

# HAIC Report - Summer 2020

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# Introduction

We have changed the name to Helsinki-Aalto Institute for Cybersecurity (HAIC) to reflect the changed focus of all areas of security.

HAIC was established in 2016 as a joint strategic initiative by the Deans of Science at Aalto University and University of Helsinki (UH) with a mission to attract top master's students to the Helsinki area and train them in information security by offering them tuition fee waivers funded by the universities and living cost scholarships funded by industry donations. Today, HAIC's revised mission will attract students in all areas of security including security engineering, information security and cybersecurity.

The main activity of HAIC is fundraising for the scholarships. The total number and type of scholarships awarded yearly depends on the magnitude of donations received each year. In addition to scholarships, HAIC provides opportunities for students to meet with industry representatives to help them find internship and thesis positions during their master studies by organising company visits and "Meet & Greet" events where students can meet company representatives. Since 2018 HAIC has begun to organize public outreach events under the *HAIC Talks* brand. HAIC also has a research program (HAIC-R) as part of Helsinki Institute for Information Technology HIIT.<sup>1</sup>

## Activities in 2020

### Fundraising for scholarships

Sources of funding in 2020:

- Industry donations towards HAIC living cost scholarships from donors: **F-Secure & Huawei**
- **University scholarship programmes** for tuition fees at either university (100%)
- Additional funding from **Dean/SCI at Aalto** for
  - "honours work contracts" at Aalto

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<sup>1</sup> <https://www.hiit.fi/research/#haic>

- participation costs scholarships for SECCLO students from EU countries at Aalto
- HAIC mobility scholarships for Aalto students going to study abroad, and
- HAIC public outreach program, including HAIC Talks

## Industry partners

HAIC industry partners were contacted by sending them a “letter to donors”. The letter sought two kinds of donations: Full donations or supporting donations. It described proposed HAIC activities including the event where the donors and supporters can meet and interact with HAIC students.

[Fundraising during Fall 2019 was successful](#). Both F-Secure and Huawei agreed to continue to support HAIC.

## HAIC Scholarships 2020

HAIC offers different kinds of scholarships to the best applicants specializing in information security: *living cost scholarships*, *honours work contracts* (part-time research-related employment during the semesters), *SECCLO participation cost scholarships* and *mobility scholarships* (since summer 2019). HAIC aims to offer up to four living cost scholarships per year but the total number and type of HAIC scholarships awarded yearly depends on the magnitude of donations received that year.

HAIC *living cost scholarships* (7000 €/ academic year, that is, 700 €/month Sep-June, in total 14000 €/ two academic years) are funded by donations from HAIC donors and supporters. The figure was chosen to encourage the HAIC scholars to seek internships during summer as well as paid thesis positions when they are ready to write their MSc theses (typically during the last 6 months of their 2-year program). At Aalto, *honours work contracts* (part-time research-related employment during the semesters) are supported by funding from Dean/SCI earmarked for HAIC.

HAIC offers *SECCLO participation cost scholarships* for SECCLO students from EU countries at Aalto. HAIC *mobility scholarships* are offered to Aalto University students for exchange studies in the field of information security. HAIC grants maximum ten (10) mobility scholarships, 500 € per year, on top of Aalto Free Mover Scholarship of 1500 € according to the School of Science policy for international exchanges.

## Application process and selection 2020

### Aalto University:

The Security and Cloud Computing major within the Master’s Programme in Computer, Communication and Information Sciences (CCIS) received 62 eligible applications. The

selection committee decided to send admission offers to 14 applicants. 9 students enrolled (3 EU, 6 non-EU).

The SECCLO – Master’s programme in Security and Cloud Computing (Erasmus Mundus) attracted a good number of applications. 1050 applications were started and 563 were finally submitted. Out of these, 310 were eligible from altogether 62 countries. The majority (58%) of the applications were from Asian countries (incl. Pakistan, India, China, Vietnam, Nepal). 12% were from European geographical area. The selection committee decided to send admission offers to 70 applicants (67 in the first application round and 3 in the second application round) (62 non-EU and 8 EU). The 28 enrolled students represent 18 nationalities.

In addition, Aalto University received 4 eligible applications to its double degree program with ITMO University (<http://en.ifmo.ru/en/>, St Petersburg, Russia). 1 student was selected and that student also enrolled. The double degree program with ITMO University was initiated in 2016. The selected students complete their first Master-year studies at ITMO’s “Computer System Information Security programme” and then continue at Aalto for their second year, including jointly supervised Master’s theses.

Altogether 38 new students started their studies in autumn 2020 in the field of Security and Cloud Computing.

#### **HAIC Scholars 2020:**

- Security and Cloud Computing major within the Master’s Programme in Computer, Communication and Information Sciences (CCIS): three (3) applicants (1 EU, 2 non-EU) were offered a HAIC living cost scholarship and Aalto tuition fee waiver. All applicants accepted the offer. One (1) mobility scholarship was granted to a CCIS student in the September 2020 call.
- SECCLO – Master’s programme in Security and Cloud Computing (Erasmus Mundus): Four (4) selected students were offered a HAIC scholarship to cover programme participation costs and two (2) accepted the offer. HAIC also granted five (5) mobility scholarships of 500 € each to self-funded students in the January call. This scholarship is to cover mobility costs during the compulsory study period at one of the SECCLO consortium partner universities (exit university). These mobility scholarships were granted on top of Aalto Free Mover Scholarship of 1500 € (Decision 12/2019 of Manager of Academic Affairs) according to the School of Science policy for international exchanges.

#### **University of Helsinki:**

University of Helsinki has two Master’s programmes in which it is possible to study a major within the HAIC scope. These are “Master’s Programme in Computer Science” and “Master’s Programme in Data Science”. The primary program is the former. It includes the “Networking and Services” study line with Information Security as one of the main ingredients. Recipients

of the scholarships are selected as part of the university-wide process. All applicants for the Master's Programme in Computer Science are considered for the HAIC scholar positions.

Master's programme in Computer Science received 268 applications out of which 65 were selected.

For the Master's program in Data Science, the numbers are: 354 applications, 73 were selected.

*Table 1. Summary of HAIC scholars 2020 at Aalto University and University of Helsinki.*

<b>Programme</b>	<b>Type of scholarship</b>	<b>Number</b>
CCIS/Security and Cloud Computing (Aalto)	HAIC living costs scholarship + Aalto scholarship (tuition fee waiver)	3
	HAIC mobility scholarship	1
SECULO (Aalto)	HAIC scholarship to cover participation costs	2
	HAIC mobility scholarships	5
Master's Program in Computer Science (UH)	Helsinki University scholarship	-

## Publicity

HAIC scholarships 2020 were open to all applicants applying to the Security and Cloud Computing major within the Master's Programme in Computer, Communication and Information Sciences (CCIS) or to the SECULO – Master's programme in Security and Cloud Computing (Erasmus Mundus) at Aalto University, and for the Master's Programme in Computer Science at the University of Helsinki. Having funding for the living cost scholarships as well as the honors work contracts, HAIC publicised this information on its website (<https://haic.fi/2020-scholarships/>) and on its [Facebook page](#). Both program websites also mentioned HAIC scholarships. (e.g., <https://www.aalto.fi/en/admission-services/scholarships-and-tuition-fees>; <https://seculo.eu/scholarships-and-fees/scholarship-and-fees/>)

HAIC scholarships were also mentioned in the news article on the Aalto University website: <https://www.aalto.fi/en/news/huawei-and-f-secure-donate-to-aalto-information-security-students-attracts-excellent-students> and on the Facebook pages of [SECCLLO](#).

Information about the HAIC mobility scholarships was advertised on HAIC website (<https://haic.fi/mobility-scholarships-2020/>; <https://haic.fi/haic-mobility-scholarships-available/>), in the Aalto University student newsletter “Tuutti” published by the Department of Computer Science, and on the Aalto University exchange studies page <https://into.aalto.fi/display/enopinnot/Funding>.

## Industry outreach

### Meet and Greet events

HAIC organizes “Meet and Greet” evenings once a year, where information security students can meet and mingle with representatives from industry. During the Meet and Greet evening HAIC presents its yearly report; selected industry partners present their companies and advertise available internship/thesis positions. In conjunction to these events, HAIC leadership team meets with HAIC donors for getting feedback on HAIC activities, study programmes, and to further develop joint research activities.

HAIC Meet and Greet 2020 will be held on October 29 remotely in conjunction to Secure Systems annual Demo Day. We expect that most of the new security students will attend these events.

### Company visits

HAIC started to organize company visits from the beginning of 2018. The idea is to connect information security students with the local information security companies, so that they can learn about available thesis and internship positions, part-time jobs and eventually full-time jobs after graduation. The visits were started with the HAIC donor and supporter companies. HAIC aims to organise company visits during the autumn term before students start to apply for summer internships in January.

HAIC company visits 2019 - 2020:

- Huawei, November 29
- Ericsson, December 2 (organized by SECCLLO)
- F-secure, January 22

During the visits companies presented overviews of their companies and on-going projects and marketed available positions in their companies. Companies also gave valuable “working-life lessons” and advised how to apply to the open positions. Feedback from students indicated that they appreciated the opportunity to visit local information security companies.

Currently we are planning how to organize these visits under Covid-19 restrictions. We hope that companies are willing to organize virtual visits if real ones are not recommended.

## HAIC Talks

Based on the feedback from HAIC donors in 2018, we have increased the visibility of HAIC donors towards prospective students. For example: HAIC donors now have their own company stands before HAIC talks where they can interact with the students. We have received positive feedback from students and donors alike. We have continued this donor-only benefits in 2020.

## Public outreach “Information security affects everyone”

### HAIC Talks

HAIC has organized **HAIC Talks**, a series of public lectures on contemporary topics in information security, since 2018. In the style of *studia generalia*, these lectures are free and open to everyone. No background knowledge in information security is assumed. HAIC Talks are made possible through the generous support of the Aalto University School of Science.

HAIC Talks 2019-2020:

- October 4: [Science of Security - with Janne Lindqvist](#)
- November 1: [Post-quantum Cryptography - with Kenny Paterson](#)
- February 4: [The Impact of the EU's GDPR on Northern American Companies and Cross-border Data Management - Jordan Fischer](#)
- October 6: [5th Generation Crime-fighting in Cyberspace: Lawful Intercept in 5G Networks – with Mats Näslund](#)
- October 29: HAIC talk with Elissa Redmiles

## Secure Systems Demo Days

Secure Systems Demo Days are annual public events to showcase recent research in information security going on in Aalto and UH. The event is intended to bring local academia, students, and industry together and give them an excellent opportunity to network and search possibilities for collaboration and for open positions within the local infosec industry and academia. Demo Day 2020 was postponed from spring to autumn due to Covid-19 pandemic. The event will be held virtually on October 29 in conjunction with HAIC Meet & Greet event.

## Cybersecurity Base with F-Secure

University of Helsinki, together with F-Secure, organizes a Massive Open Online Course (MOOC) annually under the title “[Cybersecurity Base with F-Secure](#)”. The course is open to

everyone and at least the first part “Introduction” (worth of 1 study credit) is also intended for the general public who want to learn the basics of cybersecurity. The total volume of the course is 10 study credits. The course series consists of 6 smaller courses, each with a specific theme. Themes include a brief introduction to cyber security, operational security, web software development, types of vulnerabilities typical of web software, discovery and mitigation of such vulnerabilities, and advanced topics such as secure software architectures and cryptography. There will be several case studies as well as projects for participants. At the end of the course series, we'll also organize a friendly capture-the-flag competition where participants will try to solve some security puzzles. 2020 edition opened in the beginning of September.

## Scientific outreach

The Symposium on Usable Privacy and Security (SOUPS) is looking for local organizers for their 2023 meeting. HAIC has been shortlisted in the call and we are waiting for the final decision. SOUPS brings together an interdisciplinary group of researchers and practitioners in human-computer interaction, security, and privacy, and HAIC would be happy to host this meeting in the summer of 2023 at Aalto University.

## HAIC communications

HAIC communicates about its activities and news on its website <https://haic.fi/>. In addition, HAIC has a [Twitter](#) and [Facebook account](#) to share information about HAIC related news and events.

## People behind HAIC

HAIC leadership comprises:

- Professor Janne Lindqvist, Aalto University - Director of HAIC
- Professor Valtteri Niemi, University of Helsinki - Director of HAIC Research Program at Helsinki Institute for Information Technology (HIIT)
- Dr. Mohit Sethi, Aalto University - Deputy director of HAIC, Head of HAIC public outreach program
- Eija Kujanpää, Aalto University - Manager, international relations, coordinator of the HAIC scholarship schemes at Aalto University
- Niina Idänheimo, Aalto University - Coordinator
  
- Professor N. Asokan, Aalto University - Founding Director until the end of 2019.



HAIC leadership team had one strategy meeting with the Dean/SCI at Aalto in June 2020. The meeting covered HAIC's mission and plans for the future years, funding scheme and added value to the university.

## Outlook

HAIC's mission is to attract the best students to study information security at Aalto or at the University of Helsinki by providing them financial support and industry contacts. HAIC hopes that the corresponding universities will promote and market the information security study tracks world-wide. The Erasmus Mundus funded SECCLLO – Master's Programme in Security and Cloud Computing has helped this mission greatly and the number of applications has increased during the three years of SECCLLO. Continuation of SECCO program with 84 scholarships for four more intakes, with the last students to graduate in 2026, will guarantee to attract some of the most talented master's students from around the world to study at Aalto.

In order to provide financial support also to the students of CCIS programme, HAIC hopes that the current HAIC donors will continue their donations in subsequent years. HAIC also hopes to attract new industry partners to support the HAIC scholarship program. Ideally, HAIC would require 2-3 full donations from the industry partners in order to support up to four (4) students per year. The call for HAIC 2021 industry partners is open !