UPPSALA UNIVERSITET

ARTES
A network for Real-Time research and graduate Education in Sweden

Swedish Foundation for Strategic Research

ARTES AND ARTES++ FINAL REPORT 1997-2008

Complied by
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with help from
Martin Törngren
to forecast the future.

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ARTES summer school logos

Each year was a new logo designed for the summer school. The artists that designed the logos that decorate the front page were ARTES Real-Time graduate students. Year 2005 by Leonid Mokrushin, Uppsala University, 2006 by Wang Qinghua, Mid-Sweden University and 2007 by Séverine Sentilles, Mälardalen University.

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Summary

ARTES was a national Swedish strategic research initiative in Real-Time Systems supported by the Swedish Foundation for Strategic Research (SSF). ARTES formed a network of academic and industrial groups, with the ambition to strengthen the Real-Time Systems competence nationwide. The main focus of ARTES was on graduate education and cooperation between industry and academia. ARTES was organised as a research program at Uppsala University that started in 1998 and ended 2007.

ARTES was internationally a pioneering initiative that contributed to making policy makers realizing the strategic importance of embedded systems. There is currently an increasing emphasis on Embedded Systems on the European research agenda, including the 7th Framework Programme and the launch of the ARTEMIS Joint Undertaking, and in the US there is a massive effort underway to establish Cyber Physical Systems as the new buzzword for future initiatives in the area.

Sweden has a strong tradition and experience in the area of embedded systems, both academically and industrially. ARTES established a strong basis, but continued industry/academia cooperation, maintained international academic excellence, and exploitation of the innovation potential with embedded systems requires longer term funding.

Improved graduate training

ARTES organised 42 graduate courses adapted to distance studies. Courses were typically hosted by a single university but with participants from multiple universities, as well as industry. On average 58% of the participants were external.

ARTES Real-Time Gradate students completed a total of 189 exams. There is now 103 ARTES Real-Time Doctors. The number of expected future exams is 85.

ARTES supported mobility of students by granting funding for a total of 171 separate student mobility applications. The student's reports are available to the network at the ARTES website www.artes.uu.se.

Cooperation

ARTES network building resulted in a network of 12 universities, with 219 ARTES Real-Time Gradate students, 53 research leaders and 28 industrial partners. ARTES industrial ambassador arranged several industrial meetings and press releases. Several of the academic nodes in ARTES are now partners in EU networks. The national network activities are now under the responsibility of the association SNART.

Lessons learned

1. A national excellence network can be created from small and dispersed research groups in Sweden. Geographical proximity is not required, as long as people get to know each other and maintain contact over the internet.
2. The provided funding was instrumental in establishing the network and in gluing the participating groups together.
3. Fluctuations in funding for educating PhDs are difficult to handle and reduces the return on earlier and later investments in research.

Impact

During ARTES era increased the academic staff in the real-time and embedded systems area by 480% for professors, 140% for researchers and by 100% for graduate students.

ARTES has been instrumental in establishing and strengthening international competitive research at several Swedish universities. Important follow up initiatives include: MRTC at Mälardalen University, CERES at Halmstad University, InfoFusion at Skövde University, BESQ at Blekinge Institute of Technology, as well as several professorial chairs also at other universities, e.g., at Uppsala University, Linköping University, Chalmers, and KTH.

0 The objective(s) of ARTES AND ARTES++

ARTES was a national Swedish strategic research initiative in Real-Time Systems supported by the Swedish Foundation for Strategic Research (SSF). ARTES formed a network of academic and industrial groups, with the ambition to strengthen the Real-Time Systems competence nationwide. The main focus of ARTES was on graduate education and cooperation between industry and academia. ARTES was organised as a research program at Uppsala University.

The goals of ARTES were

- to increase the number of PhDs and Licentiates which play important roles in development of industrial real-time applications and products,
- to increase the efficiency of graduate education,
- active industrial involvement in research and graduate education, as well as academic involvement in industry,
- to maximise synergy between the real-time components in strategic centers supported by SSF, as well as with other efforts in the area,
- to increase national and international cooperation in real-time systems research and education, and
- to provide a broad base for Swedish real-time systems research, and to make Swedish real-time systems research world leading in selected areas.

ARTES played an important role in coordinating the total educational, research and transfer of technology effort in the real-time systems area, thereby maximising the total yield and nationwide substantially increased the real-time competence.

The research in the ARTES programme was guided by the following twofold vision:

- To transfer knowledge and competence to Swedish industry that will allow it to first utilise the latest achievements in real time systems design.
- To reduce lead times for designing and modifying real time systems by an order of magnitude by year 2005.

To reach these goals ARTES had the following four activities on its programme:

- Research Projects involving cooperation between industrial and academic network nodes. The projects should tie together research/development at different nodes to maximise synergy, but also concentrate efforts on areas of current and potential high industrial interest. ARTES (including the subprogram PAMP) financed the graduate studies for 43 students, of which 36 have completed their PhD.
- The ARTES graduate school was concentrated on nationally providing graduate courses and proposing curricula for real-time related graduate education. A special effort was the annual ARTES summer school, which became both a traditional academic summer school with lectures and tutorials, and a meeting place for academic and industrial nodes, where projects, other co-operations, and general research issues were discussed. In addition to the Summer School, several graduate student conferences were organized.
- A Mobility Programme to increase interaction between industrial and academic network nodes, as well as with internationally leading research groups.
- Infrastructure support to provide information and establishing various types of co-operations involving ARTES nodes, such as support to workshops and establishment of international co-operation.

ARTES started in 1998 and ended 2007-12-31 (Fig. 0-1). ARTES research programme and its outcome was described in "ARTES - Facts and figures" (Roland Grönroos and Hans Hansson 2006) and in the preface to ARTES book "ARTES - A network for Real-Time research and graduate Education in Sweden" 1997-2006 (ed. Hans Hansson 2006). The book is therefore included in this

report as appendix A16. To supplement the data in the ARTES book some additional data is included in the Appendices.

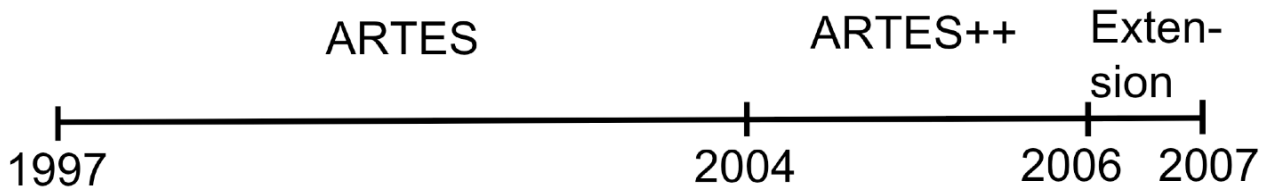


Figure 0-1. ARTES time span.

To complement the presentation of ARTES provided in the book we will here present the graduate school continuation of ARTES (ARTES++) and its one year extension.

For the extended operation during 2004-2006 the following objectives were stated.

- 20 students annually, from 9 participating universities, will be provided support for international mobility, industry contacts, and attending courses.
- 18 instances of 13 graduate courses will be given and students will spend at least 3 weeks at an international research group.
- Leadership will be enforced by appointing a director of graduate studies.
- Support to the ARTES graduate school will be instrumental in continued recruitment and education of strong PhD students in the real-time and embedded systems area, and will substantially add to the return on the investment already made in ARTES.
- Co-operation between several universities, with Uppsala University (UU) as formal host.
- Industrial involvement.
- Complementary funding from ARTES will provide support for summer schools and graduate student conferences.

1 History of ARTES++

ARTES board did already in the past millennium foresee the necessity to continue the activities beyond the ARTES financing. A paper **"Embedded Systems and the Future of Swedish IT-research."** was 2000-04-27 sent to SSF as a contribution to SSF's Strategic Advisory Committees. It argues for the importance of research into embedded systems, and outlines a possible continuation after 2002 for the national embedded systems oriented research programme ARTES. *http://www.artes.uu.se/reports/Embedded-IT-000427.pdf*

As a response to a call from SSF in 2001 six applications was produced under the ARTES network umbrella. These resulted in the funding and formation of two programmes, SAVE and Flexcon, each involving multiple ARTES nodes.

In December 2002 an invitation from SSF to apply for a prolongation of the graduate school was announced. In response to that the ARTES++ application was written combining the ARTES visions with SSF's vision for graduate schools.

There were many reasons for providing continued support to ARTES and its graduate school, the main ones were:

- Real-Time and Embedded systems is an area of strategic importance where Sweden has a strong position (via ARTES and leading industries, such as ABB, Ericsson, Saab, Volvo). Continued support will be instrumental in guaranteeing that Sweden maintains and strengthens its position.

- ARTES had created a national research community with critical mass and international impact. The funding situation made it difficult to recruit new graduate students as the ARTES students were graduating. There was an apparent risk of a reduced return on the investment made in ARTES, due to the dramatic reduction in funding.
- The only continuation of ARTES were the SAVE and FLEXCON programmes. They could, however, only partly replaced the research project funding of ARTES. There would be no remaining graduate school in this area when ARTES finished.
- Previous ARTES graduate courses had been used as continued training by industries. Hence,also the proposed new courses were expected to attract industrial interest.
- Partially using ARTES as a role model, embedded systems was identified as a priority area in the European 6th Framework programme (FP6). Participation in emerging FP6 programmes would require matching national activities.

Changes made to ARTES++

As a result of the general decrease of funding to the area (and since ARTES++ did not include funding for student employments) there were not enough students recruited at the initial 9 universities for ARTES++ to accept students at the expected pace. One of the universities (Blekinge Institute of Technology) did not have any student in ARTES++ during these years (Figure 1-1).

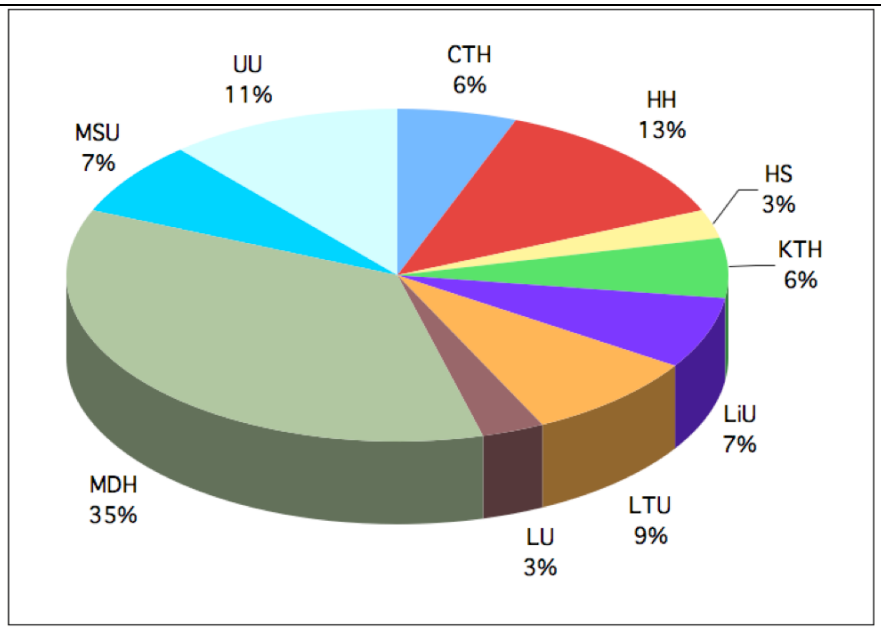


Figure 1-1. Percentage of accepted student from each university. Abbreviations: CTH, Chalmers University of Technology; HH, Halmstad University; HS University of Skövde; KTH, Royal Institute of Technology; LiU, Linköping University; LU, Lund University; LTU, Luleå Technical University; MSU, Mid Sweden University; MDH, Mälardalen University; UU, Uppsala University.

ARTES++ included support to graduate courses, summer schools, and other meetings, as well as a dedicated budget for each admitted student to be used mainly for mobility. To our surprise, the students could not use all of the funding allocated to them. In total only 44% of the funding was used. Five students did not use any of their funding. The funding was specified to be used for certain activities a) attending courses; b) a longer visit abroad; c) attending conferences and d) visiting an industry. Feedback from the students made the board to change the rules in a way that half of the funding could be used to any of the a-d activities. (Table 1-1).

	A	B	C	D	A-D
Year	**Courses**	**Abroad**	**Conference**	**Industry**	**Free choice**
2004	75%	41%	79%	18%	60%
2005	56%	6%	65%	24%	46%
2006	57%	6%	60%	6%	32%
2007	59%	6%	79%	0%	58%
Mean	**62%**	**15%**	**71%**	**12%**	**49%**

Table 1-1. The student's utilisation of available funding in categories. The figures represent the percentage of available funding that was used.

As a consequence of the troublesome recruitment of students and also the inability to use funding by students corrective strategies were adopted, including: A) The number of calls for students increased from three to five. B) Through active invitations student applications from three new universities were obtained; Luleå University of Technology, Mid Sweden University and Umeå University. However no student from Umeå was accepted. C) The board asked SSF for an extension of the period to run the graduate school. This was granted until 2007-12-31.

The extension made it possible to recruit 17 more students. Thereby exceeding the initial goal with 10 students Table 1-2.

Year	No. of students
2004	19
2005	17
2006	17
2007	17
SUM	**70**

Table 1-2. Number of students accepted to the ARTES++ programme each year.

Furthermore, the ARTES type of mobility funding was reintroduced 2006, making the funding open to all ARTES Real-Time Graduate students (Appendix A7-10). This allowed for 50 more student mobility grants.

The initial suggestion was to let a steering committee manage ARTES++ together with a director of graduate studies and with the ARTES assistant programme director. This model was completed with a board on an initiative from SSF. In Appendix A1 the members of ARTES steering groups 1997-2007 are listed. In Appendix A2 the activities and responsibilities of ARTES steering groups are given.

2 Scientific results of ARTES

ARTES research programme and its outcome is described in ARTES book "ARTES - A network for Real-Time research and graduate Education in Sweden" 1997-2006 (ed. Hans Hansson 2006). The book is included as appendix A16. Furthermore, some of the scientific results of ARTES

research programme are described in the ARTES book.

To supplement the data in the ARTES book some more data is included in Appendix A3 ARTES researchers.

3 ARTES and ARTES++ graduate schools

3.1 Improved graduate training

ARTES graduate school required supported courses to be adapted to distance studies, and to allow participation of students from multiple universities. Making the courses possible to follow with a few concentrated meetings became a solution together with course websites and distribution of material in advance. To support a course ARTES demanded that a least one external student should participate. On average, 58% of the participants were external. In many cases all participants were external (Appendix A6). ARTES supported development or improvement of courses at 20 occasions.

To keep the course offers up-to-date and relevant for the students, ARTES yearly surveys of the student's interest in taking available course. These surveys provided guidelines for the director of studies and the board to select courses to support.

ARTES created and maintained multidisciplinary contacts among graduate students and senior researchers at the annual summer school, and at the national graduate student conference. These activities, also including invited lecturers, strengthened the research centers and the other initiatives, as well as disseminated the knowledge obtained through the research programmes.

3.2 ARTES Real-Time Doctors as research leaders

A large number of ARTES Real-Time doctors is at present leaders at different levels in their organizations. See Appendix A7 for present occupation.

Some notable examples:

Henrik Thane became an ARTES project leader and started the company Zealcore AB.

Paul Pettersson is now professor at MDH and head of the embedded systems division.

Jonas Lext started the company Uridium.

Kristina Forsberg is a research leader at SAAB Avitronics.

Daniel Häggander is a co-founder of Häggander, Liden & Lundberg KB.

Dag Nyström started a spin off company which is now part of Mimer Information Technology.

Lars Albertsson became leader of his own project already as student.

3.3 Students and their exams

Appendices A7-A10 list the 219 ARTES Real-Time Graduate students. They have completed a total of 189 exams.

Appendix	**number of students listed**
A.7 ARTES Real-Time Doctors	103
A.8 ARTES Real-Time Licentiates	7
A.9 Future exams by ARTES RT Graduate Students Note that 26 students have licentiate exams.	85
A.10 ARTES RT Graduate Students who are no longer expected to complete their exam.	24

4. Impact of ARTES – to industry and society

4.1 Industrially or societally relevant results

The ARTES network has given people in the real-time area the feeling of belonging to a large family. This has resulted in a few official papers but most of all in a lot of undocumented contacts within the "family" (Appendix A14). In the produced papers there are often arguments for more funding to this important research area. ARTES projects have resulted in 8 spin-off companies (Appendix A11).

4.2 and 4.6 Activities directed towards the industry and general public

ARTES industrial ambassador Anita Andler from Skövde arranged several industrial meetings and made 24 press releases resulting in about as many press cuttings (page 40 in Appendix A16). Reference to selected press cuttings is given in Appendix A4.

4.3 Collaboration

All ARTES projects had industrial partners in many cases industrial employees were supervisors for graduate students. The industrial part of the network is shown on page 6 in appendix A15.

4.4 IPR within ARTES

ARTES board decided in 1999 not to have own rules for how to handle intellectual property rights developed within ARTES projects. The IPR is normally the property of the researchers that are the originator. Within ARTES projects, including the funding of Prof. Erik Hagersten, 8 patents were filed (Appendix A12).

4.5 Research results implemented by industry/society

With 103 ARTES real-time doctors and Swedish industry heavily depending on real-time systems we feel that the scope for this chapter is much too large for this report. However, we want to mention that two of the patents (1 and 6) are the corner stone for the spin-off companies "Häggander, Lidén & Lundberg Computer Systems AB" and "Zealcore Embedded Solutions AB" respectively. All of the eight spin-off companies are built around results from the research carried out in ARTES funded projekts.

5 Impact of ARTES – to the academic system

5.1 Scientific collaboration

Please see the ARTES Book for more information about the impact of ARTES projects.

5.2 Cooperation between the universities

ARTES established a national research community in Real-Time Embedded Systems, with participation of multiple disciplines (Computer Science, Computer engineering, Control Theory, Mechatronics, Software Engineering) from essentially all Swedish academic institutions with groups in these areas. In particular the annual summer school provided a common meeting place that resulted in joint research and other activities providing cross-fertilization between disciplines and research groups. ARTES++ had a great impact on the collaboration between universities. Courses were given with a national mix of graduate students at much higher numbers of participants than usual (Appendix A6). The co-operation in follow up applications for national research funding resulted in a few of initiatives such as SAVE and Flexcon, each involving multiple ARTES nodes. Other follow-up initiatives which ARTES has been instrumental to establish include several research profiles funded by the KK-foundation (MRTC at Mälardalen University, CERES at Halmstad University, InfoFusion at Skövde University, and BESQ at Blekinge Institute of Technology), the SSF funded Strategic research Centre PROGRESS at Mälardalen University, the KK-foundation supported industrial graduate school SAVE-IT coordinated by Mälardalen University, and the VINN Excellence Center WISENET in Uppsala.

The projects had international co-operation with the following universities and groups

- Scuola Superiore S, Anna, Pisa
- University of Massachusetts, USA
- University of York, Great Britain
- Technical University of Vienna, Austria
- The Software Engineering Institute, Carnige Mellon University
- University of Illinois at Urbana-Champaign, USA
- Aalborg University, Denmark
- Prof. Kang Shin´s group at University of Michigan
- Prof. Carlo Sequin´s group at University of California at Berkely
- Prof. J.P. Singh at Princeton University
- Prof. Michel Dubois University of Southern California

5.3 Cooperation with SSF projects

The projects "*Hardware-Software Co-Design of Real-Time Systems*" and "*Design of Heterogeneous Multiprocessor Systems for Real-Time Applications*" had close co-operation with the SSF programme ECSEL. The project "*Real-time software for versatility, scalability and reconfigurability in complex embedded feedback control systems*" co-operated with CAS. For other national co-operation see fig 5.4-1.

5.4 Participation in EU projects

Several of the academic nodes in ARTES are now partners in the EU networks, fig 5.4-1 illustrates the networks in March 2008.

Figure 5.4-1. Slide from Hans Hansson's and Paul Pettersson's presentation of ARTES held at the Swedish Embedded Systems meeting in March 2008. Result of survey made in 2008 showing the national and international co-operation within ARTES network 2008.

5.5 Mobility

ARTES as well as ARTES++ did support mobility of students by granting funding for a total of 171 separate student applications. The support was open to all ARTES Real-Time graduate students Appendices A7-10). The students were required to write reports from their visits. These reports are published on the web for the rest of the network to take advantage of. See appendix A17 and *http://www.artes.uu.se/reports.shtml* for the reports.

ARTES++ support was described above see chapter 1 History of ARTES and table 1-1.

5.6 ARTES most valuable contributions to the total research system

The large number of graduate students produced with personal contacts to almost all other students and senior researcher that were active in ARTES network. Figure 5.6-1 illustrates the increase in persons from 1995 until March 2008.

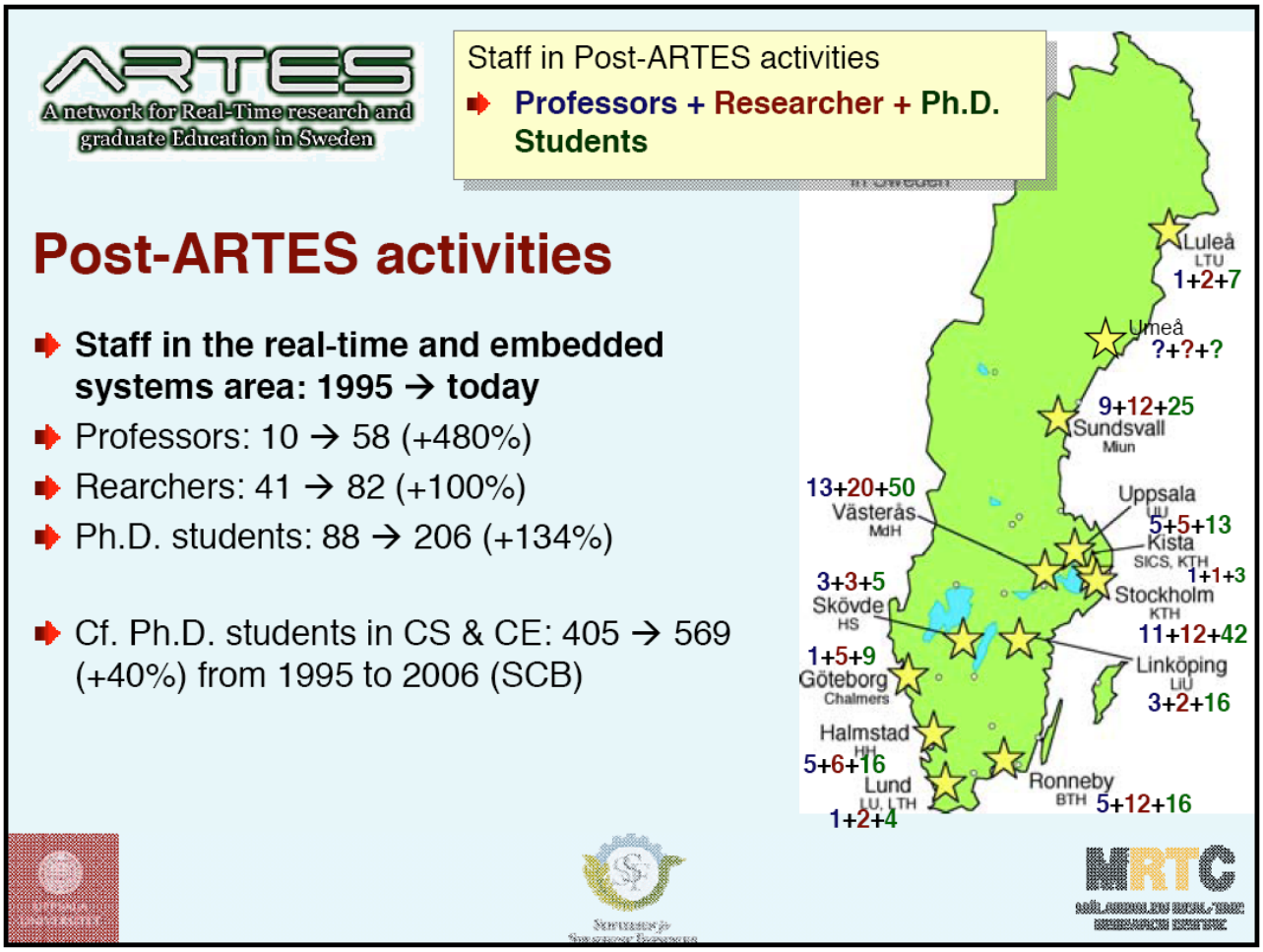


Figure 5.6-1. Slide from Hans Hanssons and Paul Petterssons presentation of ARTES held at the Swedish Embedded Systems meeting in March 2008. Note the great increase in staff in the real-time and embedded systems area compared to Computer Science (CS) and Computer Engineering (CE) during ARTES activity. The map illustrates the geographic distribution of ARTES.

5.7 Awards

Bengt Asker (ARTES first chairman) was much appreciated for his more than 50 years of contributing to the area and in particular to ARTES. The Swedish National Real-Time Association decided therefore after his death in 2005 to name its prize for the best real-time master thesis of the year to "**The Bengt Asker Award for The Best Real-Time Master Thesis**".

Four best paper awards and one tool awards were presented to ARTES researchers (Appendix A13).

The winners of "**The Bengt Asker Award for The Best Real-Time Master Thesis**" were always invited to join ARTES summer school free of charge. The price ceremony has always been a part of the SNART meeting that in turn was a part of ARTES summer school. Notably, quite a few of the winners became ARTES Real-Time Graduate students (Appendix A13).

5.8 ARTES and Uppsala university and other universities

ARTES obtained excellent support from the host university (Uppsala university), and obtained a status similar to a university department in economic matters, and was provided excellent administrative support by the hosting Department of Information Technology. At the faculty level support was always obtained when board members were to be appointed. The university supported ARTES visibility. At the Faculty of Science and Technology web pages www.teknat.uu.se ARTES was presented as one of three graduate schools. The university web structure allowed ARTES to be visible via just a few links. The Internet domain for both mail and web *artes.uu.se* have kindly been provided. The Press Contact department gave support in making press releases. The Legal Affairs Office gave excellent support by advices on IPR and grants.

The co-operation with other universities was very smooth. Arranging ARTES summer schools and graduate student conferences at different universities helped in creating personal contacts all over Sweden.

5.9 ARTES importance for Uppsala university

ARTES has kept Uppsala University in the centre of the Real-Time map even though the research activities have been at a more or less constant level for a decade (though several researchers from Uppsala University have been recruited to Mälardalen University, where a large research centre focusing on real-time embedded system has been established).

In addition to funding of research in several research groups at the Department of Information Technology, important effects of ARTES at Uppsala University include the establishment of two new professorial chairs: *Embedded Systems* (announced in 2008) and Computer Architecture (established with support from SSF to recruit Erik Hagersten in 1999).

6 Lessons learned from ARTES

1. A national excellence network can be created from small and dispersed research groups in Sweden. Geographical proximity is not required, as long as people get to know each other and maintain contact over the internet.
2. The provided funding was instrumental in establishing the network and in gluing the participating groups together.
3. Fluctuations in funding for educating PhDs are difficult to handle and reduces the return on earlier and later investments in research.
4. ARTES experienced rather big difficulties in recruiting students during 1998-2001. The peak in PhD exams occurred simultaneously with the down-period for the IT industry 2001-2004 which made it harder for the new doctors to find employment in industry. Thereafter ARTES++ had problems to find students to support due to a drop in recruiting new students in the whole country. Now (2008) the industry is in full speed and actively searching for people to hire. With better recruitment of PhD-students in 2001-2004, a larger number of PhDs, which are now in high demand, would have been available. A lesson learned is that it is hard to predict industry needs 5-10 years in advance, therefore constant supply of funding to academy would be better for the society.
5. The ARTES++ funding was not satisfactory utilised by the individual students. A national network can redistribute the support to those students that need it within a large population of students like ARTES did.

6. Graduate courses developed and given on a national basis is cost efficient and save a lot of effort for the research community.
7. It takes about half the time of a qualified administrator to handle a national network of 200 persons. This effort is more or less constant whether there is a lot of research funded or just mobility. This implies that it is relatively cheaper to administrate networks with more funding.
8. A strong board with a high integrity provides a very good support to the management.

7 Outlook

7.1 SNART and SAVE-IT takes over.

The national association for Real-Time (SNART) has the capability to take over part the network activities established by ARTES, though the lack of funding will create problems maintaining activities at the same level.

The loss of ARTES research financing was a great loss to the society. Although some funding has been obtained, the academy has not been able to fully compensate that loss.

The industrial graduate school SAVE-IT has taken over part of ARTES++ role as co-ordinator for graduate education.

7.2 Real-Time and Embedded systems year 2018

There are many indications of the increasing importance of embedded real-time systems. The competitiveness of large parts of Swedish export industry is based on products/systems controlled by complex software and electronics executing in real-time in embedded computer systems. Such Embedded Systems are included in industrial automation, transportation (automotive, train), telecom, medical and defence systems, but also enable completely new applications and functionalities to be developed. Embedded systems are thus closely connected to innovation. At the same time, there are strong needs for new methods and tools to support the development, configuration and maintenance of advanced embedded systems. This provides additional opportunities for new companies focusing on tools and knowledge (exemplified by Swedish companies like Enea, Imsys, Zealcore, Systemite, Telelogic and Xelerated).

Computers are being introduced in virtually all products, and this trend is expected to continue and even be accentuated, as an increasing part of the product functionality will be implemented by software. The flexibility software provides allows for dramatic product improvements, new functionality, and integration into larger systems that were not previously imaginable. Advances in microelectronics (miniaturization, networks on chip, etc.), the increasing connectivity of embedded systems and essential requirements on dependability pose many challenges that needs to be addressed both through applied and basic research.

This calls for further strategic research initiatives to meet the industrial demand for competence and innovation. Policy makers are realizing the strategic importance of embedded systems. There is currently an increasing emphasis on Embedded Systems on the European research agenda, including the 7th Framework Programme and the launch of the ARTEMIS Joint Undertaking, and in the US there is a massive effort underway to establish Cyber Physical Systems as the new buzzword for future initiatives in the area.

Sweden has a strong tradition and experience in the area of embedded systems, both academically and industrially. However, increased cooperation (industry/academia) and longer term funding is required to maintain this position and exploit the innovation potential of embedded systems.

8 Economic report

The agreement to start ARTES activities was signed June 10, 1997. The funding was initially 5 MSEK for 1998. During this year a programme plan was to be produced as a basis for further funding decisions. In the programme agreement signed in December 1998 the total funding for ARTES was 68.9 MSEK. In addition, the programme PAMP (Symmetric Multiprocessors in High-Performance Real-Time Applications) and a professorship for Erik Hagersten at Uppsala University was included with separate funding. In June 1999, SSF decided to increase the amount to 88 MSEK in total for the period until 2002-12-31. Finally, as the result of a separate application (ARTES++) for extended funding, SSF decided in August 2003 to support ARTES with an additional 7 MSEK, to enforce the research school activities until December 2006. The time to use the funding was in 2006 extended until 2007-12-31 by SSF.

ARTES planned and actual budget is shown in Table 8-1. The yearly funding for research and university fee is given in Figure 8-1 while the use for Administration, Graduate school and information efforts are shown in Figure 8-2 (please note the different scale in the figs).

Industrial funding

There have not been any formal requirements for industrial funding of the projects in ARTES. We have nevertheless asked for industrial participation and contributions in the project reports. The general picture is that for most projects only small amounts were reported, but in a few cases there were substantial industrial contributions.

	Planned	**Actual**
Funding	81	95
Other income		2
SUM	**81**	**97**
Costs		
Research projects	54	68
Graduate school	7	10
Mobility	4	4
Information	3	3
Administration	6	4
VAT (8%)	6	8
Remaining		1
SUM	**81**	**97**

Table 8-1. ARTES planned and actual budget 1997-2008.

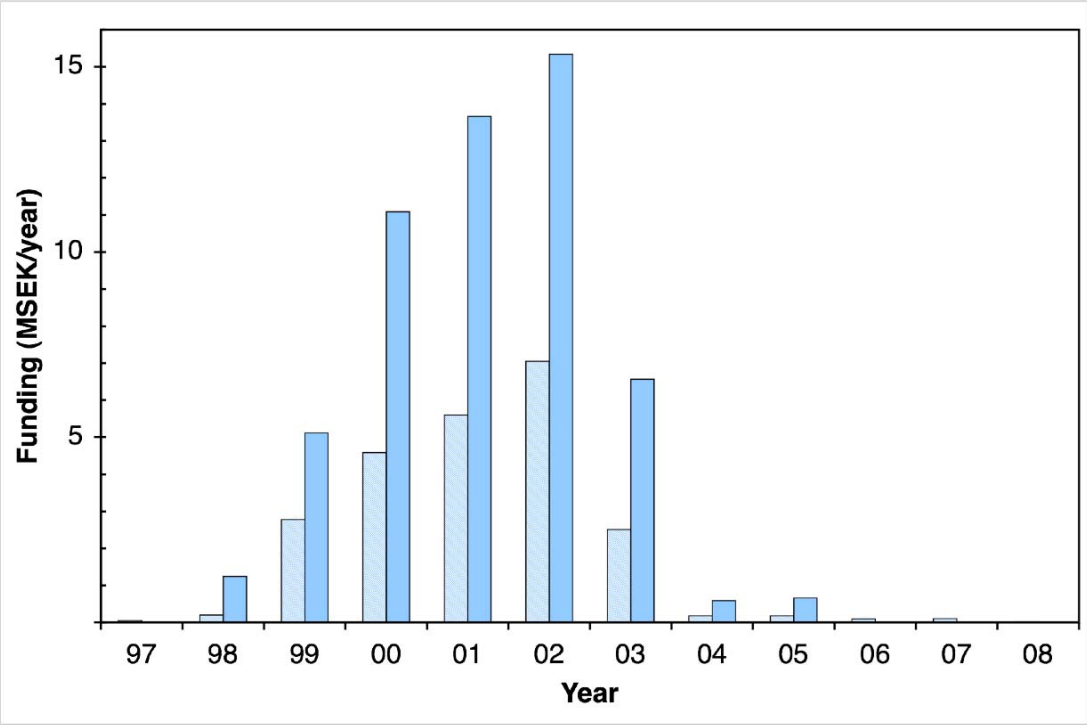


Figure 8-1. ARTES use of funding for research1997-2008. Research ( ); University fee( ). Note that the main research activities ended in 2003. Some of the variation in between years is because requisitions may occur at some time after the activities took place.

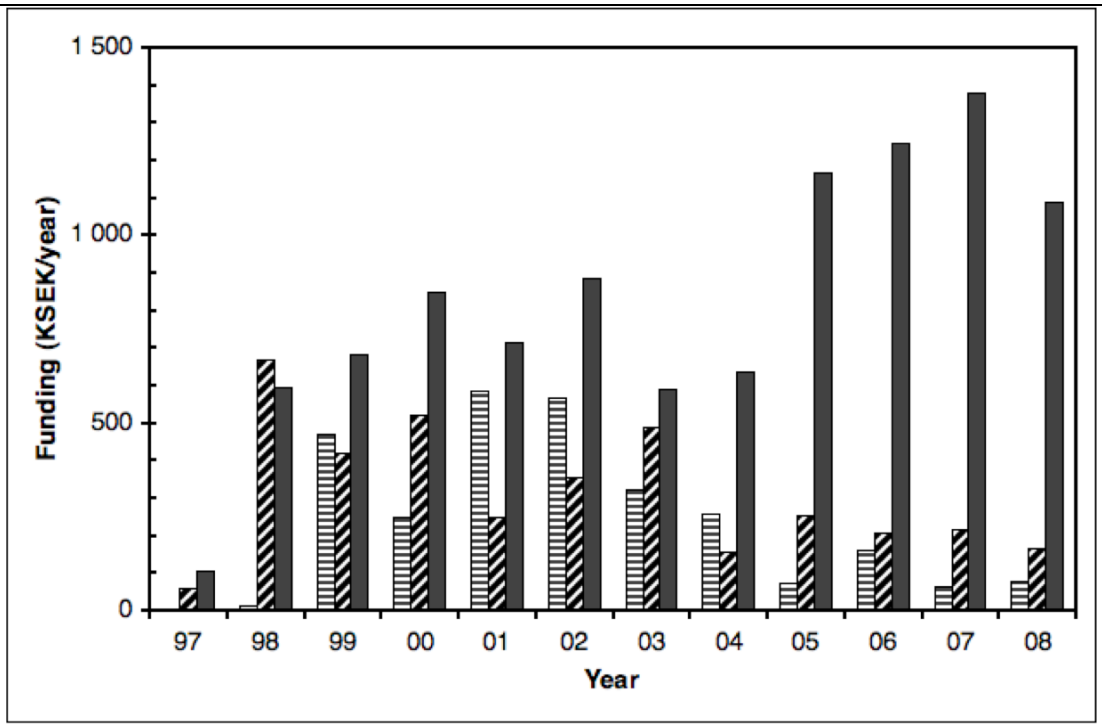


Figure 8-2. ARTES use of funding 1997-2008 (excluding direct funding for research, which is reported in Figure 8-1). Administration ( ); Graduate school ( ); Information ( ). Note in 2008 there was only reporting activities and paying of requisitions for activities in 2007 and a final meeting to mark the end of ARTES. Some of the variation in between years is caused by that requisitions may occur at some time after the activities took place.

A Appendices

A.1 Members of ARTES steering groups 1997-2007

Last name	First name	Affiliation	Function in ARTES[1]	From	Until
Andler	Sten F.	Skövde University	Reference group	2004	2007
Asker	Bengt	Retired professional	Chairman	1997	2003
Axelsson	Jakob	Volvo	Chairman	2004	2007
Emmertz	Bertil	ABB Industrial Systems, ABB Robotics	Board member, PAMP steering group	1997 1997	2007 2004
Forsberg	Kristina	Saab Avitronics	Board member	2004	2007
Grönroos	Roland	Uppsala University	Assistant Programme director Director of Education	1998 1999	2007 2003
Hansson	Hans	Uppsala University, Mälardalen University	Programme director, PAMP steering group, Reference group	1997 1997 2004	2003 2003 2007
Holmgren	Sverker	Uppsala University	Board member	2004	2007
Jonsson	Magnus	Halmstad University	Reference group	2004	2007
Jonsson	Jan	Chalmers University of Technology	Reference group	2004	2007
Lidén	Peter	Volvo	Board member	1999	2002
Lundberg	Lars	Blekinge Institute of Technology	Reference group	2004	2007
Nadjm-Tehrani	Simin	Linköping University	Reference group	2004	2007
Österberg	Lars	Enea OSE Systems AB, BANQIT AB	Board member	1997	2003
Paulsson	Kerstin	Kockums Submarine AB	Board member	1997	2003
Pettersson	Paul	Uppsala University, Mälardalen University	Director of Education, Programme director, Reference group	2004 2005 2004	2007 2007 2007
Romare	Anders	Volvo	Board member	1997	1999
Torin	Jan	Chalmers University of Technology	Board member	1997	2003
Törne	Anders	Linköping University	Director of Education	1997	1999
Törngren	Martin	KTH	Board member	2004	2007
Årzén	Karl-Erik	Lund University	Board member, Reference group	1999 2004	2003 2007
Åström	Karl Johan	Lund University	Board member	1997	1999
Stenström	Per	Chalmers University of Technology	PAMP steering group	1997	2004
Däcker	Bjarne	Ericsson AB	PAMP steering group	1997	2004

[1] Time periods corresponds to function in ARTES.

A.2 Activities and responsibilities of ARTES steering groups

A comprehensive description of ARTES organisation is given on pages 821-825 in Appendix A16, the book "ARTES - A network for Real-Time research and graduate Education in Sweden 1997-2006".

Responsibilities of ARTES board

1. To decide about policy, research programmes and activities.
2. To propose programme director, appoint advisory committees, assistant programme director and graduate school director.
3. Report to SSF.
4. Approve the programme budget.

Responsibilities of ARTES programme director

Hans Hansson (1997-2003), Paul Pettersson (2004-2007)
1. is scientific and pedagogical leader for the programme
2. propose activities and policies to the board
3. manage the assistant programme director

Responsibilities of ARTES assistant programme director

Roland Grönroos (1998-2007)
1. builds and maintains the network
2. markets the network
3. administrates the network
4. coordinates the activities
5. is administrative graduate school director with a scientific reference group with representatives for PhD-students, ARTES and PAMP researchers (see below) as support.

Beside this formal organisation, planning, discussions and evaluations of activities has been carried out at meetings with the board, researchers, industry and PhD students during the summer school. Proposals and ideas are collected and brought to the board meetings for actions. The research projects were evaluated during the summer school.

Responsibilities of ARTES graduate school director

Anders Törne (1997-1999) Roland Grönroos (1999-2003), Paul Pettersson (2004-2007)
1. propose curricula
2. propose and evaluate ARTES courses
3. monitor and evaluate the progress in terms of course work of RT graduate students
4. plan and prepare the summer school together with the programme director.

Responsibilities of ARTES++ reference group

The ARTES++ Graduate School was managed by a director of graduate studies (Paul Pettersson), with administrative support by Roland Grönroos (ARTES assistant program director). A steering committee was be appointed consisting of, Paul Pettersson (Chairman of the committee), Roland Grönroos, the directors of the programs SAVE and FLEXCON (Hans Hansson and Karl-Erik Årzén), together with the director of CUGS (Jörgen Hansson, LiTH). Additionally, each participating university appointed one supervisor to form the reference group.
The reference group commented on the agenda before the board meetings and added valuable input.

A.3 ARTES researchers

More information is available in the book "ARTES - A network for Real-Time research and graduate Education in Sweden 1997-2006" in Table A.1 on pages 734-739.

Note that there is one entry in the table for each project a researcher was involved in.

Last name	First name, initials	University	Department	Position	Project	Year-of-birth	Gender
Abdulla	Parosh	UU	Department of Information Technology	Professor	New directions in Symbolic Model Checking for Real-Time Systems	1961	Male
Albertsson	Lars	SICS	Computer and Network Architectures Laboratory (CNA)	Researcher	Simulation Concepts to Model Real-Time and Dependability Properties of Symmetric Multiprocessor Systems	1974	Male
Andler	Sten	HIS	School of Humanities and Informatics	Professor	TETReS: Testing of Event-Triggered Real-Time Systems	1947	Male
Björkman	Mats	UU	Department of Information Technology	Researcher	Predictable Parallel Protocol Processing	1960	Male
Brorsson	Mats	KTH	School of Information and Communication Technology	Professor	Software Distributed Shared Memory - New Applications and Scalability		Male
Christensen	Henrik I.	KTH	Numeric Analysis and Computing Science	Professor	Real-time software for versatility, scalability and reconfigurability in complex embedded feedback control systems		Male
Dahl	Ola		Sigma Exallon Systems AB	Researcher	Integrated Control and Scheduling		Male
Dahlgren.	Fredrik		Ericsson Mobile Communications AB	Researcher	Support for Real-Time 3-D Graphics on Future Mobile Terminals under Energy/Area Constraints		Male
Eles	Petru	LIU	Department of Computer and Information Science	Professor	Design of Heterogeneous Multiprocessor Systems for Real-Time Applications		Male
Fohler	Gerhard	MDH	School of Innovation, Design and Engineering	Professor	Flexible reliable timing constraints	1965	Male
Fohler	Gerhard	MDH	School of Innovation, Design and Engineering	Professor	Extension of Flexible Reliable Timing Constraints	1965	Male
Gunningberg	Per	UU	Department of Information	Professor	Predictable Parallel Protocol Processing	1953	Male

			Technology				
Hagersten	Erik	UU	Department of Information Technology	Professor	Categorized and Specialized Caching for SMPs	1959	Male
Hagersten	Erik	UU	Department of Information Technology	Professor	Professor in computer architecture	1959	Male
Hansson	Hans	MDH	School of Innovation, Design and Engineering	Professor	A tool environment for the development of embedded systems	1957	Male
Hansson	Hans	MDH	School of Innovation, Design and Engineering	Professor	Incremental Iterative Scheduling	1957	Male
Hansson	Hans	MDH	School of Innovation, Design and Engineering	Professor	TATOO-Test and testability of distributed real-time systems	1957	Male
Hansson	Hans	MDH	School of Innovation, Design and Engineering	Professor	Applications of wait/lock-free protocols to real-time systems	1957	Male
Hansson	Hans	MDH	School of Innovation, Design and Engineering	Professor	RATAD - Reliability and Timing Analysis of Distributed Systems	1957	Male
Hansson	Jörgen	LIU	Department of Computer and Information Science	Professor	Embedded Databases for Embedded Real-Time Systems (COMET)	1970	Male
Jonsson	Jan	CTH	Department of Computer Science and Engineering	Professor	Identification of Complexity-Reduction Techniques for Optimal Scheduling in Embedded Distributed Real-Time Systems		Male
Jonsson	Jan	CTH	Department of Computer Science and Engineering	Associate Professor	Design Strategies for Real-Time High-Performance Multimedia Applications on Multiprocessors		Male
Jonsson	Magnus	HH	School of Information Science, Computer and Electrical Engineering	Associate Professor	Methods for Integration of Heterogeneous Real-Time Services into High-Performance Networks	1969	Male
Jonsson	Magnus	HH	School of Information Science, Computer and Electrical Engineering	Professor	Switched Real-Time Communication for Industrial Applications	1969	Male
Karlsson	Johan	CTH	Department of Computer Science and Engineering	Professor	Node-level Fault Tolerance for Fixed Priority Scheduling	1956	Male

Kuchcinski	Krzysztof	LU	Department of Computer Science	Professor	Distributed Real-Time Systems with Minimal Energy Consumption: Analysis and Synthesis		Male
Lundberg	Lars	BTH	School of Engineering	Professor	Design Guidelines and Visualization Support for Developing Parallel Real-Time Applications	1962	Male
Mellin	Jonas	HIS	School of Humanities and Informatics	Researcher	TETReS: Testing of Event-Triggered Real-Time Systems	1965	Male
Nilsson	Klas	LU	Department of Computer Science	Professor	Integrated Control and Scheduling	1958	Male
Norström	Christer	MDH	School of Innovation, Design and Engineering	Professor	A tool environment for the development of embedded systems	1963	Male
Norström	Christer	MDH	School of Innovation, Design and Engineering	Professor	RATAD - Reliability and Timing Analysis of Distributed Systems	1963	Male
Norström	Christer	MDH	School of Innovation, Design and Engineering	Professor	Embedded Databases for Embedded Real-Time Systems (COMET)	1963	Male
Papatriantafilou	Marina	CTH	Department of Computer Science and Engineering	Researcher	Applications of wait/lock-free protocols to real-time systems		Female
Peng	Zebo	LIU	Department of Computer and Information Science	Professor	Hardware-Software Co-Design of Real-Time Systems	1958	Male
Pettersson	Lennart		Ericsson UAB	Researcher	Techniques for Module-Level Speculative Parallelization on Shared-Memory Multiprocessors		Male
Redell	Ola	KTH	School of Industrial Engineering and Management		Pre-Implementation Analysis of Distributed Control Systems - PICADOR	1970	Male
Reed	Nancy E.	LIU	Department of Computer and Information Science	Professor	Real-Time Response and Control of Autonomous Agents		Female
Stenström	Per	CTH	Department of Computer Science and Engineering	Professor	Design Strategies for Real-Time High-Performance Multimedia Applications on Multiprocessors	1957	Male
Stenström	Per	CTH	Department of Computer Science and Engineering	Professor	Techniques for Module-Level Speculative Parallelization on	1957	Male

					Shared-Memory Multiprocessors		
Stenström	Per	CTH	Department of Computer Science and Engineering	Professor	Support for Real-Time 3-D Graphics on Future Mobile Terminals under Energy/Area Constraints	1957	Male
Strömberg	Mikael		Mecel AB	Researcher	Identification of Complexity-Reduction Techniques for Optimal Scheduling in Embedded Distributed Real-Time Systems		Male
Svensson	Bertil	HH	School of Information Science, Computer and Electrical Engineering	Professor	Methods for Integration of Heterogeneous Real-Time Services into High-Performance Networks	1948	Male
Svensson	Bertil	HH	School of Information Science, Computer and Electrical Engineering	Professor	Real-time Mobile Communication	1948	Male
Svensson	Bertil	HH	School of Information Science, Computer and Electrical Engineering	Professor	Switched Real-Time Communication for Industrial Applications	1948	Male
Thane	Henrik	MDH	School of Innovation, Design and Engineering	Researcher	TATOO-Test and Testability of Distributed Real-Time Systems	1970	Male
Tsigas	Philippas	CTH	Department of Computer Science and Engineering	Professor	Applications of wait/lock-free protocols to real-time systems	1967	Male
Törngren	Martin	KTH	School of Industrial Engineering and Management	Professor	Automatic Control in Distributed Applications (AIDA 2)	1963	Male
Törngren	Martin	KTH	School of Industrial Engineering and Management	Professor	Functional Integration and Interference in Embedded Control Systems	1963	Male
Törngren	Martin	KTH	School of Industrial Engineering and Management	Professor	Pre-Implementation Analysis of Distributed Control Systems - PICADOR	1963	Male
Wiberg	Per-Arne	HH	School of Information Science, Computer and Electrical Engineering	Professor	Real-time Mobile Communication	1953	Male

Wikander	Jan	KTH	School of Industrial Engineering and Management	Professor	Real-time software for versatility, scalability and reconfigurability in complex embedded feedback control systems	1956	Male
Wikander	Jan	KTH	School of Industrial Engineering and Management	Professor	Functional Integration and Interference in Embedded Control Systems	1956	Male
Wikander	Jan	KTH	School of Industrial Engineering and Management	Professor	Pre-Implementation Analysis of Distributed Control Systems - PICADOR	1956	Male
Yi	Wang	UU	Department of Information Technology	Professor	Hierarchical Design and Analysis of Timed Systems	1961	Male
Årzén	Karl-Erik	LU	Department of Automatic Control	Professor	Integrated Control and Scheduling	1957	Male

A.4 Selected Publications and Press Cuttings

(books, articles in refereed journals, papers presented at conferences, reviews, other publications). Indicate clearly publications with international and/or industrial co-authors. What is the cross-national share? The cross-university share? The crossdepartmental share? The cross-project share? Only publications where SSF funding is relevant and thus duly acknowledged should be included.

ARTES - A network for Real-Time research and graduate Education in Sweden 1997-2006
Hans Hansson ed. Uppsala: Uppsala University, Teknisk-naturvetenskapliga vetenskapsområdet, Mathematics and Computer Science, Department of Information Technology. pp. 27-41.
http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-6628.
Appendix A16

Embedded Systems and the Future of Swedish IT-research
This document was sent 2000-04-27 to SSF as a contribution to The Strategic Advisory Committees. It argues for the importance of research into embedded systems, and outlines a possible continuation after 2002 for the national embedded systems oriented research programme ARTES.
http://www.artes.uu.se/reports/Embedded-IT-000427.pdf

Take advantage of ARTES
A brochure from year 2000 that describe Real-Time Systems, ARTES mission, research projects and activities.
http://www.artes.uu.se/ads/brochyr/
Appendix A15

Press cuttings

* Ny Teknik 2005-03-23, Realtidsdoktorn Ulf Assarsson svarar på fem frågor.

* Elektroniktidningen 2005-02-10: Tre minuter med Per Johannessen, nybliven doktor i säkerhetskritisk fordonselektronik

* Computer Sweden 2005-01-04, Så är bilen på väg att bli automatisk

* Jönköpingsposten, 2004-11-26, skriver om ARTES industridag på Saabtech.

  Divisionschef Ronny Nyqvist säger "Trenden håller i sig, att det blir mer elektronik än mekanik, och där ska vi vara med. Men det blir svårt utan att satsa mer på forskning och utveckling."

* ComputerSweden, 2004-11--12, Doktor trådlös... om Elisabeth Uhlemanns avhandling.

* Elektronik i Norden, 2004-11-12, Världsledanden på inbyggda system, om ARTIST nätverket.

* Elektroniktidningen 2004-10-05 Svensk inbyggnadsforskning tillhör Europatoppen

* Elektroniktidningen nr 10, 2003-06-06, Spindeln i realtidsforskarnätet. Mycket kan vinnas om reglerteknik och datavetenskap kombineras, säger Hans Hansson.

* Ny Teknik 2003-03-26, Zealcores svarta lådor avslöjar robotkrascher (ett ARTES spin-off företag)

* Forskning och Framsteg okt-nov 2001
  1. Gungande biljardbord
  2. Flygplansstyrning i bil

* VERKO, aug 2001, sidan 80, ARTES – realtidssystem för svensk industri.

* Underleverantören, aug 2001, nr 6, sida 4 "Ökat samarbete för framtiden"

* Industritorget, 2001-09-14 , ARTES - realtidssystem för svensk industri

A.5 All events organised by ARTES

For a list including links to the material, photos etc. please visit *http://www.artes.uu.se/events/*

1. Swedish Embedded Systems Meeting 2008. Organized in collaboration between ARTES and SNART in Stockholm, Sweden, March 5, 2008.
2. ARTES Summer School 2007, August 20-24 in conjunction with REAL-TIME IN SWEDEN 2007 (RTiS'07) the 9th biennial SNART conference on real-time systems August 21-22, at MDH in Västerås.
3. ARTES Summer School August 21-25, 2006
4. Swedish Embedded Systems meeting, March 13, 2006
5. Cancelled: ARTES Graduate Student Conference and Kick-Off 2006, Stockholm March 13-14, 2006
6. ARTES Summer School 2005 in Skövde with Real-Time in Sweden 2005, updated proceeding, Photographs, more pictures from RTiS including Newscast
7. PhD Student Kick-Off 2005 in Västerås, February 22-23. Pictures!
8. ARTES industryday at Saabtech in Jönköping 04-11-23. Programme: PDF, DOC.
9. Cancelled: ARTES Graduate Student Conference 2004, November 15-16, Luleå University of Technology. We got too few participants and come back with a new conference in the spring when there are more students involved.
10. ARTES Summer School 2004, August 22-23, in association with SNART workshop (August 24), and RTCSA (August 25-27). Pictures!
11. ARTES++ kick-off 2004. Pictures! Time: 8/3 12.00. Place: Uppsala University.
12. ARTES industridag på Ericsson i Älvsjö 11 november 2003.
13. ARTES Summer School 2003 August 18-22 in Västerås and Strängnäs.
14. ESSES'2003, European Summer School on Embedded Systems, Sweden, July 14 - October 10, 2003
15. Real Time in Sweden 2003, the SNART conference
16. ARTES Summer School 2002 August 19-23 in Stockholm archipelago.
17. ARTES Graduate Student Conference 2002, April 18-19 in Uppsala
    Competence Test II, ”ARTES and your research in popular scientific press”.
18. Västsvensk fordons- och forskningsdag 2001-12-12
19. Embedded Computing & Real-Time Computer Show in Stockholm September 17, 2001.
20. ARTES Summer School August 20-24, 2001
21. Real-Time in Sweden 2001 August 21-22, 2001, Organized by SNART and Halmstad University
22. ICECCS2001, Seventh IEEE International Conference on Engineering of Complex Computer Systems, 11-13 June 2001 - at the University of Skövde. ARTES supports RT-student participation.
23. ISCA 2001 and DNS 2001, June 30 - July 4, 2001 in Gothenburg, Sweden, ARTES supports participation.

24. ARTES Graduate Student Conference 2001, March 8-9 in Lund
    Presentations, Proceeding (2.3 MB), Invitation, Programme, Papers
25. ARTES-ABB Industrial seminar 2001-01-31, presented material
26. Sweden-Korea Workshop on Real-Time and Embedded Systems
27. ARTES Summer School, August 21-25, 2000
28. ECRTS 00 12th conference on Real-Time Systems Royal Institute of Technology, Stockholm, Sweden, June 19th - 21th, 2000.
29. ARTES Graduate student conference March 16-17, 2000 at Chalmers Teknikpark. Invitation, Accomodation, Proceeding as complete pdf (2.5 MB) or in parts.
30. ARTES Summer School 99 in Linköping, August 23-27, 1999.
31. ARTES Graduate Student Conference Västerås, May 10-11, 1999.
    Participants, Presentations and Programme.
32. First ARTES Summer School, August 17-21, 1998
33. Seminar on Development of Automotive Software, Göteborg, April 23, 1998

A.6 Courses developed and given with ARTES support

More information is available in the book " ARTES - A network for Real-Time research and graduate Education in Sweden 1997-2006" Table A.2 on pages 740-743.

Table 7. Courses supported by ARTES 1997-2003 and 2004-2005 by ARTES++. Note: University abbreviations are explained in Table 2. The European Summer School on Embedded Systems (ESSES) was a joint Sweden - Korea -Denmark - ARTIST effort including 3 months of courses and workshops from July 14 until October 10, 2003.

Year, Term	Course name	Teacher(s)	Univ.	Points	Regist-ered	Passed	Exter-nal	Developed by ARTES
1997, Autumn	Distributed Real-Time Systems	Sten F. Andler	HS	4	10		7	Yes
	Design of Software for Embedded Real-time Control Systems	Martin Törngren	KTH	4	9	9	7	Yes
	Modelling and Analysis of Real-Time Systems	Hans Hansson and Wang Yi	UU	6	16	9	12	Yes
1998, Spring	Hardware/Software Codesign	Zebo Peng	LiU	4	18	9	2	Yes
1998, Autumn	Parallel and Distributed Real-Time Systems	Jan Jonsson	CTH	5	22	18	10	Yes
	Design of Software for Embedded Real-time Control Systems	Martin Törngren	KTH	4	7	5		Yes
2000, Spring	Computer Clusters for Large Real-Time Systems	Lars Lundberg	BTH	3				Yes
	Component-based Software Engineering	Ivica Crnkovic	MDH	5	32	29	22	Yes
	Entreprenörskurs in Cooperation with VISIT	Magnus Klofsten			25		25	
2000, Autumn	Safety Critical Systems	Simin Nadjm-Therani	LIU	4	18	13	2	
2001, Spring	Parallel and Distributed Real-Time Systems	Jan Jonsson	CTH	5	35	31	12	
	Real-time Computer Control Systems	Martin Törngren	KTH	5	15	15	8	
2002, Summer	Specification-based Software Testing	Sten F. Andler	HS	4	4	4	3	
2002, Spring	Formalisms, Algorithms and Tools in Formal Methods	Hans Hansson and Wang Yi	MDH	3	15	11	8	

	for Real-Time							
2002, Autumn	Safety Critical Computer Control Systems	Martin Törngren	KTH	3	14	13	9	
	Concurrency Therory and Time	Hans Hansson	MDH	3	12	12	5	
2003	ESSES summer school July 14 - October 10	Teachers see footnote[2]						
2004, Spring	Parallel and Distributed Real-Time Systems	Jan Jonsson	CTH	5	6	6	5	
	Embedded Control Systems	Karl-Erik Årzén	LU	5	13	13	13	Yes
	Formal Modelling and Analysis of Real-Time Systems	Paul Pettersson and Wang Yi	UU	5	20	13	12	Yes
2004, Autumn	Design of Embedded Real-Time Systems	Martin Törngren	KTH	5	15	14	7	Yes
	Safety Critical Systems	Simin Nadjm-Therani	LIU	5	6	5	5	
	Research Planning 2004	Hans Hansson	UU	3	10	6	4	Yes
2005, Spring	Cooperating Embedded Systems	Tony Larsson	HH	5	11	11	5	Yes
	Advanced Component-Based Software Engineering	Ivica Crnkovic	MDH	5	11	10	5	Yes
	Storage Systems for Embedded Systems	Sang Lyul Min	UU	3	9	8	4	Yes
2005, Autumn	Introduction to Systems Thinking and its Application	Bud Lawson	HS	5	17	11	9	
	Hardware/Software	Zebo Peng	LIU	5	13	11	9	Yes

[2] Teachers at ESSES: Dr. Luca Benini (University of Bologna), Dr. Al Mok (University of Texas), Dr. Alan Shaw (University of Washington), Dr. Ben Lee (Oregon State University), Dr. Carla Ellis (Duke University), Dr. Daniel Kastner (AbsInt), Dr. Diana Marculescu (Carnegie Mellon University), Dr. Flavius Gruian (Lund University), Dr. Frank Bellosa (University of Erlangen), Dr. Gerhard Fohler (Malardalen University), Dr. Giorgio Buttazzo (University of Pavia), Dr. Henrik Thane (Malardalen University), Dr. Hermann Kopetz (Vienna University of Technology), Dr. Hyuk Jae Lee (Seoul National University), Dr. Insup Lee (University of Pennsylvania), Dr. Jaejin Lee (Seoul National University), Dr. Jakob Engblom (Virtutech/Uppsala University), Dr. Jakob Engblom (Virtutech/Uppsala University), Dr. James Whittaker (Florida Institute of Technology), Dr. Jane Liu (Microsoft), Dr. Jason Flinn (University of Michigan), Dr. Jihong Kim (Seoul National University), Dr. Kang Shin (University of Michigan), Dr. Kim Larsen (Aalborg University), Dr. Kiyoung Choi (Seoul National University), Dr. Krzysztof Kuchcinski (Lund University), Dr. Lui Sha (University of Illinois), Dr. Marcus Schmitz, Dr. Naehyuck Chang (Seoul National University), Dr. Nicolas Halbwachs and Dr. Pascal Raymond (Verimag), Dr. Paul Pettersson and Dr. Wang Yi (Uppsala University), Dr. Petru Eles (Linkoping University), Dr. Rob van Ommering (Philips Nat.Lab), Dr. Sang Lyul Min, Dr. Seongsoo Hong (Seoul National University), Dr. Soo-Ik Chae (Seoul National University), Dr. Soonhoi Ha (Seoul National University), Dr. Wayne Wolf (Princeton University), Dr. Vijaykrishnan Narayanan (Pennsylvania State University), Dr. Vivek Tiwari (Intel), Dr. Wonyong Sung (Seoul National University), Dr. Zebo Peng (Linkoping University), Kanghee Kim (Seoul National University)

	Codesign							
	Research Planning 2005	Hans Hansson	MDH	3	9	6	1	
	Advanced Real-Time Scheduling	Gerhard Fohler	MDH	5	3	2	2	
2006, Spring	Parallel and Distributed Real-Time Systems	Jan Jonsson	CTH	5	8	8	8	
	Embedded Control Systems	Karl-Erik Årzén	LU	5	6	6	6	
	Formal Modelling and Analysis of Real-Time Systems	Paul Pettersson and Wang Yi	UU	5	10	8	9	
2006, Autumn	Real-Time Communication	Magnus Jonsson	HH	5	6	6	4	
	Distributed Real-Time and Database Systems	Sten F. Andler	HS	5	9	8	7	Yes
	Design of Embedded Real-Time Systems	Martin Törngren	KTH	5	20	19	14	Yes
2007, Spring	Modelling, Specification, and Verification of Distributed Systems	Bengt Jonsson	UU	5	8	7	4	Yes
	Systems Thinking and its Application	Harold "Bud" Lawson	HS	5	14	14	4	
	Cooperating Embedded Systems	Tony Larsson	HH	5	10	9	5	Yes
	Advanced Component-Based Software Engineering	Ivica Crnkovic	MDH	5	2	2	2	
2007, Autumn	Research Planning	Hans Hansson	MDH	3	7	3	4	
	Communicating Popular Science	Lena Johansson Westholm	MDH	2	5	5	4	
	Research Methodology for Computer Science and Engineering	Gordana Dodig-Crnkovic and Jan Gustafsson	MDH	5	8	8	8	
SUM=	**42 course occasions**			**179**	**508**	**397**	**292**	**20**

A.7 ARTES Real-Time Doctors

A Real-time Doctor was Real-time graduate student i.e. a PhD or licentiate student at a Swedish university which has applied to and been accepted by ARTES. The thesis subject of a Real-time doctor is typically computer science, computer engineering, computer systems, industrial control systems, mechatronics, or automatic control and the thesis topic has been assessed by ARTES to have a strong connection to the real-time area. Not all "ARTES Real-Time Doctors" did receive direct funding. However all had the opportunity to participate in the network activities and to apply for mobility and other support. Most students had more than one supervisor, however here is only the name of the main supervisor given. There have been three ARTES sub-programmes: **ARTES** research programme 1998-2003, **PAMP** research programme 1998-2003, **ARTES++** graduate school gave mobility support during the initial years to graduate students.

Description of ARTES RT Graduate Student

An ARTES Real-time graduate student was a PhD or licenciate student at a Swedish university which has applied to and been accepted by ARTES. The thesis subject of a Real-time graduate student was typically computer science, computer engineering, computer systems, industrial control systems, mechatronics, or automatic control and the thesis topic has been assessed by ARTES to have a strong connection to the real-time area. It was also expected that a Real-time graduate students shall be well motivated to work in cooperation with industry during the education and have an ambition to work in industry after the education.

Benefits

A Real-time graduate student had the possibility to be financially supported by ARTES by for travel and other purposes. He or she also had priority admittance to ARTES-courses and other common activities within ARTES. Thirdly, by being a Real-time graduate student, special supervision support could be arranged in an interdiciplinary way using the ARTES network. The ARTES network also gave excellent opportunities for personal contacts with representatives from industry, possibly leading to concrete cooperations and employment after graduation. Most students had more than one supervisor, however here is only the name of the main supervisor given. After completion of the licenciate or PhD exam, the ARTES network give excellent opportunities for personal contacts and employment.

Requirements

A Real-time graduate student was expected to participate in common activities for dissemination and exploitation of research results. He or she should contribute generally to ARTES activities, e.g. by making reports available in www and by actively participating in ARTES events. It was also expected that presentations of the research results gave appropriate visibility for and to the real-time community and ARTES.

Organisational

Acceptance to be a Real-time graduate student was only possible if the candidate already was admitted to a local licenciate or PhD programme at a Swedish university. Applications to and possible exclusions from being a Real-time graduate student within ARTES were handled by the ARTES programme director.

List of RT Doctors

Joakim Aidemark

Year of birth: 1965, *Gender:* M.
Undergraduate degree from: Halmstad University

ARTES Project: Node-level Fault Tolerance for Fixed Priority Scheduling
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2001, On the Design and Validation of Dependable Real-Time Systems
PhD: 2004, Node-level Fault Tolerance for Fixed Priority Scheduling
Supervisor: Johan Karlsson
Employer: Volvo Personvagnar
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 2 151 830 SEK

Mehdi Amirijoo
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Linköping University
University: Linköping University, Computer and Information Science
PhD: 2007, QoS Control of Real-Time Data Services under Uncertain Workload
Supervisor: Jörgen Hansson
Employer: Ericsson Research, Linköping
Amount of direct funding from SSF via ARTES: 0 SEK

Björn Andersson
Year of birth: 1974, *Gender:* M.
ARTES Project: Design Strategies for Real-Time High-Performance Multimedia Applications on Multiprocessors
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2001, Insights on Non-Partitioned Fixed-Priority Preemptive Scheduling
PhD: 2003, Static-priority scheduling on multiprocessors
Supervisor: Per Stenström
Employer: Researcher in Porto Portugal
ARTES programme: **PAMP**
Amount of direct funding from SSF via ARTES: 2 090 000 SEK

Per Andersson
Year of birth: 1973, *Gender:* M.
Undergraduate degree from: Luleå University of Technology
University: Lund University, Computer Science
PhD: 2005, Efficient Modelling and Synthesis of Data Intensive Reconfigurable Systems
Supervisor: Krzysztof Kuchcinski
Amount of direct funding from SSF via ARTES: 0 SEK

Alexandru Andrei
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: "Politechnica" University, Timisoara, Romania
University: Linköping University, Computer and Information Science
PhD: 2007, Energy Efficient and Predictable Design of Real-Time Embedded Systems
Supervisor: Petru Eles
Employer: Linköping University
Amount of direct funding from SSF via ARTES: 0 SEK

Örjan Askerdal
Year of birth: 1973, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2000, Design and Evaluation Techniques for Detection and Coverage Estimation of Low-Level Errors
PhD: 2003, On Impact and Tolerance of Data Errors with Varied Duration in

Microprocessors
Supervisor: Jan Torin
Amount of direct funding from SSF via ARTES: 22 000 SEK

Ulf Assarsson
Year of birth: 1972, *Gender:* M.
ARTES Project: Design Strategies for Real-Time High-Performance Multimedia Applications on Multiprocessors
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2001, View Frustrum Culling and Animated Ray Tracing: Improvements and methodological Considerations
PhD: 2003, A Real-Time Soft Shadow Volume Algorithm
Supervisor: Per Stenström
Employer: Chalmers University of Technology
***ARTES programme:* PAMP**
Amount of direct funding from SSF via ARTES: 520 000 SEK

Johan Bengtsson
Year of birth: 1971, *Gender:* M.
University: Uppsala University, Information Technology
Licentiate: 2001, Efficient Symbolic State Exploration of Timed Systems: Theory and Implementation
PhD: 2002, Clocks, DBMs and States in Timed Systems
Supervisor: Wang Yi
Amount of direct funding from SSF via ARTES: 0 SEK

Magnus Broberg
Year of birth: 1972, *Gender:* M.
Undergraduate degree from: Blekinge Institute of Technology
ARTES Project: Design Guidelines and Visualization Support for Developing Parallel Real-Time Applications
University: Blekinge Institute of Technology, School of Engineering
Licentiate: 1999, An Approach for Performance Tuning of Multithreaded Applications on Multiprocessors
PhD: 2002, Performance Prediction and Improvement Techniques for Parallel Programs in Multiprocessors
Supervisor: Per Stenström
Employer: Ericsson AB
***ARTES programme:* PAMP**
Amount of direct funding from SSF via ARTES: 1 858 000 SEK

Jan Carlson
Year of birth: 1976, *Gender:* M.
Undergraduate degree from: Linköping University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2004
PhD: 2007, Event Pattern Detection for Embedded Systems
Supervisor: Björn Lisper
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 10 000 SEK

Anton Cervin
Year of birth: 1973, *Gender:* M.
Undergraduate degree from: Lund University

ARTES Project: Integrated Control and Scheduling
University: Lund University, Automatic Control
Licentiate: 2000, Towards the Integration of Control and Real-Time Scheduling Design
PhD: 2003, Integrated Control and Real-Time Scheduling
Supervisor: Karl-Erik Årzén
Employer: Lund University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 2 368 500 SEK

De Jiu Chen

Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Royal Institute of Technology
ARTES Project: Real-time software for versatility, scalability and reconfigusability in complex embedded feedback control systems
University: Royal Institute of Technology, School of Industrial Engineering and Management
Licentiate: 2001, Architecture for Systematic Development of Mechatronics Software Systems
PhD: 2004, Systems Modeling and Modularity Assessment for Embedded Computer Control Applications
Supervisor: Martin Törngren
Employer: Royal Institute of Technology, Enea Services Stockholm AB
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 2 344 000 SEK

Vilgot Claesson

Year of birth: 1968, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 1999, Cost Effective Communication Services for Applications in Distributed Time Triggered Real-Time Systems
PhD: 2002, Efficient and Reliable Communication in Distributed Embedded Systems
Supervisor: Jan Torin
Amount of direct funding from SSF via ARTES: 24 500 SEK

Luis Alejandro Cortés

Year of birth: 1972, *Gender:* M.
Undergraduate degree from: Univeristy of Los Andes, Bogota, Colombia
University: Linköping University, Computer and Information Science
Licentiate: 2001
PhD: 2005, Verification and scheduling techniques for real-time embedded systems
Supervisor: Zebo Peng
Amount of direct funding from SSF via ARTES: 0 SEK

Calin Curescu

Year of birth: 1975, *Gender:* M.
Undergraduate degree from: "Politechnica" University, Timisoara, Romania
University: Linköping University, Computer and Information Science
Licentiate: 2003, Adaptive QoS-aware Resource Allocation for Wireless Networks
PhD: 2005, Utility-based optimisation of resource allocation for wireless networks
Supervisor: Simin Nadjm-Tehrani
Employer: Ericsson, Stockholm
Amount of direct funding from SSF via ARTES: 6 000 SEK

Alexandre David

Year of birth: 1974, *Gender:* M.
ARTES Project: Hierarchical Design and Analysis of Timed Systems
University: Uppsala University, Information Technology
Licentiate: 2001, Practical Verification of Real-time Systems
PhD: 2003, Hierarchical Modeling and Analysis of Real Time Systems
Supervisor: Wang Yi
Employer: Researcher Århus University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 2 140 000 SEK

Radu Dobrin

Year of birth: 1970, *Gender:* M.
Undergraduate degree from: Mälardalen University
ARTES Project: Extension of Project "Flexible Reliable Timing Constraints"
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2003, Transformation Methods for Off-line Schedules to Attributes for Fixed Priority Scheduling
PhD: 2005, Combining Off-line Schedule Construction and Fixed Priority Scheduling in Real-Time Computer Systems
Supervisor: Gerhard Fohler
Employer: Mälardalen University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 210 000 SEK

Julien d'Orso

Year of birth: 1975, *Gender:* M.
ARTES Project: New directions in Symbolic Model Checkning for Real-Time Systems
University: Uppsala University, Information Technology
PhD: 2003, New Directions in Symbolic Model Checking
Supervisor: Parosh Abdulla
Employer: University of Paris 7, France
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 880 000 SEK

Daniel Einarsson

Year of birth: 1960, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Computer Science
PhD: 2002, Hierarchical concurrent systems from a model-oriented perspective
Supervisor: Klas Nilsson
Amount of direct funding from SSF via ARTES: 0 SEK

Cecilia Ekelin

Year of birth: 1973, *Gender:* F.
Undergraduate degree from: Uppsala University
ARTES Project: Identification of Complexity-Reduction Techniques for Optimal Scheduling in Embedded Distributed Real-Time Systems
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2001, Scheduling of Embedded Real-Time Systems: A Constraint Programming Approach
PhD: 2004, An Optimization Framework for Scheduling of Embedded Real-Time Systems
Supervisor: Jan Jonsson
Employer: Volvo Technology

ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 2 277 000 SEK

Johan Eker
Year of birth: 1967, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Automatic Control
PhD: 1999, Flexible Embedded Control Systems - Design and Implementation
Supervisor: Karl-Erik Årzén
Amount of direct funding from SSF via ARTES: 40 000 SEK

Magnus Ekman
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
ARTES Project: Support for Real-Time 3-D Graphics on Future Mobile Terminals under Energy/Area Constraints
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2003, Performance and Energy Aware Design Trade-Offs in Chip-Multiprocessors
PhD: 2004, Strategies to Reduce Energy and Resources in Chip Multiprocessor Systems
Supervisor: Per Stenström
Employer: Sun Microsystems
ARTES programme: **Pamp**
Amount of direct funding from SSF via ARTES: 1 442 000 SEK

Torbjörn Ekman
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Computer Science
PhD: 2006, Extensible Compiler Construction
Supervisor: Boris Magnusson
Amount of direct funding from SSF via ARTES: 948 SEK

Jad El-Khoury
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: University of Sydney
ARTES Project: Automatic Control in Distributed Applications (AIDA 2)
University: Royal Institute of Technology, School of Industrial Engineering and Management
PhD: 2006, A Model Management and Integration Platform for Mechatronics Product Development
Supervisor: Martin Törngren
Employer: Tonium AB
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 660 000 SEK

Jakob Engblom
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
PhD: 2002, Processor Pipelines and Static Worst-Case Execution Time Analysis
Supervisor: Bengt Jonsson
Employer: Virtutech AB
Amount of direct funding from SSF via ARTES: 20 948 SEK

Andreas Ermedahl
Year of birth: 1971, *Gender:* M.

Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
PhD: 2003, A Modular Tool Architecture for Worst-Case Execution Time Analysis
Supervisor: Hans Hansson
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 60 948 SEK

Esa Falkenroth

Year of birth: 1964, *Gender:* M.
Undergraduate degree from: Royal Institute of Technology
University: Linköping University, Computer and Information Science
PhD: 2000, Database Technology for Control and Simulation
Supervisor: Anders Törne
Employer: Swedish Meteorological and Hydrological Institute, SMHI, Norrköping
Amount of direct funding from SSF via ARTES: 0 SEK

Xing Fan

Year of birth: 1975, *Gender:* F.
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Licentiate: 2004, Real-time communication services for distributed computing over switched Ethernet
PhD: 2007, Real-Time Services in Packet-Switched Networks for Embedded Applications
Supervisor: Magnus Jonsson
Amount of direct funding from SSF via ARTES: 0 SEK

Robert Feldt

Year of birth: 1972, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 1998, Using Genetic Programming to Systematically Force Software Diversity
PhD: 2002, Biomimetic Software Engineering Techniques for Dependability
Supervisor: Jan Torin
Amount of direct funding from SSF via ARTES: 0 SEK

Elena Fersman

Year of birth: 1978, *Gender:* F.
Undergraduate degree from: St Peterburg State Technical University
University: Uppsala University, Information Technology
PhD: 2003, A Generic Approach to Schedulability Analysis of Real-Time Systems
Supervisor: Wang Yi
Employer: Ericsson AB
Amount of direct funding from SSF via ARTES: 20 000 SEK

Peter Folkesson

Year of birth: 1968, *Gender:* M.
University: Chalmers University of Technology, Computer Science and Engineering
PhD: 1999, Assessment and Comparison of Physical Fault Injection Techniques
Supervisor: Johan Karlsson
Amount of direct funding from SSF via ARTES: 0 SEK

Kristina Forsberg

Year of birth: 1965, *Gender:* F.
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2000, On Conceptual Design of By-Wire Systems

PhD: 2003, Design Principles of Fly-By-Wire Architectures
Supervisor: Jan Torin
Employer: Saab Avitronics
Amount of direct funding from SSF via ARTES: 2 000 SEK

Joakim Fröberg
Year of birth: 1970, *Gender:* M.
Undergraduate degree from: University of Salford
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2004, Engineering of Vehicle Electronic Systems: Business Requirements Reflected in Architecture
PhD: 2007, Engineering Automotive Electronic Systems: Decision Support for Successful Integration
Supervisor: Christer Norström
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 0 SEK

Sven Gestegård Robertz
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Lund University
ARTES Project: Integrated Control and Scheduling
University: Lund University, Computer Science
Licentiate: 2003, Flexible automatic memory management for real-time and embedded systems
PhD: 2006, Automatic memory management for flexible real-time systems
Supervisor: Boris Magnusson
Employer: Lund University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 212 000 SEK

Johan Glimming
Year of birth: 1976, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Royal Institute of Technology, School of Computer Science and Communication
Licentiate: 2005, Dialgebraic Semantics of Typed Object Calculi
PhD: 2007, Primitive Direcursion and Difunctorial Semantics of Typed Object Calculus
Supervisor: Paul Johannesson
Amount of direct funding from SSF via ARTES: 0 SEK

Mats Grindal
Year of birth: 1966, *Gender:* M.
Undergraduate degree from: Royal Institute of Technology
University: University of Skövde, School of Humanities and Informatics
PhD: 2007, Handling Combinatorial Explosion in Software Testing
Supervisor: Sten F. Andler
Employer: Enea Stockholm Services AB
Amount of direct funding from SSF via ARTES: 3 865 SEK

Olga Grinchtein
Year of birth: 1977, *Gender:* F.
Undergraduate degree from: Weizmann Institute of Science, Israel
University: Uppsala University, Information Technology
PhD: 2008, Learning of Timed Systems
Supervisor: Bengt Jonsson

ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 63 500 SEK

Flavius Gruian
Year of birth: 1972, *Gender:* M.
ARTES Project: Distributed Real-Time Systems with Minimal Energy Consumption: Analysis and Synthesis
University: Lund University, Computer Science
PhD: 2002, Energy-Centric Scheduling for Real-Time Systems
Supervisor: Krzysztof Kuchcinski
Employer: Lund University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 250 000 SEK

Magnus Gäfvert
Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Automatic Control
PhD: 2003, Topics in Modeling, Control, and Implementation in Automotive Systems
Supervisor: Björn Wittenmark
Amount of direct funding from SSF via ARTES: 0 SEK

Jörgen Hansson
Year of birth: 1970, *Gender:* M.
Undergraduate degree from: University of Skövde
University: University of Skövde, School of Humanities and Informatics
PhD: 1999, Value-Driven Multi-Class Overload Management in Real-Time Database Systems
Supervisor: www.ida.liu.se/ Sten
Employer: CMU Software Engineering Institute
Amount of direct funding from SSF via ARTES: 0 SEK

Dan Henriksson
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Automatic Control
PhD: 2006, Resource-Constrained Embedded Control and Computing Systems
Supervisor: Karl-Erik Årzén
Amount of direct funding from SSF via ARTES: 50 000 SEK

Erik Herzog
Year of birth: 1968, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Linköping University, Computer and Information Science
PhD: 2004, An Approach to Systems Engineering Tool Data Representation and Exchange
Supervisor: Anders Törne
Employer: Saab Aerosystems, Linköping
Amount of direct funding from SSF via ARTES: 0 SEK

Anders Hessel
Year of birth: 1968, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
Licentiate: 2006, Model-based Test-Case Selection and Generation for Real-Time Systems
PhD: 2007, Model-Based Test Case Generation for Real-Time Systems

Supervisor: Paul Pettersson
Employer: Ericsson AB
Amount of direct funding from SSF via ARTES: 21 500 SEK

Martin Hiller
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 1998, Using Software to Handle Data Errors in Embedded Control Systems
PhD: 2002, A Software Profiling Methodology for Design and Assessment of Dependable Software
Supervisor: Jan Torin
Amount of direct funding from SSF via ARTES: 22 000 SEK

Hoai Hoang
Year of birth: 1976, *Gender:* F.
Undergraduate degree from: Hanoi Univ of technology
ARTES Project: Switched Real-Time Communication for Industrial Applications
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Licentiate: 2003, Switched Real-Time Ethernet for Industrial Applications
PhD: 2007, Enhancing the performance of Distributed Real-time Systems
Supervisor: Magnus Jonsson
Employer: Halmstad University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 215 000 SEK

Joel Huselius
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2003, Preparing for Replay
PhD: 2007, Reverse Engineering of Legacy Real-time Systems: An Automated approach based on Execution-time Recording
Supervisor: Hans Hansson
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 0 SEK

Daniel Häggander
Year of birth: 1971, *Gender:* M.
ARTES Project: Design Guidelines and Visualization Support for Developing Parallel Real-Time Applications
University: Blekinge Institute of Technology, School of Engineering
Licentiate: 1999, Software Design When Migrating to Multiprocessors
PhD: 2001, Software Design Conflicts, Maintainability versus Performance and Availability
Supervisor: http://www.ipd.hk-r.se/ Lars
Employer: Häggander, Liden & Lundberg KB, Blekinge Institute of Technology
ARTES programme: **PAMP**
Amount of direct funding from SSF via ARTES: 1 263 000 SEK

Kaj Hänninen
Year of birth: 1970, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering

Licentiate: 2006, Introducing a Memory Efficient Execution Model in a Tool-Suite for Real-Time Systems
PhD: 2008, Efficient Memory Utilization in Resource Constrained Real-Time Systems
Supervisor: Mikael Nolin
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 65 479 SEK

Damir Isovic
Year of birth: 1974, *Gender:* M.
ARTES Project: Flexible reliable timing constraints
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2001, Handling Sporadic Tasks in Real-time Systems - Combined Offline and Online Approach
PhD: 2004, Flexible Scheduling for Media Processing in Resource Constrained Real-Time Systems
Supervisor: Gerhard Fohler
Employer: Mälardalen University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 622 000 SEK

Anders Ive
Year of birth: 1972, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Computer Science
PhD: 2003, Towards an embedded real-time Java virtual machine
Supervisor: Boris Magnusson
Amount of direct funding from SSF via ARTES: 0 SEK

Gert Jervan
Year of birth: 1974, *Gender:* M.
University: Linköping University, Computer and Information Science
PhD: 2005, Hybrid Built-In Self-Test and Test Generation Techniques for Digital Systems
Supervisor: Zebo Peng
Amount of direct funding from SSF via ARTES: 0 SEK

Per Johannessen
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Georgia Tech, USA, and Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2001, Design Methods for Safety Critical Automotive Architectures
PhD: 2004, On the Design of Electrical Architectures for Safety-Critical Automotive Systems
Supervisor: Jan Torin
Amount of direct funding from SSF via ARTES: 4 000 SEK

Erik Johansson
Year of birth: 1967, *Gender:* M.
Undergraduate degree from: Royal Institute of Technology
University: Royal Institute of Technology, School of Electrical Engineering
Licentiate: 1996
PhD: 2005, Assessment of Enterprise Information Security: - How to make it Credible and Efficient
Supervisor: Torsten Cegrell
Amount of direct funding from SSF via ARTES: 0 SEK

Andreas Johnsson

Year of birth: 1977, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Mälardalen University, School of Innovation, Design and Engineering
, Bandwidth Measurements in Wired and Wireless Networks
PhD: 2007, Modeling, Implementation and Evaluation of IP Network Bandwidth Measurement Methods
Supervisor: Mats Björkman
Employer: Mälardalen University
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 41 959 SEK

Charlotta Johnsson
Year of birth: 1970, *Gender:* F.
University: Lund University, Automatic Control
PhD: 1999, A Graphical Language for Batch Control
Supervisor: Karl-Erik Årzén
Employer: Lund University
Amount of direct funding from SSF via ARTES: 0 SEK

Magnus Karlsson
Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Lund University
University: Chalmers University of Technology, Computer Science and Engineering
PhD: 1999, Data Prefetching Techniques Targeting Single and a Network of Processing Nodes
Supervisor: Per Stenström
Amount of direct funding from SSF via ARTES: 0 SEK

Martin Karlsson
Year of birth: 1977, *Gender:* M.
ARTES Project: Categorized and Specialized Caching for SMPs
University: Uppsala University, Information Technology
Licentiate: 2003, Cache Memory Design Trade-offs for Current and Emerging Workloads
PhD: 2006, Memory System Design for Chip-Multiprocessors
Supervisor: Erik Hagersten
Employer: Sun Microsystems
ARTES programme: **PAMP**
Amount of direct funding from SSF via ARTES: 1 226 500 SEK

Björn Knutsson
Year of birth: 1969, *Gender:* M.
University: Uppsala University, Information Technology
PhD: 2001, Architectures for application transparent proxies: A study of network enhancing software
Supervisor: Per Gunningberg
Amount of direct funding from SSF via ARTES: 0 SEK

Rikard Land
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2003
PhD: 2006, Software Systems In-House Integration: Observations and Guidelines concerning Architecture and Process

Supervisor: Ivica Crnkovic
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 0 SEK

Magnus Larsson
Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2000, Applying Configuration Management Techniques to Component-Based Systems
PhD: 2004, Predicting Quality Attributes in Component-based Software Systems
Supervisor: Ivica Crnkovic
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 30 000 SEK

Tomas Lennvall
Year of birth: 1974, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2003, Handling Aperiodic Tasks and Overload in Distributed Off-line Scheduled Real-Time Systems
PhD: 2005, Adapting to Varying Demands in Resource Constrained Real-Time Devices
Supervisor: Gerhard Fohler
Amount of direct funding from SSF via ARTES: 30 000 SEK

Man Lin
Year of birth: 1971, *Gender:* F.
Undergraduate degree from: Tsinghua University, P.R. China
University: Linköping University, Computer and Information Science
Licentiate: 1997, Formal Analysis of Reactive Rule-Based Programs
PhD: 2000, Analysis and synthesis of Reactive Systems: A Generic Layered Architecture Perspective
Supervisor: www.ida.liu.se/ Jacek
Amount of direct funding from SSF via ARTES: 10 000 SEK

Bo Lincoln
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Linköping University
University: Lund University, Automatic Control
PhD: 2003, Dynamic Programming and Time-Varying Delay Systems
Supervisor: Bo Bernhardsson
Amount of direct funding from SSF via ARTES: 20 000 SEK

Kristina Lundqvist
Year of birth: 1967, *Gender:* F.
Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
PhD: 2000, Distributed Computing and Safety Critical Systems in Ada
Supervisor: Lars Asplund
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 20 000 SEK

Thomas Lundqvist
Year of birth: 1967, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology

University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 1999, A Static Timing Analysis Method for Programs on High-Performance Processors
PhD: 2002, A WCET Analysis Method for Pipelined Microprocessors with Cache Memories
Supervisor: Per Stenström
Amount of direct funding from SSF via ARTES: 10 000 SEK

Frank Lüders
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Høgskolen i Vestfold, Norge and Danmarks Tekniske Universitet
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2003
PhD: 2006, An Evolutionary Approach to Software Components in Embedded Real-Time Systems
Supervisor: Ivica Crnkovic
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 10 000 SEK

Henrik Lönn
Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
PhD: 1999, Synchronization and Communication Results in Safety-Critical Real-Time Systems
Supervisor: Jan Torin
Employer: Volvo Technology
Amount of direct funding from SSF via ARTES: 0 SEK

Sorin Manolache
Year of birth: 1976, *Gender:* M.
ARTES Project: Design of Heterogeneous Multiprocessor Systems for Real-Time Applications
University: Linköping University, Computer and Information Science
Licentiate: 2002, Schedulability Analysis of Real-Time Systems with Stochastic Task Execution Times
PhD: 2005, Analysis and Optimisation of Real-Time Systems with Stochastic Behaviour
Supervisor: Petru Eles
Employer: Fortinet Technologies
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 805 000 SEK

Jonas Mellin
Year of birth: 1965, *Gender:* M.
Undergraduate degree from: University of Exeter, UK
University: University of Skövde, School of Humanities and Informatics
Licentiate: 1998, Predictable event monitoring.
PhD: 2004, Resource-Predictable and Efficient Monitoring of Events
Supervisor: Sten F. Andler
Employer: University of Skövde
Amount of direct funding from SSF via ARTES: 10 000 SEK

Jukka Mäki-Turja
Year of birth: 1967, *Gender:* M.

Undergraduate degree from: Mälardalen University
ARTES Project: Incremental Iterative Static Scheduling
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 1997
PhD: 2005, Engineering Strength Response-Time Analysis --- A Timing Analysis Approach for the Development of Real-Time Systems
Employer: Mälardalen University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 835 000 SEK

Anders Nilsson
Year of birth: 1969, *Gender:* M.
University: Lund University, Computer Science
PhD: 2006, Tailoring native compilation of Java for real-time systems
Supervisor: Klas Nilsson
Employer: Lund University
Amount of direct funding from SSF via ARTES: 0 SEK

Jim Nilsson
Year of birth: 1972, *Gender:* M.
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 1999, Reducing Ownership Overhead in Transaction Processing Multiprocessor Servers
PhD: 2004, Towards Accurate and Resource-Efficient Cache Coherence Prediction
Supervisor: Per Stenström
Amount of direct funding from SSF via ARTES: 0 SEK

Marcus Nilsson
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
Licentiate: 2000, Regular model checking
PhD: 2005, Regular Model Checking
Supervisor: Bengt Jonsson
Amount of direct funding from SSF via ARTES: 10 000 SEK

Robert Nilsson
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: University of Skövde
ARTES Project: TETReS: Testing of Event-Triggered Real-Time Systems
University: University of Skövde, School of Humanities and Informatics
PhD: 2006, A Mutation-based Framework for Automated Testing of Timeliness
Supervisor: Sten F. Andler
Employer: Google, Zürich
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 450 000 SEK

Mikael Nolin
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
PhD: 2000, Predictable High-Speed Communications for Distributed Real-Time Systems
Supervisor: Hans Hansson
Employer: Mälardalen University

Amount of direct funding from SSF via ARTES: 10 000 SEK

Thomas Nolte

Year of birth: 1977, *Gender:* M.
ARTES Project: RATAD, Reliability And Timing Analysis of Distributed systems
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2003, Reducing Pessimism and Increasing Flexibility in the Controller Area Network.
PhD: 2006, Share-Driven Scheduling of Embedded Networks
Supervisor: Hans Hansson
Employer: Mälardalen University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 250 000 SEK

Dag Nyström

Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Mälardalen University
ARTES Project: Embedded Databases for Embedded Real-Time Systems
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2003, COMET: A Component-Based Real-Time Database for Vehicle Control-Systems.
PhD: 2005, Data Management in Vehicle Control-Systems
Supervisor: Christer Norström
Employer: Mälardalen University, Mimer Information Technology
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 201 600 SEK

Anders Orebäck

Year of birth: 1966, *Gender:* M.
Undergraduate degree from: Royal Institute of Technology
University: Royal Institute of Technology, Centre for Autonomous Systems
PhD: 2004, A Component Framework for Autonomous Mobile Robots
Supervisor: Henrik Christensen
Amount of direct funding from SSF via ARTES: 4 000 SEK

Asmus Pandikow

Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Fachhochschule Darmstadt, Germany
University: Linköping University, Computer and Information Science
PhD: 2003, A Generic Principle for Enabling Interoperability of Structured and Object-Oriented Analysis and Design Tools
Supervisor: Anders Törne
Employer: Syntell AB, Stockholm
Amount of direct funding from SSF via ARTES: 10 000 SEK

Paul Pettersson

Year of birth: 1967, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
PhD: 1999, Modelling and Verification of Real-Time Systems Using Timed Automata: Theory and Practice
Supervisor: Wang Yi
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 10 000 SEK

Paul Pop

Year of birth: 1974, *Gender:* M.
Undergraduate degree from: "Politechnica" University, Timisoara, Romania
ARTES Project: Hardware-Software Co-Design of Real-Time Systems
University: Linköping University, Computer and Information Science
Licentiate: 1998, Scheduling and Communication Synthesis for Distributed Real-Time Systems
PhD: 2003, Analysis and Synthesis of Communication-Intensive Heterogeneous Real-Time Systems.
Supervisor: Zebo Peng
Employer: Dept. of Informatics and Mathematical Modelling, Technical University of Denmark
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 2 293 000 SEK

Traian Pop

Year of birth: 1975, *Gender:* M.
Undergraduate degree from: "Politechnica" University, Timisoara, Romania
University: Linköping University, Computer and Information Science
Licentiate: 2003
PhD: 2007, Analysis and Optimisation of Distributed Embedded Systems with Heterogeneous Scheduling Policies
Supervisor: Petru Eles
Employer: Linköping University
Amount of direct funding from SSF via ARTES: 0 SEK

Ola Redell

Year of birth: 1970, *Gender:* M.
Undergraduate degree from: Uppsala University
ARTES Project: Pre-Implementation Analysis of Distributed Control Systems - PICADOR
University: Royal Institute of Technology, School of Industrial Engineering and Management
Licentiate: 1998, Modelling of Distributed Real-Time Control Systems - An Approach for Design and Early Analysis
PhD: 2003, Response Time Analysis for Implementation of Distributed Control Systems
Supervisor: Martin Törngren
Employer: Enea Software AB
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 240 000 SEK

Kristian Sandström

Year of birth: 1970, *Gender:* M.
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 1999, Modeling and Scheduling of Control Systems
PhD: 2002, Enforcing Temporal Constraints in Embedded Control Systems
Supervisor: Christer Norström
Employer: Mälardalen University
Amount of direct funding from SSF via ARTES: 0 SEK

Martin Sanfridson

Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Lund University
University: Royal Institute of Technology, School of Industrial Engineering and Management
Licentiate: 2000, Timing problems in distributed control

PhD: 2004, Quality of Control and Real-time Scheduling - Allowing for time-variations in computer control systems
Supervisor: Martin Törngren
Amount of direct funding from SSF via ARTES: 40 000 SEK

Paul Scerri
Year of birth: 1974, *Gender:* M.
Undergraduate degree from: Hons
ARTES Project: Real-Time Responce and Control of Autonomous Agents
University: Linköping University, Computer and Information Science
PhD: 2001, Designing Agents for Systems with Adjustable Autonomy
Supervisor: Anders Törne
Employer: Robotics Institute, Carnegie Mellon University, Pittsburg
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 620 000 SEK

Håkan Sivencrona
Year of birth: 1968, *Gender:* M.
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2001, On Analysis and Design of Dependable Distributed Systems
PhD: 2004, On the Design and Validation of Fault Containment Regions in Distributed Communication Systems
Supervisor: Jan Torin
Amount of direct funding from SSF via ARTES: 30 000 SEK

Håkan Sundell
Year of birth: 1968, *Gender:* M.
ARTES Project: Applications of wait/lock-free protocols to real-time systems
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2002, Applications of Non-Blocking Data Structures to Real-Time Systems
PhD: 2004, Efficient and Practical Non-Blocking Data Structures
Supervisor: Philippas Tsigas
Employer: Borås University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 861 948 SEK

Daniel Sundmark
, *Gender:* M.
University: Mälardalen University, School of Innovation, Design and Engineering
PhD: 2008, Structural System-Level Testing of Embedded Real-Time Systems
Supervisor: Henrik Thane
Amount of direct funding from SSF via ARTES: 10 000 SEK

Sanny Syberfeldt
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: University of Skövde
University: University of Skövde, School of Humanities and Informatics
PhD: 2007, Optimistic Replication with Forward Conflict Resolution in Distributed Real-Time Databases
Supervisor: Sten F. Andler
Employer: University of Skövde
Amount of direct funding from SSF via ARTES: 0 SEK

Diana Szentivanyi
Year of birth: 1973, *Gender:* F.

Undergraduate degree from: "Politechnica" University, Timisoara, Romania
University: Linköping University, Computer and Information Science
Licentiate: 2002, Performance and Availability Trade-offs in Fault-Tolerant Middleware
PhD: 2005, Performance Studies of Fault-tolerant Middelware
Supervisor: Simin Nadjm-Tehrani
Employer: Ericsson Radio Systems, Linköping
Amount of direct funding from SSF via ARTES: 15 600 SEK

Radoslaw Szymanek
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Technical University of Gdansk, Poland
University: Lund University, Computer Science
PhD: 2004, Constraint-Driven Design Space Exploration for Memory-Dominated Embedded Systems
Supervisor: Krzysztof Kuchcinski
Amount of direct funding from SSF via ARTES: 10 000 SEK

Alexandra Tesanovic
Year of birth: 1976, *Gender:* F.
Undergraduate degree from: Univ of Banjaluka
ARTES Project: Embedded Databases for Embedded Real-Time Systems
University: Linköping University, Computer and Information Science
Licentiate: 2003, Towards Aspectual Component-Based Real-Time System Development
PhD: 2006, Developing Reusable and Reconfigurable Real-Time Software using Aspects and Components
Supervisor: Jörgen Hansson
Employer: Philips Research i Eindhoven, The Netherlands
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 211 500 SEK

Henrik Thane
Year of birth: 1970, *Gender:* M.
Undergraduate degree from: Uppsala University
ARTES Project: TATOO Test And Testability Of Distributed Real-time Systems
University: Mälardalen University, School of Innovation, Design and Engineering
PhD: 2000, Monitoring, Testing and Debugging of Distributed Real-Time Systems
Supervisor: Hans Hansson
Employer: Managing director at Zealcore AB and researcher at Mälardalen University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 839 500 SEK

Elisabeth Uhlemann
Year of birth: 1971, *Gender:* F.
Undergraduate degree from: Halmstad University
ARTES Project: Real-time Mobile Communication
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Licentiate: 2001, Hybrid ARQ Using Serially Concatenated Block Codes for Real-Time Communication - An Iterative Decoding Approach
PhD: 2004, Adaptive Concatenated Coding for Wireless Real-Time Communications
Supervisor: Per-Arne Wiberg
Employer: Halmstad University and Volvo Technology
ARTES programme: **ARTES**

Amount of direct funding from SSF via ARTES: 1 970 000 SEK

Anders Wall

Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Uppsala University
ARTES Project: A tool environment for the development of embedded systems
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2000, A Formal Approach to the Analysis of Software Architechtures for Real Time Systems
PhD: 2003, Architectural Modeling and Analysis of Complex Real-Time Systems
Supervisor: Wang Yi
Employer: ABB CRC, Mälardalen University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 2 090 000 SEK

Fredrik Warg

Year of birth: 1974, *Gender:* M.
Undergraduate degree from: Luleå University of Technology
ARTES Project: Techniques for Module-Level Speculative Parallelization on Shared-Memory Multiprocessors
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2003, Module-Level Speculative Execution Techniques on Chip Multiprocessors
PhD: 2006, Techniques to Reduce Thread-Level Speculation Overhead
Supervisor: Per Stenström
Employer: Nema Labs AB
ARTES programme: **Pamp**
Amount of direct funding from SSF via ARTES: 602 000 SEK

Xavier Vera

Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Universitat Politechnica de Catalunya (UPC)
University: Mälardalen University, School of Innovation, Design and Engineering
PhD: 2004, Cache and Compiler Interaction (how to analyze, optimize and time cache behavior)
Supervisor: Björn Lisper
Employer: Motorola Research, Barcelona
Amount of direct funding from SSF via ARTES: 40 000 SEK

Jonny Vinter

Year of birth: 1963, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2001, Software-Implemented Error Detection and Recovery for Control Applications
PhD: 2005, On the Effects of Soft Errors in Embedded Control Systems
Supervisor: Johan Karlsson
Amount of direct funding from SSF via ARTES: 12 000 SEK

Thiemo Voigt

Year of birth: 1970, *Gender:* M.
Undergraduate degree from: Universität Stuttgart
ARTES Project: Predictable Parallel Protocol Processing
University: Uppsala University, Information Technology
PhD: 2002, Architectures for Service Differentiation in Overloaded Internet Servers

Supervisor: Per Gunningberg
Employer: Swedish Institute of Computer Science
ARTES programme: **PAMP**
Amount of direct funding from SSF via ARTES: 1 220 000 SEK

Håkan Zeffer
Year of birth: 1976, *Gender:* M.
Undergraduate degree from: Royal Institute of Technology
University: Uppsala University, Information Technology
Licentiate: 2005, Hardware-Software Tradeoffs in Shared-Memory Implementations
PhD: 2006, Towards Low-Complexity Scalable Shared-Memory Architectures
Supervisor: Erik Hagersten
Amount of direct funding from SSF via ARTES: 10 000 SEK

Yi Zhang
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
ARTES Project: Applications of wait/lock-free protocols to real-time systems
University: Chalmers University of Technology, Computer Science and Engineering
PhD: 2003, Non-blocking Synchronization: Algorithms and Performance Evaluation
Supervisor: Philippas Tsigas
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 110 000 SEK

Mikael Åkerholm
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2005, A Software Component Technology for Vehicle Control Systems
PhD: 2008, Reusability of Software Components in the Vehicular Domain
Supervisor: Kristiann Sandström
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 42 513 SEK

A.8 ARTES Real-Time Licentiates

A Real-time Licentiates was a real-time graduate students i.e. a licenciate student at a Swedish university which has applied to and been accepted by ARTES. The thesis subject of a Real-time licentiate is typically computer science, computer engineering, computer systems, industrial control systems, mechatronics, or automatic control and the thesis topic has been assessed by ARTES to have a strong connection to the real-time area. Not all "ARTES Real-Time Licentiates" did receive direct funding. However all had the opportunity participate in the network activities and to apply for mobility and other support. Most students had more than one supervisor; however here is only the name of the main supervisor given. There have been three ARTES sub-programmes: **ARTES** research programme 1998-2003, **PAMP** research programme 1998-2003, **ARTES++** graduate school gave mobility support during the initial years to graduate students.

Only students that completed their graduate studies with a licentiate degree are listed here; several of the Real-Time Doctors also completed licentiate degrees and several students pursuing their studies (listed in A.9) have completed licentiate degrees.

Tobias Amnell
Year of birth: 1972, *Gender:* M.
University: Uppsala University, Information Technology
Licentiate: 2003, Code Synthesis for Timed Automata
Supervisor: Wang Yi
Amount of direct funding from SSF via ARTES: 10 000 SEK

Johan Furunäs
Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2001, Interprocess Communication Utilising Special Purpose Hardware
Supervisor: Lennart Lindh
Amount of direct funding from SSF via ARTES: 0 SEK

Fredrik Larsson
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
Licentiate: 2000, Efficient Implementation of Model-Checkers for Networks of Timed Automata
Supervisor: Wang Yi
Amount of direct funding from SSF via ARTES: 10 000 SEK

Jean-Paul Meynard
Year of birth: 1973, *Gender:* M.
Undergraduate degree from: Institut Polytechnique de Sevenans, France
University: Linköping University, Computer and Information Science
Licentiate: 2000, Control of industrial robots through high-level task programming
Supervisor: Anders Törne
Amount of direct funding from SSF via ARTES: 0 SEK

Patrik Persson
Year of birth: 1973, *Gender:* M.
Undergraduate degree from: Lund University
ARTES Project: Integrated Control and Scheduling

University: Lund University, Computer Science
Licentiate: 2002, Predicting Time and Memory Demands of Object-Oriented Programs
Supervisor: Görel Hedin
Employer: Ericsson AB
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 126 500 SEK

Lennart Petterson
Year of birth: 1965, *Gender:* M.
Undergraduate degree from: Linköping University
University: Royal Institute of Technology, School of Industrial Engineering and Management
Licentiate: 1999, Control System Architecture for a Walking Robot
Supervisor: Jan Wikander
Amount of direct funding from SSF via ARTES: 0 SEK

Knut Åkesson
Year of birth: 1972, *Gender:* M.
Undergraduate degree from: Lund University
University: Chalmers University of Technology, Signals and Systems
Licentiate: 1999, Recipe Coordination in Chemical Batch Processes
Supervisor: Bo Egardt
Amount of direct funding from SSF via ARTES: 30 000 SEK

A.9 Future exams by ARTES RT Graduate Students

Students listed in this appendix are Real-Time Graduate Students still pursuing their studies towards a graduate degree. Their thesis subject is typically computer science, computer engineering, computer systems, industrial control systems, mechatronics, or automatic control and the thesis topic has been assessed by ARTES to have a strong connection to the real-time area. Not all "ARTES Real-Time Licentiates" did receive direct funding. However all had the opportunity participate in the network activities and to apply for mobility and other support. Most students have more than one supervisor; however here is only the name of the main supervisor given. There have been three ARTES sub-programmes: **ARTES** research programme 1998-2003, **PAMP** research programme 1998-2003, **ARTES++** graduate school gave mobility support during the initial years to graduate students.

Markus Adolfsson

Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Halmstad University
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Supervisor: Tony Larsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 10 000 SEK

Lars Albertsson

Year of birth: 1974, *Gender:* M.
Undergraduate degree from: Royal Institute of Technology
ARTES Project: Simulation Concepts to Model Real-Time and Dependability Properties of Symmetric Multiprocessor Systems
University: Swedish Institute of Computer Science, SICS
Supervisor: Erik Hagersten
Employer: Google in Stockholm
ARTES programme: **PAMP**
Amount of direct funding from SSF via ARTES: 1 917 000 SEK

Martin Andersson

Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Automatic Control
Planned examination year: 2008
Supervisor: Karl-Erik Årzén
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 19 146 SEK

Mikael Asplund

Year of birth: 1981, *Gender:* M.
Undergraduate degree from: Linköping University
University: Linköping University, Computer and Information Science
Licentiate: 2007, Restoring Consistency after Network Partitions
Supervisor: Simin Nadjm-Tehrani
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 13 060 SEK

Hüsein Aysan

Year of birth: 1982, *Gender:* M.

Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Sasikumar Punnekakkat
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 65 500 SEK

Raul Barbosa
Year of birth: 1981, *Gender:* M.
Undergraduate degree from: University of Coimbra, Portugal
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2007, Multi-Layer Fault Tolerance for Distributed Real-Time Systems
Planned examination year: 2008
Supervisor: Johan Karlsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 47 871 SEK

Morris Habib Yasi Behnam
Year of birth: 1973, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2010
Supervisor: Thomas Nolte
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 10 000 SEK

Jerker Bengtsson
Year of birth: 1974, *Gender:* M.
Undergraduate degree from: Halmstad University
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Licentiate: 2006, Efficient Implementation of Stream Applications on Processor Arrays
Planned examination year: 2008
Supervisor: Bertil Svensson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 40 000 SEK

Carl Bergenhem
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Halmstad University
ARTES Project: Methods for Integration of Heterogeneous Real-Time Services into High-Performance Networks
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2002, Protocols with Heterogeneous Real-Time Services for High-Performance Embedded Networks
Planned examination year: 2008
Supervisor: Johan Karlsson
Employer: SP Technical Research Institute of Sweden and PhD student at Chalmers
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 230 000 SEK

Urban Bilstrup
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Halmstad University

ARTES Project: Real-time Mobile Communication
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Licentiate: 2005, Design Space Exploration of Wireless Multihop Networks
Supervisor: Bertil Svensson
Employer: Halmstad University
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 440 000 SEK

Marcus Brohede
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: University of Skövde
University: University of Skövde, School of Humanities and Informatics
Supervisor: Sten F. Andler
Amount of direct funding from SSF via ARTES: 10 000 SEK

Stefan Bygde
Year of birth: 1980, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Björn Lisper
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 25 510 SEK

Annette Böhm
Year of birth: 1975, *Gender:* F.
Undergraduate degree from: Halmstad University
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Planned examination year: 2011
Supervisor: Magnus Jonsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 7 800 SEK

Peng Cheng
Year of birth: 1981, *Gender:* M.
Undergraduate degree from: Mid Sweden University
University: Mid Sweden University, Information Technology and Media
Planned examination year: 2008
Supervisor: Bengt Oelmann
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 39 475 SEK

Mathias Ekman
Year of birth: 1968, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2008
Supervisor: Henrik Thane
Amount of direct funding from SSF via ARTES: 0 SEK

Mohammed El Shobaki
Year of birth: 1974, *Gender:* M.
University: Mälardalen University, School of Innovation, Design and Engineering

Licentiate: 2004, On-Chip Monitoring for Non-Intrusive Hardware/Software Observability
Supervisor: Lennart Lindh
Amount of direct funding from SSF via ARTES: 0 SEK

Sigrid Eldh
Year of birth: 1961, *Gender:* F.
Undergraduate degree from: Uppsala University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2007, On Evaluating Test Techniques in an Industrial Setting
Planned examination year: 2010
Supervisor: Hans Hansson
Amount of direct funding from SSF via ARTES: 0 SEK

Jonas Elmqvist
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Linköping University
University: Linköping University, Computer and Information Science
Planned examination year: 2009
Supervisor: Simin Nadjm-Tehrani
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 65 000 SEK

AnnMarie Ericsson
Year of birth: 1972, *Gender:* F.
Undergraduate degree from: University of Skövde
University: University of Skövde, School of Humanities and Informatics
Planned examination year: 2008
Supervisor: Sten F. Andler
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 89 008 SEK

Joakim Eriksson
Year of birth: 1968, *Gender:* M.
Undergraduate degree from: Umeå University
University: Luleå University of Technology, Computer Science and Electrical Engineering
Licentiate: 1998, Specifying and Managing Rules in an Active Real-Time Database System
Planned examination year: 2008
Supervisor: Johan Nordlander
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 18 000 SEK

Daniel Flemström
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Ivica Crnkovic
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 0 SEK

Johan Fredriksson
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
, Transformation of component models to real-time models

Planned examination year: 2008
Supervisor: Ivica Crnkovic
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 94 695 SEK

Christer Gerdtman
Year of birth: 1968, *Gender:* M.
Undergraduate degree from: Lund University
University: Mälardalen University, School of Innovation, Design and Engineering
Supervisor: Maria Lindén
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 33 523 SEK

Håkan Gustavsson
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: Royal Institute of Technology
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2010
Supervisor: Jakob Axelsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 47 500 SEK

Mathias Haage
Year of birth: 1973, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Computer Science
Supervisor: Klas Nilsson
Amount of direct funding from SSF via ARTES: 0 SEK

Ewa Hansen
Year of birth: 1973, *Gender:* F.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2008, Centralized Routing for Prolonged Network Lifetime in Wireless Sensor Networks
Planned examination year: 2009
Supervisor: Mats Björklund
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 31 109 SEK

Frédéric Haziza
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: ENST - Bretange
University: Uppsala University, Information Technology
Planned examination year: 2009
Supervisor: Björn Victor
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 0 SEK

Andreas Hjertström
Year of birth: 1972, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Dag Nyström

ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 40 500 SEK

John Håkansson
Year of birth: 1972, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Uppsala University, Information Technology
Planned examination year: 2008
Supervisor: Paul Pettersson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 67 789 SEK

Viacheslav Izosimov
Year of birth: 1980, *Gender:* M.
Undergraduate degree from: Lappenranta University of Technology
University: Linköping University, Computer and Information Science
Licentiate: 2006, Scheduling and Optimization of Fault-Tolerant Embedded Systems
Planned examination year: 2008
Supervisor: Zebo Peng
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 72 500 SEK

Alexander Karlsson
Year of birth: 1979, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: University of Skövde, School of Humanities and Informatics
Planned examination year: 2010
Supervisor: Sten F. Andler
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 10 000 SEK

Martin Kero
Year of birth: 1980, *Gender:* M.
Undergraduate degree from: Luleå University of Technology
University: Luleå University of Technology, Computer Science and Electrical Engineering
Supervisor: Johan Nordlander
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 32 000 SEK

Johan Kraft
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2005, Modeling the Temporal Behavior of Complex Embedded Systems - A Reverse Engineering Approach
Planned examination year: 2008
Supervisor: Christer Norström
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 24 351 SEK

Pavel Krcal
Year of birth: 1980, *Gender:* M.
Undergraduate degree from: Masaryz University, Brno
University: Uppsala University, Information Technology
Planned examination year: 2008

Supervisor: Wang Yi
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 76 193 SEK

Andrey Kruglyak
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Luleå University of Technology
University: Luleå University of Technology, Computer Science and Electrical Engineering
Planned examination year: 2009
Supervisor: Per Lindgren
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 35 799 SEK

Erik Kuiper
Year of birth: 1973, *Gender:* M.
Undergraduate degree from: Linköping University
University: Linköping University, Computer and Information Science
Planned examination year: 2010
Supervisor: Simin Nadjm-Tehrani
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 29 000 SEK

Kristina Kunert
Year of birth: 1976, *Gender:* F.
Undergraduate degree from: Halmstad University
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Supervisor: Magnus Jonsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 7 800 SEK

Simon Kågström
Year of birth: 1976, *Gender:* M.
Undergraduate degree from: Lund University
University: Blekinge Institute of Technology, School of Engineering
Supervisor: Lars Lundberg
Amount of direct funding from SSF via ARTES: 0 SEK

Najeem Lawal
Year of birth: 1974, *Gender:* M.
Undergraduate degree from: Mid Sweden University
University: Mid Sweden University, Information Technology and Media
Licentiate: 2006, Memory Synthesis for FPGA Implementation of Real-Time Video Processing Systems
Planned examination year: 2008
Supervisor: Mattias O'Nils
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 57 500 SEK

Viktor Leijon
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Luleå University of Technology
University: Luleå University of Technology, Computer Science and Electrical Engineering
Supervisor: Johan Nordlander
ARTES programme: **ARTES++**

Amount of direct funding from SSF via ARTES: 33 380 SEK

Niklas Lepistö
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: Mid Sweden University
University: Mid Sweden University, Information Technology and Media
Planned examination year: 2009
Supervisor: Mattias O'Nils
***ARTES programme:* ARTES++**
Amount of direct funding from SSF via ARTES: 50 000 SEK

Kristoffer Lidström
Year of birth: 1981, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Planned examination year: 2011
Supervisor: Tony Larsson
***ARTES programme:* ARTES++**
Amount of direct funding from SSF via ARTES: 7 164 SEK

Markus Lindgren
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2000, Measurement and Simulation Based Techniques for Real-Time Analysis
Planned examination year: 2008
Supervisor: Christer Norström
Amount of direct funding from SSF via ARTES: 10 948 SEK

Johan Lindhult
Year of birth: 1967, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2008, Operational Semantics for PLEX – A Basis for Safe Parallelization
Supervisor: Björn Lisper
***ARTES programme:* ARTES++**
Amount of direct funding from SSF via ARTES: 45 000 SEK

Birgitta Lindström
Year of birth: 1958, *Gender:* F.
Undergraduate degree from: University of Skövde
ARTES Project: TETReS: Testing of Event-Triggered Real-Time Systems
University: University of Skövde, School of Humanities and Informatics
Supervisor: Sten F. Andler
Employer: University of Skövde
***ARTES programme:* ARTES**
Amount of direct funding from SSF via ARTES: 1 450 000 SEK

Fredrik Linnarsson
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: Mid Sweden University
University: Mid Sweden University, Information Technology and Media
Planned examination year: 2010
Supervisor: Bengt Oelmann

ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 20 413 SEK

Yue Lu
Year of birth: 1980, *Gender:* M.
Undergraduate degree from: University of Southern Denmark
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Christer Norström
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 50 500 SEK

Gunnar Mathiason
Year of birth: 1966, *Gender:* M.
Undergraduate degree from: University of Skövde
University: University of Skövde, School of Humanities and Informatics
Supervisor: Sten F. Andler
Amount of direct funding from SSF via ARTES: 30 000 SEK

Leonid Mokrushin
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: St. Petersburg Technical Univesity
University: Uppsala University, Information Technology
Planned examination year: 2008
Supervisor: Wang Yi
Amount of direct funding from SSF via ARTES: 20 000 SEK

Anders Möller
Year of birth: 1976, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2005, Software Component Technologies for Heavy Vehicles
Supervisor: Mikael Nolin
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 72 500 SEK

Jonas Neander
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2006, Using Existing Infrastructure as Support for Wireless Sensor Networks
Supervisor: Mats Björkman
Employer: ABB CRC
Amount of direct funding from SSF via ARTES: 10 000 SEK

Farhang Nemati
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Christer Norström
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 13 291 SEK

Nguyen Thai Nguyen Phan

Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Polytechnic University Ho Chi Minh City
ARTES Project: Software Distributed Shared Memory - New Applications and Scalability
University: Royal Institute of Technology, School of Information and Communication Technology
Supervisor: Mats Brorsson
ARTES programme: **PAMP**
Amount of direct funding from SSF via ARTES: 948 000 SEK

Pengpeng Ni
Year of birth: 1976, *Gender:* F.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2008
Supervisor: Gerhard Fohler
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 47 500 SEK

Susanna Nordström
Year of birth: 1975, *Gender:* F.
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2008, Configurable Hardware Support for Single Processor Real-Time Systems
Supervisor: Denny Åberg
Amount of direct funding from SSF via ARTES: 0 SEK

Daniel Nyberg
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: Halmstad University
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Planned examination year: 2009
Supervisor: Tony Larsson
Amount of direct funding from SSF via ARTES: 0 SEK

Erik Olsson
Year of birth: 1976, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2008
Supervisor: Peter Funk
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 36 017 SEK

Hongyu Pei Breivold
Year of birth: 1970, *Gender:* F.
Undergraduate degree from: Northeast Universty of Technology, Shenyang. P.R. China
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Ivica Crnkovic
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 29 362 SEK

Andreas Persson
Year of birth: 1981, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology

University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Planned examination year: 2011
Supervisor: Tony Larsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 11 514 SEK

Magnus Persson
Year of birth: 1981, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Royal Institute of Technology, School of Industrial Engineering and Management
Supervisor: Martin Törngren
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 28 562 SEK

Anders Pettersson
Year of birth: 1962, *Gender:* M.
Undergraduate degree from: Mälardalen University
ARTES Project: TATOO Test And Testability Of Distributed Real-time Systems
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2003, Analysis of Execution Behavior for Testing of Multi-Tasking Real-Time Systems
Planned examination year: 2009
Supervisor: Henrik Thane
ARTES programme: **ARTES**
Amount of direct funding from SSF via ARTES: 1 220 000 SEK

Kalle Prorok
, *Gender:* M.
University: Umeå University, Applied Physics and Electronics
Licentiate: 2004
Amount of direct funding from SSF via ARTES: 0 SEK

TahirNaseer Qureshi
Year of birth: 1980, *Gender:* M.
Undergraduate degree from: National University of Science and Technology, Pakistan
University: Royal Institute of Technology, School of Industrial Engineering and Management
Planned examination year: 2010
Supervisor: DeJiu Chen
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 16 921 SEK

Larisa Rizvanovic
Year of birth: 1971, *Gender:* F.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2008, Resource Management Framework for Distributed Heterogeneous Systems
Supervisor: Gerhard Fohler
Employer: ABB CRC
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 53 905 SEK

Soheil Samii
Year of birth: 1981, *Gender:* M.
Undergraduate degree from: Linköping University

University: Linköping University, Computer and Information Science
Planned examination year: 2010
Supervisor: Petru Eles
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 34 335 SEK

Anders Sandberg
Year of birth: 1966, *Gender:* M.
Undergraduate degree from: Lund University
University: Royal Institute of Technology, School of Industrial Engineering and Management
Planned examination year: 2010
Supervisor: Martin Törngren
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 16 651 SEK

Marcelo Santos
Year of birth: 1969, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Jan Gustafsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 62 500 SEK

Filip Sebek
Year of birth: 1971, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Licentiate: 2002, Instruction Cache Memory Issues in Real-Time Systems
Supervisor: Lennart Lindh
Amount of direct funding from SSF via ARTES: 0 SEK

Séverine Sentilles
Year of birth: 1982, *Gender:* F.
Undergraduate degree from: University of Pau, France
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Ivica Crnkovic
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 55 500 SEK

Jianlin Shi
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: National University of Singapore, China
University: Royal Institute of Technology, School of Industrial Engineering and Management
Licentiate: 2007, Model and Tool Integration in High Level Design of Embedded Systems
Planned examination year: 2008
Supervisor: Martin Törngren
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 36 762 SEK

Daniel Skarin
Year of birth: 1979, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering

Planned examination year: 2010
Supervisor: Johan Karlsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 25 794 SEK

Jayakanth Srinivasan
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: MIT, USA
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2010
Supervisor: Kristina Lundqvist
Amount of direct funding from SSF via ARTES: 10 000 SEK

Johan Stärner
Year of birth: 1971, *Gender:* M.
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2009
Supervisor: Lennart Lindh
Amount of direct funding from SSF via ARTES: 0 SEK

David Svensson
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Lund University
University: Lund University, Computer Science
Planned examination year: 2008
Supervisor: Boris Magnusson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 21 200 SEK

Per Söderstam
Year of birth: 1968, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Supervisor: Tony Larsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 0 SEK

Martin Thuresson
Year of birth: 1977, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
Planned examination year: 2008
Supervisor: Per Stenström
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 0 SEK

Fredrik Törner
Year of birth: 1978, *Gender:* M.
Undergraduate degree from: Chalmers University of Technology
University: Chalmers University of Technology, Computer Science and Engineering
Licentiate: 2006, On Hazard Identification in the Automotive Domain
Planned examination year: 2009
Supervisor: Per Johannessen
ARTES programme: **ARTES++**

Amount of direct funding from SSF via ARTES: 37 500 SEK

Zain Ul-Abdin
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Halmstad University
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Planned examination year: 2011
Supervisor: Bertil Svensson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 7 221 SEK

Peter Wallin
Year of birth: 1979, *Gender:* M.
Undergraduate degree from: Mälardalen University
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2010
Supervisor: Jakob Axelsson
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 65 000 SEK

Qinghua Wang
Year of birth: 1980, *Gender:* M.
Undergraduate degree from: Harbin Engineering University, China
University: Mid Sweden University, Information Technology and Media
Planned examination year: 2009
Supervisor: Tingting Zhang
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 36 566 SEK

Mattias Weckstén
Year of birth: 1975, *Gender:* M.
Undergraduate degree from: Halmstad University
University: Halmstad University, School of Information Science, Computer and Electrical Engineering
Licentiate: 2004, Resource Budgeting as a Tool for Reduced Development Cost for Embedded Real-time Computer Systems
Supervisor: Veronica Gaspes
Amount of direct funding from SSF via ARTES: 0 SEK

Jimmie Wiklander
Year of birth: 1980, *Gender:* M.
Undergraduate degree from: Luleå University of Technology
University: Luleå University of Technology, Computer Science and Electrical Engineering
Planned examination year: 2008
Supervisor: Per Lindgren
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 15 650 SEK

Jesper Wilhelmsson
Year of birth: 1975, *Gender:* M.
University: Uppsala University, Information Technology
Licentiate: 2005, Efficient Memory Management for Message-Passing Concurrency
Supervisor: Kostis Sagonas
Amount of direct funding from SSF via ARTES: 10 000 SEK

Aneta Vulgarakis

Year of birth: 1982, *Gender:* F.
Undergraduate degree from: Makedonien
University: Mälardalen University, School of Innovation, Design and Engineering
Planned examination year: 2011
Supervisor: Ivica Crnkovic
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 55 500 SEK

Fredrik Österlind

Year of birth: 1981, *Gender:* M.
Undergraduate degree from: Uppsala University
University: Swedish Institute of Computer Science, SICS
Supervisor: Thiemo Voigt
ARTES programme: **ARTES++**
Amount of direct funding from SSF via ARTES: 29 311 SEK

A.10 ARTES RT Graduate Students who are no longer expected to complete their exam.

There has been three ARTES programmes: **ARTES** research programme 1998-2003, **PAMP** research programme 1998-2003, **ARTES++** graduate school gave mobility support during the initial years to graduate students. Most students had more than one supervisor, however here is only the name of the main supervisor given.

A.11 Innovations, prototypes and spin-off companies

Spin-off companies:

1. **Häggander, Lidén & Lundberg Computer Systems AB** started in year 2000.
   Note: Daniel Häggander is presently employed by the company see A7.
2. **Zealcore Embedded Solutions AB**, started in year 2002 based on the debugging methods devloped in the ARTES project TATOO. Zealcore has patents on vital parts of the method.
3. **Free2Move AB** started in 2002 based on the competence developed within REMOTE (Projekt 9905-8)
4. **Dag Nyström Konsult och Utveckling** develops "Mimer SQL Real-Time edition" further.
5. **Parallel Scalable Solutions AB** started 2005 based result from project "Applications of wait/lock- free protocols to real-time systems." se also page 735 in the ARTES book.
6. **Illuminate Labs AB** was started by Jonas Lext.
7. **UP4ALL International AB** started by Wang Yi and Paul Pettersson.
8. **Acumem AB** started by Professor Erik Hagersten.

Other results of importance

ARTES has been instrumental in building Mälardalen Real-Time Research Centre (MRTC) at Mälardalen University.

MRTC is the leading research profile at Mälardalen University, with a mission is to provide research excellence that enable industry to take advantage of the opportunity provided by software in products and production systems. The staff includes 10 full professors, 3 adjunct professors, 20 additional senior researchers, close to 50 PhD-students; almost half of which are employed or funded by industry.

MRTC consists of ten mutually supportive research groups, focusing on industrial software engineering, embedded systems software engineering, dependable software development, worst-case execution time analysis and languages for real-time and embedded systems, design methods, architectures and communication for embedded systems, flexible scheduling models and resource reservation mechanisms, monitoring, testing, and debugging of embedded systems, communication performance and predictability, and scalable multiprocessor systems and system-on-chip MRTC.

A.12 Patents awarded or pending

1. D. Häggander, P. Lidén, L. Lundberg, ”**A method and system for dynamic memory management in an object-oriented program**”, applied July 14 2000. *This patent is the foundation for one of the start up-companies.*
2. Ericsson AB, **Mechanism for decreasing energy consumption for cache-coherence-protocol in a chip multi processor**. Applied 2001-11-16. Researchers Magnus Ekman, Per Stenström and Fredrik Dahlgren.
3. Grenholm, O., Radovic, Z. and Hagersten E. **System and Method for Reducing Shared Memory Write Overhead in Multiprocessors**, Patent application 5681-47300 filed.
4. Radovic, Z. and Hagersten E., **RH locks**, Provisional application filed in 2002.
5. Radovic, Z. and Hagersten E., **Multiprocessor System Performing Hierarchical Backoff Locks**, Patent application 5681-43000 filed.
6. Thane H., Hansson, H. **Debugger**, Swedish Patent Application 01-202100-2072, Patent holder: Zealcore Embedded Solutions AB. This patent is the foundation for one of the start up-companies.
7. Wallin, D. and Hagersten E., **Multiprocessor Computer System Employing Capacity Prefetching**, Patent application 5681-61601 filed.
8. Wallin, D. and Hagersten E., **Multiprocessor Computer System Employing Bundled Prefetching**, Patent application 5681-61602 filed.

A.13 Awards to participating researchers

Giving name to an Award

- ARTES former chairman Bengt Asker passed away year 2005. After that SNART decided to change the name of the award for the years best master of science thesis to "**The Bengt Asker Award for The Best Real-Time Master Thesis**". See www.snart.org for more information.

Best paper awards

- **H. Hansson, C. Norström, S. Punnekkat.** *Integrating Reliability and Timing Analysis of CAN-based Systems*, IEEE Workshop on Factory Communications Systems (WFCS-2000), Porto, Portugal, IEEE Industrial Electronics Society, September 2000.
- **Thiemo Voigt** and **Per Gunningberg**, *Adaptive Resource based Web Server Admission Control*, , 7th IEEE Symposium on Computers and Communication, Taormina/Giardini Naxos, Italy, July 2002.
- **Viacheslav Izosimov**, 2005 at the, *Design, Test and Automation in Europe (DATE)* conference was the paper "*Design Optimization of Time- and Cost-Constrained Fault-Tolerant Distributed Embedded Systems*" the track of Electronic Design Automation (EDA) nominated for the Best Paper Award in the EDA. Despite tense competition, we won the Award and were later notified as the winners. This prize should indicate a strong position of Swedish research and industry in the area of electronic design automation.
- **Johan Fredriksson**, **Thomas Nolte**, **Mikael Nolin**, and Heinz Schmidt, *Contract-Based Reusable Worst-Case Execution Time Estimate*. RTCSA August 21-23, 2007, Daegu, Korea

Tool awards

- The TIMES tool by **Tobias Amnell, Elena Fersman, Leonid Mokrushin, Paul Pettersson and Yi Wang** received the *tool award* at ETAPS 2002, Grenoble, France.

The Bengt Asker Award for The Best Real-Time Master Thesis

The following ARTES Real-Time Graduate students received the SNART award before starting as PhD students. See *www.snart.org* for more information.

- 2006 Winner, **Moris Habib Behnam** for *"Flexible Scheduling for Real Time Control Systems based on Jitter Margin"*
- 2006 Honourable mention, **Fredrik Österlind** for "*A Sensor Network Simulator for the Contiki OS*".
- 2003 Winner, **Mehdi Amirijoo** for "*Algorithms for Managing QoS for Real-time data services using imprecise computation*"
- 2002 Honourable mention, **Anders Hessel** for "*Timing analysis of an SDL subset in UPPAAL*".
- 2000 Honourable mentions, Alejandro Garcia, Lisbeth Johansson, and **Mattias Weckstén** for the study "*Real-Time Services in Myrinet Based Clusters of PCs*"
- 1999 Winner, **Björn Andersson** for "*Adaption of Time-Sensitive Tasks on Shared Memory Multiprocessors - A Framework Suggestion*"
- 1998 Winner, **Jakob Engblom** for "*Worst-Case Execution Time Analysis for Optimized Code*"

A.14 Contact information to ARTES

ARTES administration info@artes.uu.se

Uppsala University
ARTES
Box 337
SE-751 05 Uppsala
Sweden

A.15 Take advantage of ARTES

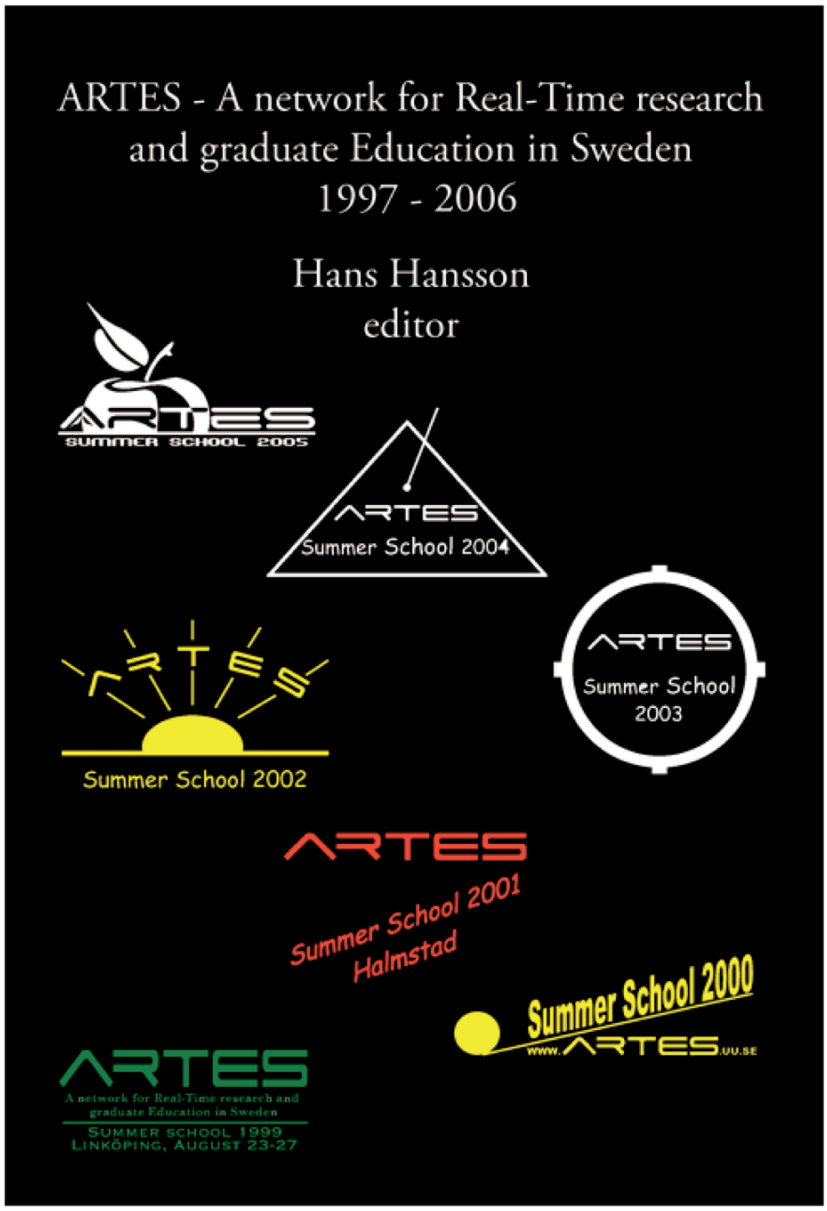
A brochure from year 2000 that describe Real-Time Systems, ARTES mission, research projects and activities. http://www.artes.uu.se/ads/brochyr/

A.16 ARTES book

The book is included at the end of this report.
It is also available on line and as print-on-demand via Uppsala university library.

Hansson, Hans (2006). ARTES - A network for Real-Time research and graduate Education in Sweden 1997-2006. http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-6628

Publisher: Uppsala: Uppsala University, Teknisk-naturvetenskapliga vetenskapsområdet, Mathematics and Computer Science, Department of Information Technology
Distributor: Uppsala University, University Library, Box 510, 75120 Uppsala
Year: 2006
Pages: 828
Series: Technical report, ISSN 1404-3203 ; ISSN 1404-3203
ISBN: 91-506-1859-8
ISRN: MDH-MRTC-197/2006-1-SE
File: urn_nbn_se_uu_diva-6628-2__fulltext.pdf (application/pdf)
File size: 8042895 bytes



The front page.

This book summarizes the results of the Swedish national real-time systems research initiative ARTES and provides a few representative examples of the science and scientific results that have emerged from ARTES.

ARTES was supported by the Swedish Foundation for Strategic Research (SSF), with a total of 95 MSEK between 1998 and 2006. ARTES has unified and given strength to the Swedish real-time and embedded systems research community, and contributed substantially to advancing Sweden's international position in this area. ARTES has had a catalytic and coordinating effect for a total research effort extending far beyond the funding provided by SSF. It has created important synergies between disciplines, ensured industrial relevance in research, and facilitated important academic and industrial networking for approximately 100 senior researchers and some 200 post-graduate students.

Text on back cover.

A.17 Mobility reports

Travel reports by Real-Time graduate students 1999-2007 in reversed chronological order.
Most of the 170 reports are also available at http://www.artes.uu.se/mobility/reports/index.shtml
The Mobility reports are included in this report.

ARTES Real-Time graduate students	**Reported activity**
2007	
Martin Thuresson	a Internship at Google.
Yue Lu	a "Two-day visit at Department of Computer Science and Technology, School of Computer Science and Engineering at Beihang University (BUAA) Beijing, China ".
Andreas Hjertström	"14th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) conference in Seattle, USA.".
Carl Bergenhem	"The 13th IEEE Pacific Rim International Symposium on Dependable Computing (PRDC'07) 7-19 December, 2007, Melbourne, Australia".
Peter Funk och Erik Olsson	rapporterar från ett "Industrimöte i Trollhättan hos Volv Areo".
Viacheslav Izosimov	a visit to "Computer Architecture Group (LRA) at Albert-Ludwigs-Universität of Freiburg, November-December 2007".
Fredrik Österlind	"ACM SenSys and a research visit to CSIRO Australia, November 2007".
Viktor Leijon	"APLAS 2007 ".
Qinghua Wang	"Visiting UT Arlington".
Peng Cheng	"IECON'07".
Håkan Gustavsson & Peter Wallin, Mälardalen University and Anders Sandberg, KTH	" Electronic Systems for vehicles 10-11 October 2007, Baden-Baden, Germany".
Kaj Hänninen	"Visiting Scuola Superiore Sant'Anna in Pisa".
Hüseyin Aysan, Stefan Bygde, Aneta Vulgarakis, Séverine Sentilles, Farhang Nemati, Yu Lue and Moris Behnam	"Progress trip to Pisa-Viareggio, October - 2007, Italy".
Stefan Bygde	"Nordic Workshop on Programming Theory and was held in Oslo October 10-12 2007.".
Marcelo Santos	"19th International Symposium on Computer Architecture and High Performance Computing, held at Serra Azul Hotel (Gramado, RS, Brazil), from 24th to 27th October 2007".
Mikael Asplund	"ReSIST Summer School 2007 ".
Hongyu Pei Breivold	"Euromicro SEAA 2007 ".
Séverine Sentilles & Aneta Vulgarakis	"19th Euromicro Conference on Real-Time Systems (ECRTS'07), July 3-6 2007, Pisa (Italy)".
Hongyu Pei Breivold	"COMPSAC 2007 ".

Aneta Vulgarakis & Séverine Sentilles	"CompArch, July 7-14, 2007 Boston, Massachusetts, USA".
Leonid Mokrushin	"MOTIVES Winter School, February 19-23, 2007 Trento, Italy".
Aneta Vulgarakis	"MOTIVES Winter School, February 19-23, 2007 Trento, Italy".
Soheil Samii	"ESWEEK 2006".
Alexander Karlsson	Center for Multisource Information Fusion / International Conference on Scalable Uncertainty Management.
Moris Behnam	EMSOFT October 1-3, 2007, Salzburg, Austria. MOTIVES winter school, Feb. 19 to 23, 2007 - Trento, Italy. RTCSA August 21-23, 2007, Daegu, Korea.
Håkan Gustavsson & Peter Wallin, Mälardalen University Anders Sandberg, KTH	Electronic Systems for vehicles, 10-11 October 2007, Baden-Baden, Germany
Johan Fredriksson	RTCSA 2007.
Pavel Krcal,	ESWEEK'07 (EMSOFT'07 and FORMATS'07 conferences), Salzburg, Austria,.
Håkan Gustavsson	SPLC 2007, Software Productline Conferece, Kyoto ,Japan.
Kaj Hänninen	Visiting Scuola Superiore Sant'Anna in Pisa.
Yue Lu	"ARTIST2 / UNU-IIST summer school 2007, Aug. 1st to 10th, 2007 – Suzhou, China".
Hüseyin Aysan	the First European-South American School for Embedded Systems that took place in Buenos Aires, Argentina between August 21 and 24 in 2007.
Moris Behnam & Hüseyin Aysan	ECRTS 2007 July 4-6, 2007 Pisa, Italy.
Gunnar Mathiason	RTCSA07 in Daegu, Korea.
Pengpeng Ni	report from ACM MM 2006
Johan Lindhult	visited Ericsson in Älvsjö 2006
Marcus Brohede	report from a visit to University of Virginia, VA, USA
Niklas Lepistö	Report from industry visits at CC-Systems in Alfta
Peter Wallin	Industry visit at Volvo 3P
Fredrik Linnarsson	IECON'06 was held in Paris the 7th-10th November 2006.
Magnus Persson	RUNES summer school at University College London 9th – 11th July, 2007. RUNES = (Reconfigurable Ubiquitous Networked Embedded Systems, http://www.ist-runes.org/.
Carl Bergenhem	DSN'07
Gunnar Mathiason	at stay at the Department of Computer Science at University of Virginia spring-summer 2007.
Marcelo Santos	ACACES 2007, the third International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems, from July 15 to July 20, in L'Aquila, Italy.
Tahir Naseer	RUNES summer school at University College London 9th – 11th July, 2007. RUNES = (Reconfigurable Ubiquitous Networked Embedded Systems, http://www.ist-runes.org/.
Huseyin Aysan two events	ARTIST2 MOTIVES'07 Winter School, February 19-23, 2007, Trento, Italy DSN'07, The 37th Annual IEEE/IFIP International Conference on Dependable Systems and Networks.
Raul Barbosa	DSN'07

Moris Behnam	RTSS 2006 conference in Rio.
Peter Wallin & Andreas Hjertström	ICSE'07.
Kaj Hänninen	RTSS'06.
Marcelo Santos	- "CASTNESS school and workshop, Jan. 15 to 19, 2007 - Rome, Italy". "ETAPS Conference, Mar. 24 to Apr. 1, 2007 - Braga, Portugal". "MOTIVES winter school, Feb. 19 to 23, 2007 - Trento, Italy".
Magnus Persson	"NeRES 2007 Networks for Reconfigurable Embedded Systems Workshop in Aveiro, Portugal, April 2nd".
Daniel Skarin	The third Workshop on Silicon Errors in Logic – System Effects (SELSE 3) at the University of Texas at Austin.
Andreas Hjertström	ARTIST2 Winter School 2007
Tahir Naseer	Advanced Automotive Electronics Technical Conference and Exhibition, January 2007 a four day workshop at Mentor Graphics, April 2007
Pavel Krcal	ETAPS'07
2006	
Carl Bergenhem	"The 12th IEEE Pacific Rim Symposium on Dependable Computing".
Raul Barbosa	"The 12th IEEE Pacific Rim Symposium on Dependable Computing".
AnnMarie Ericsson	First international Workshop on Event-driven Architecture, Processing and Systems (EDA-PS 06), September 2006, Chicago.
Christer Gerdtman	rapporterar från ”Svenska Läkaresällskapets Riksstämma” Göteborg, 29 november - 1 december, 2006 och från European Medical and Biological Engineering Conference (EMBEC 05)
Jerker Bengtsson	RTCSA06 "12th IEEE conference on Embedded Real-Time Computing Systems and Applications",16th to 18th of August in Sydney, Australia.
Alexander Karlsson	"The 9th International Conference on Information Fusion, 2006" in Florence, Italy, 10-13 July 2006.
Viacheslav Izosimov	a visit to DTU and describe the "Paper Pipeline".
Ewa Hansen	International Symposium on Wireless Pervasive Computing January 2006. and from The Fifth Annual Mediterranean Ad Hoc Networking Workshop (Med-Hoc-Net 2006).
Johan Lindhult	The International Workshop on Compilers for Parallel Computers (CPC).
Martin Kero	POPL (Principles Of Programming Languages), SPACE (Semantics, Program Analysis and Computing Environments for memory management) and PEPM (Partial Evaluation and Program Manipulation), January 2006.
2005	
Olga Grichtein	GAMES 2005, a Research Training Network.
John Håkansson	FACS 2005, InternationalWorkshop on Formal Aspects of Component Software.
Andreas Johnsson	the 4th Mediterranean Ad-Hoc Networing Workshop

	(MedHocNet).
Anders Möller	Embedded Real-Time Systems Implementation Workshop in conjunction with the 26th IEEE International Real-Time Systems Symposium December 5-8, 2005 Miami, USA.
Andreas Johnsson	the 3rd Swedish National Computer Networking Workshop (SNCNW).
Niklas Lepistö	NORCHIP 2005.
Najeem Lawal	NORCHIP 2005.
Johan Lindhult	NWPT05.
Jianlin Shi	ARTIST summerschool 2005.
Pavel Krcal	FORMATS'05.
David Svensson	Net.ObjectDays 2005.
Najeem Lawal	International Conference on Field Programmable Logic and Applications (FPL).
Niklas Lepistö	FPL'05.
Jianlin Shi	RTiS and ARTES summerschool 2005.
Niklas Lepistö	The 5th International Forum on Application-Specific Multi-Processor SoC (MPSoC'05).
Najeem Lawal	also MPSoC'05.
Kaj Hänninen	The 2005 international conference on embedded systems and applications (ESA) and The 17th Euromicro Conference on Real-Time Systems (ECRTS).
Martin Kero	Real-World Wireless Sensor Networks.
Johan Fredriksson	ICSE 2005.
Johan Andersson	The European Conference on Software Maintenance and Reengineering.
Jianlin Shi	the 5th ARTES Graduate Student Conference
Erik Kuiper	MIMEMA summer school 2005 with the theme "Wireless and Mobile Computing".
Viacheslav Izosimov	the conference "DATE05" and "Architectural Paradigms for Dependable Embedded Systems" Summer School in Baden/Vienna
Johan Erikson	APPSEM05. APPSEM is a thematic network funded by the IST program of the European Union. Its objective is to promote research into application-oriented semantics of programming languages.
2004	
Anderas Johnsson	CiC'04 "International Conference on Communications in Computing" in Las Vegas, USA.
Johan Fredriksson	"26th International Conference on Software Engineering (ICSE), 23-28 May 2004, Edinburgh, Scotland".
Joakim Eriksson and Linus Svensson	ECRTS 2004 and WCET 2004.
Larisa Rizvanovic	"16th Euromicro Conference on Real-Time Systems (ECRTS 04) and RTMM - International Workshop on Real-Time for Multimedia, Catania, Sicily, Italy, June 29th - July 2nd, 2004".
Dan Henriksson	"2004 American Control Conference (ACC04) ".
Martin Andersson	"The 10th IEEE RealTime and Embedded Technology and Applications Symposium (RTAS 2004)".
Mikael Åkerholm	"26th International Conference on Software Engineering (ICSE), 23-28 May 2004, Edinburgh, Scotland ".

Johan Andersson	"26th International Conference on Software Engineering (ICSE 2004) May 22nd – 29th 2004, Edinburgh, Scotland, UK".
Håkan Zeffer and Martin Karlsson	"The Tenth International Symposium on High-Performance Computer Architecture (HPCA 2004)".
2003	
Cecilia Ekelin	"the 7th International Conference on Principles of Distributed Systems (OPODIS'03)"
Lars Albetsson	"The Fourth International Workshop on Software and Performance (WOSP 2004), California."
Björn Andersson	RTSS 2003, Cancun, Mexico
AnnMarie Ericsson	RTSS 2003, Cancun, Mexico
Sven Gestegård Robertz	"The 2003 ACM SIGPLAN Symposium on Languages, Compilers and Tools for Embedded Systems (LCTES'03)"
Radoslaw Szymanek	Design Automation Conference 2003
Anders Pettersson	RTCSA 2003 in Tainan, Taiwan
Jonas Neander	International Parallel and Distributed Processing Symposium, (IPDPS), 22-26 april 2003, Nice, France
2002	
Elisabeth Uhlemann	UniSA 2002, RTAS 2002, ISIT 2001
Anders Möller	The 17th International Parallel & Distributed Processing Symposium (IPDPS) in Nice 22 – 26 April 2003.
Dan Henriksson	RTAS02
Jonas Norberg	DSN02
Cecilia Ekelin	ICPP'02, 31th International Conference on Parallel Processing, August 18-21, 2002
Håkan Sundell	LCR'02: Sixth Workshop on Languages, Compilers and Run-time Systems for Scalable Computers.
Thiemo Voigt	Protocols for High-Speed Networks April 2002, Berlin
2001	
Andréas Johansson, Robert Lindström, Martin Hiller	ISSRE 2001
Thomas Nolte	ETFA 2001
Martin Karlsson	ISCA 2001
Vilgot Claesson	SRDS 2001
Alexandre David	ETAPS 2002
Tomas Lennvall	ETFA 2001
Bo Lincoln	University of Illinois
Ulf Assarsson	SIGGRAPPH 2001
Örjan Askerdal	European Test Workshop, Saltsjöbaden, Stockholm May 29 -June 1, 2001.
Yi Zhang	SPAA 2001
Thiemo Voigt	USENIX 2001
Lars Albertsson	RTAS 2001
Asmus Pandikow	INCOSE 2001 in Melbourne, Australia.
Jan Carlson	ECRTS'01

Jakob Engblom	DARP HIRTS WS in York May 2001 (only available on paper)
Flavius Gruian	ASP-DAC 2001
2000	
Per-Håkan Sundell	Opodis 2000
Björn Andersson	RTCSA 2000
Radu Dobrin	RTCSA 2000
Anton Cervin and Bo Lincoln	CDC 2000
Anders Pettersson	RTSS'2000
Tomas Lennvall	RTSS'2000
Anders Wall and Markus Lindgren	RTCSA´00.
Ola Redell	RTSS'2000
Ulf Assarsson	SIGGRAPH2000
Flavius Gruian	PACS 2000 and 9:th ASPLOS
Elena Fersman	SPIN´2000
Patrik Persson	TOOLS EUROPE 2000.
Lars Albertsson	RTAS'00
Cecilia Ekelin	RTAS'00
1999	
Monika Andersson Wiklund	RTMCS and RTSS 99.
Martin Sanfridson	RTMCS and RTSS 99.
Marcus Nilsson	Visit to Liafa Paris
Ulf Assarsson	SIGGRAPH 99
Johan Eker	RTCSA'99
Thomas Lundqvist	from RTCSA'99 and RTSS '99
Cecilia Ekelin	from CP'99 and RTC'99
Paul Pettersson	FM´99 , World Congress on Formal Methods, 20-24 September 1999.
Alexandre David	FM´99 , World Congress on Formal Methods, 20-24 September 1999.
Per Håkan Sundell	EUROMICRO'99 (on Real-Time Systems), June 9-11th, 1999.
Jakob Engblom	RTAS '99,Vancouver, June 2-4, 1999
Anton Cervin	EUROMICRO'99 (on Real-Time Systems), June 9-11th, 1999.
Andreas Ermedahl	EUROMICRO'99 (on Real-Time Systems)
Man Lin	24th IFAC/IFIP Workshop on Real Time Programming WRTP'99 and the Third International Workshop on Active and Real-Time Database Systems ARTDB-99
Patrik Persson	LCTES '99, ACM SIGPLAN 1999 Workshop on Languages, Compilers, and Tools for Embedded Systems
Patrik Persson	ETAPS '99 (European Joint Conferences on Theory and Practice of Software)