by the Norwegian Research Council and the Corpore Sano project"[1].
It was a great opportunity to meet the most famous scientists and researchers from the well-known universities and companies in ICT. The lineup of the lecturers was as follows:

- Leslie Lamport (Microsoft Research): Formal Methods for Building Distributed Systems.
- Fred Schneider (Cornell): Security from Tags.
- Lorenzo Alvisi (Cornell): Consistency vs. Performance in Distributed Data Stores.
- Robbert van Renesse (Cornell): Fail-Stop Replication Protocols.
- Christian Cachin (IBM Research): Permissioned Blockchains and Byzantine consensus.

- Michael Franklin (Univ. of Chicago): Distributed Data Analytics.
- Dag Johansen (Univ. of Tromsø): Distributed Sport Systems.
- Idit Keidar (Technion): Storage Systems using Disk Paxos and ABD.

There were eight different topics that presented in one or two 50-minute session. Unfortunately, it is not possible to report all these sessions in this short report. However, full program and the topics of lectures with the presentation files are available on the webpage of the school [1]. For this report, I have chosen the two topics that are more relevant to the cyber security.

Christian Cachin from the IBM research lab in Zurich had an interesting lecture about the blockchain concept and the permission concept in the distributed context. First, he presented a brief review in blockchain concept and its features in bitcoin as a real case, e.g., what is blockchain? what is bitcoin and how does it work?. After explaining the consensus procedure, he talked about the decentralized and permission-less method for consensus procedure. Then, he talked about the necessary features of a distributed blockchain task. In addition, he tried to explain different requirements for the distributed systems with different characteristics.

Fred Schneider presented a novel idea for applying policies into the data and the users. First, he briefly defined the typical solutions for enforcing the policies, e.g., typical access control solutions. Afterward, he talked about a data-centric alternative which is labels. In this Idea, a policy that defines how the specific data may be used will be attached to the data as a label. To support this idea, Schnider and his colleague Elisavet Kozyri, chose a new class of reactive information flow (RIF). Moreover, he discussed the RIF labels in detail and gave an example of JRIF (Reactive Information Flow Control for Java). At the end, he discussed that why we need a chain of tags for the run-time enforcement.

In evening of the second day, we had the poster session. There were some interesting posters and two demos from different universities and research labs around the world. unluckily, that it is impossible to describe them in this short report.

There is no doubt that the highest motivation for attending events like this, is the opportunity to be in touch with cutting-edge research and researchers, as well as to get to know new results and techniques in Distributed

[1] http://site.uit.no/satis2018/program/

Systems and its security. I am grateful to COINS for having allowed my presence there through financial support.

References

[1] "SIGOPS official webpage," https://www.sigops.org/2018/satis2018/.