COINS Academic Advisory Board

Time: 1405-1555
Place: Finse, Norway
Participants:

- Academic Advisory Board (AAB) members: Prof. Dr. Armin B. Cremers (B-IT, University of Bonn; participation via Skype), Prof. Dr. Simone Fischer-Hübner (Karlstad University), Sofie Nystrøm (DNB; participation via Skype), Prof. Dr. Hanne Riis Nielson (Technical University of Denmark), Prof. Dr. Eugene H. Spafford (Purdue University; participation via Skype)
- Steering Committee (SC) members: Prof. Dr. Einar Snekkenes (Scientific Director COINS), Prof. Dr. Tor Helleseth (University of Bergen), Prof. Dr. Audun Jøsang (University of Oslo), Dr. Hanno Langweg (Gjøvik University College), Dr. Ragnar Soleng (University of Tromsø)

Agenda

1. Status of COINS
2. Statements from AAB members
    a. Added value of a research school for Ph.D. training
    b. Long-term strategic goals that get easily overlooked in the beginning
    c. Typical mistakes in starting and running a research school
3. Input to steering committee and work plan 2013

Status of COINS

Einar Snekkenes (ES) welcomed all participants to the first meeting of the COINS Academic Advisory Board (AAB) and thanked board members for their willingness to contribute their time and expertise.

The contract between the Research Council of Norway (RCN) and Gjøvik University College (HIG) as the host institution for COINS has been signed. All project partners have signed the cooperation agreement: Norwegian University of Science and Technology (NTNU), University of Bergen (UiB), University of Oslo (UiO), University of Tromsø (UiT). Pending the decision of the steering committee, two new partners will join the next day. Both University of Agder (UiA) and University of Stavanger (UiS) have delivered signed copies of the cooperation agreement.

The project duration is 2013-01-01 to 2020-12-31. The average annual budget is 2 million NOK (ca. 263,000 EUR/346,000 USD), of which 75% are paid for by RCN and 25% are contributed by project partners, typically as in-kind contributions of personnel time or use of facilities.

It is planned to have one AAB meeting per year. The AAB provides advice to the steering committee and to the scientific director of COINS.

The next steps for COINS are expected to be:

- Enrol Ph.D. students in the research school
- Focus on added value for project partners and Ph.D. students
- Keep Ph.D. programmes in the responsibility of project partners
- Encourage Ph.D. students to attend community building events like Finse 2013, NISK 2013, exclusive seminar 2013
- Improve recruiting of new Ph.D. students for all project partners
- Set up a work plan for 2014: organise a winter or summer school that could provide ECTS credits to Ph.D. students
- Cooperate with similar networks, e.g. SWITS (Swedish IT Security Network for Ph.D. Students)

Statements from AAB members

Simone Fischer-Hübner (SFH) reported on her 12 years experience with the SWITS network she initiated in Sweden:

- SWITS runs on an annual budget of currently 200,000 SEK (ca. 23,000 EUR/30,000 USD)
- SWITS holds annual seminars lasting 1.5 days where all research groups in IT security are present and each Ph.D. student in IT security presents current research. There are workshops on several topics in the afternoon, discussing cooperation opportunities, e.g. in software security, privacy, network security.

- While the annual SWITS seminar focuses on networking, SWITS also organises Ph.D. courses. These courses gather e.g. 25 people nationwide instead of just 3-4 people at an individual institution. Topics in the past have been security metrics and privacy-enhancing technologies.
- SWITS is open to joint activities with COINS

Hanne Riis Nielson (HRN) gave recommendations on the background of her experience with her department's Ph.D. school ITMAN, covering informatics and mathematical modelling:

- Students are encouraged to take Ph.D. courses internationally, e.g. at FOSAD summer school in Italy
- 5 ECTS general competence courses are offered locally
- Involved in a project that comprises three universities, has joint meetings, joint Ph.D. courses.
- COINS should keep up the momentum and gather all Ph.D. students in security, not just 25%-30% currently at Finse.

Eugene H. Spafford (Spaf) focused on courses and common events:

- Distance courses/teaching could be an opportunity to teach at lower cost and with higher variety; partners may augment each other; but it is not clear how much experience with using distance teaching the project partners have.
- It should be discussed whether intensive week-long courses are better suited for COINS than longer courses, e.g. one day per week for a whole semester. Accommodation and travel expenses may be an issue.
- AAB meetings closer to an airport would make it easier to attend; Finse is too remote.

Armin B. Cremers (ABC) reported on the challenges of bringing together different partners in a joint institute:

- B-IT is a joint institute of the two large universities of Bonn and Aachen. Research is structured in eight areas of which IT security is one (3 professors from Bonn: von zur Gathen, Martini, Meier; 1 professor from Aachen: Meyer).
- A broad variety of courses is offered for the 40 students enrolled in the school.
- Workshops are organised with active student participation: major benefits are derived in bringing together different university cultures.
- It would be beneficial for COINS to bring international experience together, and closeness to a major airport would help.

Sofie Nystrøm (SN) adds the perspective from Norwegian industry:

- Hopefully the perspective from industry can add another dimension to the project.
- The Nordic and international perspective is important for a research school.
- Cooperation is very important in a small country like Norway.

- DNB and the financial sector experience the bleeding edge in attacks on its IT systems, and they need more hands and knowledge and competence and research. We need to share issues we are struggling with.

After AAB members' initial statements, members of the steering committee came forward with additional questions to the AAB.

Tor Helleseth (UiB): One of my favourites is sending students to some research school so that they can get together to create their own network and also internationally . Do you think it is a good idea to send these Ph.D. students abroad?

- Spaf: Stays abroad add to the community and extend the student's network, often creating long lasting relationships. It is one of the best experiences to send students to commercial/government labs for one or two semesters, it is good to get that perspective and hands-on experience, get to work with high level individuals.
- ABC: B-IT/University of Bonn has a visitors programme, international students enrol for one or two semesters, write a paper, publish, collect experience in co-authoring. The programme could be extended to COINS students.
- SN: Hosting students at a commercial entity for one semester is a great idea. There might not be many labs in Norway, though DNB has quite a bit of staff and community that could be one of the industry partners COINS should go forward with.
- HRN: We have a long experience with stays for up to six months. It is important to see another research environment, things can be done differently than at DTU.
- SFH: Motivate students to go abroad. This is easy within EU projects.

Audun Jøsang (UiO): Doing a Ph.D. is about learning the trade of being a researcher. What is missing in Ph.D. training? Should we let Ph.D. students organise a conference for themselves? Should we exclude the professors to create an inspirational atmosphere? This could be co-located with the NISK or NordSec conferences.

- ABC: Self-organised workshops worked quite well at B-IT. We also involve Ph.D. students in teaching.
- Spaf: There are many more students at CERIAS than in COINS. Students get informally together in groups, sharing experience, reading and reviewing papers they found or that they wrote. Teaching them the craft can be done without having a formal environment. We have guest speakers every week and meetings with people from outside once or twice a month. Additional formal events would be extra overhead. Recordings from our security seminar with nearly 200 lectures, many by prominent researchers, are available free to use at http://www.cerias.purdue.edu/secsem/.

Ragnar Soleng (UiT): Recruitment is hard: it is hard to get a grant, and when there is a grant, there is no candidate. Is it a good idea to recruit from Russia? Why is it so hard to recruit from Norway/Denmark/Sweden?

ES: Are results from GRE examinations a good indicator for candidate quality?

Tor Helleseth (UiB): We have had several years without Norwegian Ph.D. students. There are excellent candidates, e.g. from Iran, but they cannot get a job in Norway afterwards. What can we do to solve that paradox?

- Spaf: There are two issues - attracting students and placing them afterwards to create a reputation for the programme. We get many applications; students are admitted to a larger programme, not limited to security, so students might discover information security as a focus later. Taking in only those with a strong computing background is a limiting factor. In principle, candidates with a background in physics, mathematics, statistics, economy could be trained in computer science. Relationships with potential employers create references (e.g. Facebook, Intel, Citibank); international companies might later offer positions abroad.
- ABC: Many universities engage in international marketing to make the brand name of the university known. Educational fairs are helpful, handouts and a good online presence help. Recruiting was successful especially from Russia and India.
- SN: We employ 15 security specialists for which we require Norwegian language capabilities. This limits the pool of international (non-Scandinavian) applicants. On top of that, research topics often do not match company needs.
- HRN: We experienced the same challenges at DTU. Some foreign students pick up the language. Many Danish companies use English as company language, so it seems to work out fine.
- SFH: It is important to recruit internationally. Students from South America and Asia often have some international experience. Currently, ca. 50% of Ph.D. students are from Sweden, 50% from all over the world. Swedes often start with a one year project to get acquainted, then continue with a Ph.D. programme for 3-4 years. Ericsson uses English as a company language, reducing the language barrier for international hires.
- Spaf: Most institutes have trouble attracting good students. A good lower degree is a good indicator for future success. Currently, it is easier to find jobs. You need to demonstrate the value of the degree and what makes an institute or a programme special. It is marketing.
- ABC: Added value is in the interdisciplinary nature of IT security in addition to methodical and general competence. Have students visit institutions, e.g. banks.
- ES: Is it a good idea to use sabbaticals to teach master students abroad so that Ph.D. candidates might be more easily recruited?
- SFH: The best Ph.D. students we recruited came via a preceding Erasmus teacher exchange.

ES: What are beneficial long-term strategic goals? What are potential follow-up activities?

- ABC: There will be two to three generations of Ph.D. students during the funding period of COINS (2013-2020). You should pose yourself the question "Where do you want to be after 8 years?" You may want to ground the project more firmly in

cooperation agreements between the partners, maybe also including European partners. The course to steer is then different than if the project would definitely end after eight years. Become known on an international level.

- Spaf: Imagine ten years from now, what do you want to be? A network of universities with shared content/curricula/faculty? A network of universities with specialisations? Do you want to have shared recruiting? Are you satisfied with just higher prestige for individual institutions? Keep in mind sustainability, evolution of the field. Faculty might retire or shift focus, you need to recruit the right faculty.
  Equipment, software, data, and technology change rapidly. How are you going to share data and labs? Where does it come from, how is it shared? Engaging with industry/government is done better together than as an individual institution. Engage with a national CERT.
  Courses evolve as the field changes. Avoid duplication in development of degree programmes, build a greater leverage as a group. Advantages of a group are more than simply shared funding.
- SN: Achieve visibility to recruit students, to work towards industry in Norway and Sweden. Achieve visibility towards government to get long-term shared funding. Apply research/knowledge to real problems. Establish as a well-known Norwegian programme. If you succeed in marketing and visiblity you will attract the best students and long-term funding.
- HRN: Different competences create synergies. Have as a goal to be an internationally recognised like FOSAD.
- SFH: Get everybody involved from the start. Continue to see the value (after the honeymoon). Graduated Ph.D. students might become ambassadors/supporters, that happened with SWITS.
- Audun Jøsang (UiO): There is potential for COINS alumni over time.

ES: What are typical mistakes to avoid when operating a research school?

- HRN: Be aware that there is a honeymoon period. Later all sorts of excuses will appear why people will not contribute.
- ABC: Reap the early wins and do not be ashamed of it. Sharing and organising takes energy. It takes energy to create and sustain a critical mass. You need good leadership and COINS needs clever organisation. Very critically review the early progress and milestones.
- Spaf: Among typical mistakes is ambition; it is easy to take on too much to follow through on. Avoid disappointment. You do not want to be too conservative, but be careful not to overreach. Human beings: some want to be part of it, want to contribute, see the vision, some want benefits in exchange for contribution, some are happy to contribute as a member of the group, some want to lead. Doing too much by committee can be a problem. Get a business administrator to handle organisation and details.

- SN: Have leadership and governance clearly set up.
- SFH: Have a good communication infrastructure, e.g. a Wiki in addition to a mailing list.
- Audun Jøsang (UiO): COINS should have a marketing profile, i.e. resources should be spent on marketing.

Input to steering committee and work plan 2013

ES: A convenient physical location for meetings was mentioned several times.

Spaf: For future board meetings, circulate a list of major topics and suggestions. Follow up on action items on next meeting. A tentative list of new issues sent some weeks before the meeting would be good. AAB members should be able to travel to the meeting within a day.

Spaf: All participants of the meeting are invited to visit CERIAS to share experiences and meet faculty and students.