University of Helsinki
H523 Department of Computer Science

19 Sept 2011 Esko Ukkonen & Pirjo Mulari

UPDATE OF STAFF PLAN AND DEPARTMENT STRATEGY 2012

At the beginning of this plan, there is an overview of the September 2011 status of primary targets for improvement, followed by a summary of staff development measures to be implemented during 2012. This is followed by the general part of the plan and the appendixes listing the proposals of the 2010-2012 plan and with statistics over the staff structure of the department.

1. Strategic targets for improvement during the 2010-12 planning period: status in September 2011

The implementation of the four primary targets for improvement listed in the 2010-12 strategy for the department has progressed as follows.

1. Acquisition of a large network simulation and computing cluster to create new potential in research and teaching. (The investment was made during 2009 but implementation and utilisation occur during the planning period.)

- Current status: The cluster (Ukko) is operational. Research staff for the project has been recruited with project funding. The middleware for improving the usability of the cluster has been tested, and acquisition of it will be considered in the near future,. The Center for Information Technology would be a main backer.

2. Start-up of a global software development laboratory as a broad international collaboration for the improvement of research into software teaching and quality.

- Current status: The pilot lab at the department (Software Factory) moved into new and larger facilities during summer 2011. At the same time, the lab equipment was augmented. The lab operations are in an intense development and expansion phase (with e.g. ICT-SHOK funding) with strong backing from Tekes. The establishment of an international network of corresponding labs is in its initial stages. The goal is to open new labs in several locations. This has progressed the furthest in Joensuu and Bolzano. In March 2011, the new FiDiPro professor, Jürgen Münch started working at the department. Münch is a full-time employee at the department and his work is related to the Software Factory activities.

3. Internationalisation, especially more teaching in English at the Master's level for easier recruitment of Master's students from abroad, and internationalisation of postgraduate programmes.

- Status: Two of the three Master's programmes have been given in English since the 2010-11 academic year. For academic year 2011-12, some 60 foreign students have been accepted to these programmes, and 19 of them have started studying at the department. Six new students entered the MBI programme, and 5 of them are international students. Three students entered the CBU-ICT programme. In addition, 9 international students came to the department through separate admissions. In autumn 2011, a total of 36 new students from abroad started at the department. Some 25% of the postgraduates at the department are foreigners.

4. Consolidation of the Master's programme in bioinformatics, MBI. The MBI is an interdisciplinary programme between Aalto University and three of the Helsinki University campuses. The department has allocated its own resources to the programme, and is applying for the faculty's strategic funding for its consolidation.

- Status: The new professor in charge of the programme (Veli Mäkinen) was appointed in 2010, and the university lectureship (Juho Rousu) was filled in autumn 2010. The international application to the programme has found its format and the standard of applicants is constantly improving. In autumn 2011, 6 new Master's students entered the programme.

Other central projects

- The Nodes lab for data communications research is under construction and will be ready for use in autumn 2011. We have received the Rector's infra-structure funding for this. A similar lab will be built in Saudi-Arabia as a part of the department's new education-exportation project.

- The department will be part of several Finnish Academy centres of excellence starting in year 2012: Aapo Hyvärinen is part of the unit headed by Professor Lassi Parviainen at the Department of Mathematics and Statistics, Veli Mäkinen of the unit headed by Academy Professor Lauri Aaltonen (Biomedicum), Petri Myllymäki, who was appointed professor at the department in autumn 2010, is part of the unit led by Professor Erkki Oja (Aalto). The department's own unit, Algodan (Esko Ukkonen), will continue until the end of 2013.

- The department is a participant in the national infra-structure project for grid calculation (coordinated by Kai Nordlund at the Department of Physics). The objective is to gain use of a computer with a very extensive memory.

- The Hecse graduate school was awarded continued funding from the Academy for years 2012-15. Petri Myllymäki is the new head of Hecse.

- Professors Pekka Abrahamsson, Petri Myllymäki and Sasu Tarkoma (preliminary) are the academic coordinators for the new research programmes of ICT-SHOK (Tivit).

- The development of workshop-based basic instruction in programming continues. For this purpose, we have also gained new research funding.

- The LUMA centre has been activated at the department. The resource centre for this work, Linkki, will open in October 2011. Special funding from the Dean.

Further, the department will take notice of the development and mutual status of the BSc and MSc degrees since the renewal of the degree system. Before the national transferral to the two-step degree system, the department produced some 70 MSc degrees and some 100 BSc degrees annually. After the end of the transferral period to the new degree system in summer 2008, the numbers have developed so that the amount of BSc degrees have remained at the same high level, but the number of MSc degrees have decreased considerably, even down to half compared to before. The straightforward interpretation is that the BSc degree gives a sufficient basis for a working career. The background for this phenomenon will be analysed and measures for increasing the relative number of MSc degrees will be taken during 2010-2012.

2. Staff-related development 2011-2012

The distribution of department employees into their various appointments is close to ideal. However, the department is planning to add more professors to its staff in accordance with the recommendation of the previous scientific evaluation, as well as to participate in the new tenure-track procedure for recruiting new professors. To fund these missions, the department will utilise funds freed by professors retiring, as well as external funding. The plan is to progress slowly with opening up new professorships, since the department has already appointed five new professors during 2009-2010.

The significant increase in the number of research assistants during recent years is evident in the staff structure of the department (in 2010, 27% of the teaching and research person years were completed by research assistants). This is not good in the long run, since high-standard research cannot be carried out purely on the strength of research assistants. The department's objective is to use a larger part of the research resources for research duties at a higher level. The position of research assistant is still significant for attaching new, gifted people to the field of research at an early stage.

Measures in 2011-2012:

1. Establishing a tenure-track professorship and announcing the vacancy (no specialty limitation) in September 2011. Funding for the initial stages of the vacancy from the Rector. Permanent funding from resources freed through retirement.
2. The following vacancies will be announced
   a. University Lecturer (software technology, previously Taina), autumn 2011.
   b. Professor (the field of teaching and research in information management, previously Sippu), autumn-spring 2011-12.

    c. Tenure-track Professor (intelligent systems) or University Lecturer; previously University Lecturer / Myllymäki (intelligent systems) / autumn-spring 2011-12.

    d. Tenure-track Professor (networks and services) or University Lecturer, the corresponding duties have been handled in temporary posts (Kuuppelomäki, Moen) / spring-autumn 2012.

    e. IT Designer (previously Vikberg)

3. Establishing the initiation package for new professors.

    a. The goal is to fund one postdoctoral researcher or one doctoral student for the group of each new professor (Tarkoma, Jacucci, Mäkinen, Myllymäki), using department funding and external funding. All of them cannot be realised at the same time, but need to be done step by step. Postdoctoral Researcher Eve Hoggan has been employed in Jacucci's roup.

    b. Other support for new professors: the department will participate in funding any special equipment that may be necessary for starting up the work of the new professors.

4. The department will apply for external funding for the following research-based professors' duties:

    a. FiDiPro professorship (SA)

    b. The Academy professorship of the Finnish Academy

5. Personal title change: Amanuensis – University Instructor (effected in 2011)

6. Staff organisation in the IT unit of the department: one of the posts transferred to the service centre (effected in 2011).

7. The department's research coordinator changed in June 2011 (Pirjo Moen).

8. A new staff and finance coordinator started in May 2011 (Pauliina Pajunen).

9. Improvement of quality:

    a. The working order of the department will be updated. The working order will include the duties of the administrative and office staff. The work processes of the administration will be examined by the administration unit and, for pertinent parts, in cooperation with the service centre.

    b. More systematic integration of new supervisors into the routines and supervision duties at the department. (progressing)

    c. The SoleTM allocation process will be changed so that the administration unit will prepare the registration template (effected in 2011).

    d. Creating a policy for using the department's own research funding. Funds accumulate from e.g. external funding revenue surplus. The department has taxed the revenue surplus for projects that started before 2010 in accordance with confirmed tables. We must decide how to use the surplus revenue from newer projects in the near future. The alternatives include the old routine of returning the surplus to principal investigators, and establishing various surplus pools for joint use. The principles for utilising the department's own research positions are related to this issue.

  e. Measures brought about by the results of the research evaluation. Principles for how to use award monies, if any.

3. Baselines for the staff plan

The background for the staff plan includes the department's strategic choices, the staff policy of the University of Helsinki, the department's own staff policy, and the financial parameters of the department. The staff policy details what kind of staff structure will promote the goals of the department.

The structural basis for the department staff plan is built on the specialisation programmes of the teaching and research at the department, combined with the supporting administrative services. The planning and its financial conditions are examined annually during the planning period, as well as during the restructuring of duties. The examination of the plan is also necessary due to the reformations being carried out at the department, the more detailed specification of the university's staff policy, and the influence of the new university legislation and changing financing structures.

3.1 Department mission

The missions of the department have been described in its Quality Manual (the chapter Strategic premises and operational goals):

- *Teaching:* the department offers a broad basic scientific education for the Bachelor's degree, expert instruction based on its key research areas for the Master's degree, and a scientist's education based on its key areas for the Doctoral degree. The instruction follows a high standard.
- *Research:* the department carries out international cutting-edge research in its focus areas along with quality research into new domains.
- *Societal interaction:* the department is active in its interaction with the rest of society, both through its research and its teaching.

From autumn 2008, the key areas of teaching and research at the department, as well as the sub-programmes for the Master's degree, are algorithms and machine learning, networking and services, and software systems. In addition, there is a Master's programme in bioinformatics at the department. The department is also a participant in the Finnish-Russian Cross-Border University (CBU) Master's programme, which is primarily organised as a part of normal teaching at the department.

For carrying out its basic duties, the department has an expenses allocation awarded by the faculty, as well as separate project funding, a considerable part of which is directed to the graduate schools administered by the department (Hecse, ComBi). In addition, the department receives a great deal of external funding for research projects, and some smaller sums of separate funding. This staff plan only details the human-resource structure as far as

the staff employed with the basic allocation is concerned. The heads of research units and projects are in charge of the HR plans for their own units.

3.2 Outlines and goals for improving the staff structure

Annually, over 200 employees work at the department, completing some 160 person-years. Around half of the person-years are completed on external funding. In addition, a significant number of part-time teachers work at the department.

The average age of the staff is under 37 years. Some 17% of the person-years are completed by foreigners, and slightly under 20% by females.

At regular intervals, a staff plan is drawn up at the department to define the changes to be made at the department during the planning period when it comes to the structure of staff employed on allocated funds. The heads of research units and projects are in charge of the HR plans for their own units.

Goals, according to which freed-up resources are directed and the staff structure at the department is improved
- The research areas of new professors will be supported by directing postdoctoral researcher/doctoral student posts into their fields.
- New posts established at the department are primarily professorships (recommendation from the evaluation of research at UH in 2005).
- The core staff in administration and support has permanent employment.
- The aim is to employ even more high-end teaching and research staff from abroad than currently.
- When recruiting employees for teaching posts, more attention will be paid to merits in the field of teaching.
- The strengths of part-time teaching will be utilised better. If the amount of part-time teaching is decreased, university instructors will be recruited instead, whenever necessary.
- Any new focus areas in research will be examined during the planning period, and new vacancies will be directed towards them.

4. Current staff structure

4.1 Staff employed with basic department funding 9 September 2011

Teaching and research staff
- 11 appointed professors (1 relieved of their duties)
- 1 personal pooled professorship (5-year term)
- 1 FiDiPro professorship (4-year term)
- 17 appointed lecturers/university lecturers (1 on leave to substitute for professorship)
- 1 university lectureship substitute (Lemström, terminated 14 September)
- 1 appointed university instructor
- 1 fixed-term university instructor
- 2 fixed-term 5-year university researchers

- 4 fixed-term 3-year postdoctoral researchers (2 exempted for other funding)
- 4 fixed-term Doctoral students

Administration, support and other
- university lecturer (head of studies), office manager, research coordinator, IT manager
- 2 amanuenses, 1 planner, 1 translator, 1 financial and planning secretary (department secretary, on leave 1 Sept 2011 - 31 Jan 2012).
- 4 IT specialists, 3 IT designers

In addition, there are 2 academy fellows and 1 person undergoing non-military service employed by the department, as well as some 45 part-time teachers annually.

4.2 Graduate schools

The department has 10 doctoral students in the funded posts of the FIGS, FICS and Hecse graduate schools (12 Sept 2011). (Hecse 7, FIGS 2, FICS 1)

4.3 Staff salaried from external funding

There are some 66 person-years in total carried out on different levels of the work structure, from research staff to principal investigators.

In 2010, the teaching and research staff at the department (a total of 140 person-years) were distributed on the different levels of the work structure as follows, in person-years:

4th level	8.2%
3rd level	14.8%
2nd level	17.6%
1st level	48.4%

The first-level percentage has decreased since 2010, but is still large.

4.4 Staff structure (teaching and research) according to sub-programme (basic funding):

Algorithms and machine learning

- 4 permanent professors
- 3 permanent university lecturers (1 exempted)
- 1 5-year university researcher
- 2 postdoctoral researchers (both on external funding)

Networks and services

- 3 permanent professors
- 4 permanent university lecturers/lecturers

- 1 3-year postdoctoral researcher
- 1 permanent university instructor
- 2 fixed-term Doctoral students

Software systems

- 3 permanent professors (1 exempted)
- 1 4-year FiDiPro professorship
- 6.5 permanent university lecturers/lecturers
- 1 5-year university researcher
- 1 3-year postdoctoral researcher
- 2 fixed-term Doctoral students

Bioinformatics

- 1 permanent professor
- 1 permanent university lecturers/lecturer

Employees not tied to sub-programmes

- 1 professorship pooled with the Department of Mathematics and Statistics 2008-13
- 1 permanent lecturer
- 1 fixed-term university lecturer
- 2 fixed-term Doctoral students (UH graduate school posts)

5. Target state for staff structure

The present state is near the target for the staff structure. The distribution of research and teaching posts is being changed in favour of more professorships. The department employees are young, so not many posts are freed up through retirement.

As new professors have been appointed in 2009-2010, a total of 2-4 postdoctoral researchers or doctoral students have been recruited into their areas of research. In addition, the research groups of the new professors will increase the number of research staff salaried with external funding.

The university reformation will add to the financial responsibilities of the departments through e.g. budgeting and follow-up, so the administrative resources of the department will be directed towards financial management. In the future, the department will continue looking after finances and human resources with less resources than most other departments of similar size. Since the university's staff policy decrees that the administrative staff must not be added to, the changes will be carried out by redirecting resources. The department will strive to make administrative staff permanent.

5. 1 Resource needs of improvement projects during planning period 2010-12

Research and teaching in network simulation and parallel computing
- Hardware maintenance and further acquisitions (to be done with current resources)
- Support for research and teaching (a new post for coordinating and starting up teaching and research)

The global software laboratory
- A part-time teacher/coordinator or in addition to an employee's other duties

Consolidation of the bioinformatics Master's programme
- A professor to be appointed permanently (appointment process underway; general responsibility, thesis supervision, teaching)
- University lecturer to be appointed permanently (post existent; thesis supervision, teaching, coordination of major-subject programme)
- Doctoral student (new vacancy) (teaching and supervision)

6. Focus areas and goals for improving skills and wellbeing of staff

The main focus areas of improving the wellbeing of department staff is described in the Quality Manual, chapter C.2.

The department supports its staff to improve and maintain its skills actively. Employees are encouraged to participate in staff training by the university, as well as independent studying relating to their work duties through e.g. flexible working hours. The pedagogical studies of the teaching staff are supported especially, and we are making it more systematic.

The main focus areas and goals of skills and wellbeing at the department during the planning period 2010-12 are:
- Integration
- Wellbeing in the workplace
- Review talks
- The internationalisation of the work community

APPENDIX 1: Measures taken to reach the targets
(the department strategy and financial plan 2010-12, status in October 2011)

V001: Supporting the research fields of new professors

- V1: One postdoctoral researcher or doctoral student will be recruited for each of the research fields of the new professors.

  Partially effected (recruitment Hoggan/Prof. Jacucci. Recrutiment decision Doctoral student Sept. 2011 prof. Mäkinen. Not effected: professors Myllymäki and Tarkoma).

V002: Redirecting vacant professorships to new key areas

- V2: Two vacant professorships will be redirected after revision of their key research areas, and will then be declared vacant. When revising the key areas, we will consider the availability of merited applicants on the job market.

  Effected (appointed professorship intelligent systems / Myllymäki2010 and established tenure-track professorship with application deadline Oct. 2011. In addition, recruited FiDiPro professor / Tekes, 4-year term).

V003: Establishing the Master's programme in bioinformatics

- V3a: The posts of the professor in charge of the MBI programme and the university lecturer acting as its coordinator will be filled permanently.

  Effected (Professor Mäkinen 2010 and University lecturer Rousu 2011).

- V3b: Redirecting a doctoral-student post on university/faculty funding to the MBI programme.

  Professor Mäkinen's doctoral student has been effected on the department's own funding.

V004: A 3-year vacancy for a postdoctoral researcher to utilise the new cluster

- V4: A 3-year vacancy for a postdoctoral researcher to utilise the new cluster will be established. The duties will include research and teaching that utilises the cluster, along with their coordination and support.

  Partially effected (cluster utilisation is part of the duties of the person recruited on project funding).

V005: Strengthening the resources for financial administration at the department

- V5: The amanuensis post in charge of HR and finances will be made permanent. The vacant information officer's post will be discontinued when the locum period ends on 1 January 2010. We will consider establishing a new information officer's post in collaboration with another department, e.g. HIIT.

Effected. (amanuensis permanent, discussions with HIIT re the information officer, so far no recruitment).

V006: International recruitment

- V6: When recruiting new employees, we will mainly use international calls for application (recommendation from UH research evaluation in 2005)

  Effected (international calls for application to professorships and higher research positions).

V007: Utilising the benefits of part-time teaching

- V7: The amount of teaching given by docents will be increased, as will the teaching duties of outside experts, so that the supply of courses complements the department's own teaching with up-to-date contents.

  Not effected.

V008: Improved integration

- V8a: Making the integration responsibilities and guidelines clearer at the department.

  Partially effected (the guide for integration to the department has been updated periodically).

- V8b: Updating the department's integration plan.

  Partially effected (future implementation of the plan).

- V8c: Improving the staff guide to correspond better with the needs of both old and new employees.

  Partially effected (the staff plan and the department administration's webpages have been updated regularly).

V009: Improving the review talks

- V9a: The review talks will be improved by using new review-talk forms, among other things.

  Partially effected (the department uses its own forms in parallel with the university's).

- V9b: The training needs and interests (e.g. pedagogical training) of each employee will be discussed and plans made on the basis of them.

  Not effected.

- V9c: Guidelines for the utilisation of feedback on e.g. teaching as review material will be drawn up.

  Effected (the new course-feedback process of Sept. 2011 realises the goal).

- V9d: We will study the possibility of using the TUHAT/JULKI data in the UPJ talks.

  Effected (cannot be used).

- V9e: The immediate superiors are encouraged to give direct feedback to employees.

  Not effected systematically.

- V9f: UH action: Combine the making of the 1600-hour annual working-hour plan with the preparation of teaching plans and review talks.

  Effected.

V010: Well-being at work

- V10a: We will support the well-being of our employees within the framework of financial resources by offering various benefits (sports fees, massage)

  Partially effected (the department reimburses 50% of the sports fees to Unisport, and pays for some of the staff's ball games).

- V10b: As far as possible, implementing projects developed by the taskforce for well-being at work to support the mental and physical health of employees.

  Partially effected.

- V10c: Maintaining a positive work atmosphere: developing our sense of community and being heard by organising events that are planned and implemented by the employees as a joint effort.

  Partially effected (the staff's general monthly meetings and similar events have become part of our routines).

- V10d: Teaching and other activities are developed communally.

  Effected.

V011: The internationalisation of the work community

- V11a: Making a separate and more extensive version of the staff guide for international employees.

  Partially effected (a guide for new employees and a staff guide in English, as well as a FAQ for foreign newcomers to the department).

- V11b: Encouraging the staff to participate in international conferences and exchanges of researchers and teachers with our own internationalisation programme.

  Not effected.

- V11c: Support visits from foreign researchers and teachers to the department.

  Effected.

- V11d: While renewing the department's website, updating all its pages in two languages.

  Effected.

APPENDIX 2: Statistics over
staff structure

Person-years according to staff grouping	2006	2007	2008	2009	2010	2010%
teaching and research staff	**153.5**	**152.5**	**143.8**	**154.6**	**140.8**	**89.0%**
4th step:						*8.2%*
Professors	10.8	11.6	11.0	13.0	12.5	
Research	1.0	1.0	1.2	0.4	0.4	
3rd step:						*14.8%*
University lecturers, lecturers	21.1	20.7	18.9	16.6	14.1	
Researchers (academy fellows, university researchers, senior researchers, research coordinators)	43.8	31.3	13.4	8.1	9.3	
2nd step:						*17.6%*
Postdoctoral researchers	4.2	7.4	9.3	13.2	16.2	
University instructors, part-time teachers	15.4	12.8	13.2	17.9	11.6	
1st step:						*48.4%*
Doctoral students, assistants	27.9	29.1	44.7	47.0	38.6	
Research assistants, project researchers	29.1	38.5	32.1	38.4	38.1	
Other staff	**17.4**	**17.1**	**15.2**	**18.4**	**17.4**	11.0%
Administrative staff	8.6	8.9	7.5	8.2	7.5	
IT staff	8.4	8.0	7.7	8.8	9.1	
Other	0.3	0.2	0.0	1.3	0.9	
TOTAL	**170.8**	**169.6**	**158.9**	**173.0**	**158.3**	**100%**

APPENDIX 3:
Quantitative targets

	Realisation (person-years)	Realisation (person-years)			Staff status	Objective (number)	Objective	Objective
	2007	2008	2009	2010	09.09.2011	2011	2012	2013
teaching and research staff								
4th step (professors and principal investigators)	13	14	14	13	13	15	15	
3rd step (research coordinators, university lecturers, senior researchers, university researchers, lecturers, academy fellows)	16	16	16	23	25	16	18	
2nd step (postdoctoral researchers, university instructors)	6	10	16	28	19	12	12	
1st step (project researchers, doctoral students,, assistants, research assistants)	73	78	85	77	77	87	89	
Other staff								
Teaching and research support staff								
Other (including IT, maintenance, library staff)	9	8	8	8	8	8	8	
Other staff (administration)	9	8	8	8	8	8	8	

Person-years according to gender

Male					80.9%
Female					19.1%
Average age (years)	33.4	33.5	33.6	33.3	36.4
Foreign employees % of person-years *)	10.5	11.0	12.8	17.5	16.6

Total funding

	2006	2007	2008	2009	2010
Basic allocated means	4.29	4.21	4.85	6.35	5.37
Postgraduate schools and project funding	1.04	1.05	1.22	1.15	1.09
External funding	4.19	4.14	4.15	4.06	4.40
Academy of Finland	1.31	1.00	0.96	1.11	1.68
Tekes	1.10	1.24	0.98	0.99	1.91
Commercial enterprises	0.39	0.59	0.41	0.22	0.04
EU funding	0.57	0.45	0.56	0.49	0.15
Other funding from abroad	0.00	0.00	0.08	0.16	0.14
UH foundations	0.82	0.77	0.87	0.92	0.07
Other	0.00	0.08	0.38	0.17	0.40
Total	**9.52**	**9.40**	**10.22**	**11.56**	**10.86**

Person years per funding source

	2006	2007	2008	2009	2010
Basic allocated means	94.9	87.2	85.5	96.7	92.2
External funding	75.9	82.7	75.2	79.1	66.1
Academy of Finland	25.9	20.9	16.6	19.1	27.7
Tekes	22.8	27.3	18.8	20.8	29.0
Commercial enterprises	5.1	10.9	7.5	4.1	1.0
EU funding	8.2	7.9	11.8	7.7	1.7
Other funding from abroad	0.0	0.0	1.8	2.8	2.4
UH foundations	13.9	13.9	14.9	18.5	2.0
Other funding	0.0	1.7	3.9	6.0	2.3
Total	**170.8**	**169.9**	**158.9**	**173.0**	**158.3**

*) Since 2010, HIIT funding is basic allocated funding (13 person-years)