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IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is about information processing may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

Christian Gram · Per Rasmussen
Søren Duus Østergaard (Eds.)

History of Nordic Computing 4

4th IFIP WG 9.7 Conference, HiNC4
Copenhagen, Denmark, August 13–15, 2014
Revised Selected Papers

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Preface

The first conference on the History of Nordic Computing (HiNC1) took place in Trondheim, Norway, in 2003. The initiative to the conference came from a group of Nordic computer scholars with Arne Sølvberg (Norway), Janis Bubenko (Sweden), and John Impagliazzo as driving forces. The purpose was to document important Nordic developments of computers and computing methods, while the pioneers themselves could still remember how it all happened. The planning group worked together with the IFIP Working Group 9.7, *The History of Computing*, where especially the chairman John Impagliazzo participated. The aim of the first conference was “to collect information about Nordic Computing History in order to document Nordic experience and knowledge, which future generations may use in order to make wiser decisions about future endeavours in information technology in the Nordic countries.”

Four years later this was followed up by the Finnish initiative to host a second conference (HiNC2) in Turku, Finland. While the first conference focused on the early years of computation, mainly before 1960, HiNC2 put more light on activities in the 1960s and 1970s and the early 1980s and tried to capture a holistic view on the many activities during this period. The geographical scope was widened by including computing history in the Baltic countries.

The third conference HiNC3 in 2010 was hosted by the Department of Computer Sciences at the Stockholm University. The theme of the conference was to describe Nordic activities during the last part of the twentieth century around:

- The application and use of ICT (Information and Communication Technology).
- How technical progress affected the conditions of the development and use of ICT systems.

Both HiNC2 and HiNC3 had – beside papers on IT techniques - interesting sessions on “how to preserve IT history and how to organize computer museums,” where several speakers discussed historiographical approaches and methodological reflections on IT history.

The fourth conference (HiNC4) took place in August 2014 at the IT University in Copenhagen in Denmark and aimed at showing how ICT has played a crucial role in the creation of the Nordic welfare societies. The conference focused on *innovative ICT milestones that transformed the Nordic Societies* and on the new ideas, systems and solutions that helped creating the welfare societies of today. This covers

- Solutions and systems for *public services*, e.g., tax, social benefits, health care, and education.
- Solutions and systems for the *infrastructure of the society*, e.g., banking, insurance, telephones, transport, and energy supply.
- *Technologies and IT policies* behind the major IT milestones, e.g., user centric innovation, programming techniques, and IT ethics.

The conference was opened with keynote addresses by the chairman of the Danish Parliament Mogens Lykketoft and Policy Analyst at OECD Adam Mollerup. Mogens Lykketoft spoke about *How we used IT to build the Nordic welfare societies*, seen from a politician's point of view, while Adam Mollerup discussed *Nordic approaches to digital government reforms* and praised our countries for being front-runners.

At the end of the conference Søren Duus Østergaard moderated a panel discussing the experiences from IT in education: "The introduction of ICT in the Nordic schools: When and how was it promoted as a national policy? How were the teachers trained? How was ICT strategies implemented?" – Panel members represented ICT Pioneers from Iceland (Anna Kristjansdottir), Finland (Jar Multisilta), Norway (Sindre Rosvik), Denmark (Jannik Johansen, High School/Min. of Educ. and Erling Schmidt, Public Schools). The proceedings include five short summaries of other talks from the conference.

The conference attracted around 80 participants, including nearly 50 speakers; after the conference the speakers were invited to modify and improve their papers, and the results constitute the contents of this volume.

February 2015

Christian Gram
Per Rasmussen
Søren Duus Østergaard

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The Organizing Committee wishes to extend its particular appreciation to the following organizations, whose support was essential for the successful realization of the conference:



The IT University in Copenhagen.



KMD, one of Denmark's largest IT and software companies with more than 3,000 employees.



NORDUnet, the Nordic Infrastructure for Research & Education.



e-Boks A/S, safe online email-boks for all Danes.



nets, Nordic provider of payments, card and information services.



VP SECURITIES A/S in Copenhagen, the central securities registration agent in Denmark.

We also want to thank the following groups for support:



The Danish Society for Computer History.



DIKU, Department of Computer Science at Copenhagen University.



The Senior Club under DIT, Dansk IT.

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