What should a mentoring plan contain and why should we have one?

CS Board meeting March 7, 2018

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Why a mentoring plan?

How can we in the best possible way implement our learning outcomes and how do we create an excellent educational environment?
And how do we create a computational science community when our students will be scattered all over the Blindern campus?

Overarching description of the CS program I

Students of this program learn to use the computer as a laboratory for solving problems in science and engineering. The program offers exciting thesis projects from many disciplines: biology and life science, chemistry, mathematics, informatics, physics, geophysics, mechanics, geology, computational finance, computational informatics, big data analysis, digital signal processing and image analysis – the candidates select research field according to their interests.

Overarching description of the CS program II

A Master's degree from this program gives the candidate a methodical training in planning, conducting, and reporting large research projects, often together with other students and university teachers. THe projects emphasize finding practical solutions, developing an intuitive understanding of the science and the scientific methods needed to solve complicated problems, use of many tools, and not least developing own creativity and independent thinking. The thesis work is a scientific project where the candidates learn to tackle a scientific problem in a professional manner. The program aims also at developing a deep understanding of the role of computing in solving modern scientific problems. A candidate from this program gains deep insights in the fundamnetal role computations play in our advancement of science and technology, as well as the role computations play in society.

Learning outcomes

Computing competence represents a central element in scientific problem solving, from basic education and research to essentially almost all advanced problems in modern societies. Computing competence is simply central to further progress. It enlarges the body of tools available to students and scientists beyond classical tools and allows for a more generic handling of problems. Focusing on algorithmic aspects results in deeper insights about scientific problems.

After completing a master's degree in computational science you will have achieved:

Knowledge. You have gained a deep knowledge of the scientific method and computational science at an advanced level, meaning that you:

- have theoretical and practical knowledge of a wide range of computational methods and mathematical algorithms, including principles for developing and generalizing such methods and algorithms
- understand how to apply computational methods to extract information from experimental data and solve scientific

Mentoring plan

How can we achieve these learning outcomes in the best possible way? And how do we create a computational science disciplinary environment? What follows here is a list of topics to discuss. The aim is to try to sort out activities which can aid in creating an excellent educational environment in spite of the fact that our students are scattered across various disciplines.

- Should every student have two supervisors, possibly one from the domain specific department and one from another department?
    1. We need to set up a list of potential supervisors
- Possible training activity (modular approach, additional courses/modules that can be offered as intensive few days to 1-2 week long courses/modules)
    1. Compulsory courses and development of additional intensive modules
    2. Multidisciplinary seminars with hands-on sessions
    3. Transferable Skills Courses
- Localities for common activities
- Semester start and scientific and social programs
    1. Kick-off training modules, are there specific topics we can offer