Lund/Apple Joint Project

A Presentation

1987 – 1991

Per Christiansson

The KBS-Media Lab

A group of projects under the label KBS-MEDIA, aims at integrating advanced software (knowledge based systems, neural nets, relational databases, HyperCard etc.) with new distribution and storage media. The 'hyper documents' which are created possess powerful man-machine interfaces and dynamic model building properties.

Emerging technology makes it possible to build up and handle large and complex information volumes.

In the KBS-MEDIA LAB we formulate and test new concepts for information systems. The next generation of systems we create have benefits like: a more obvious connection between application and computer stored model and a context sensitive behaviour that is the system adapts to different environments and user needs.

The computerized models are supported by real life pictures and sound as well as computer generated pictures, drawings, animations and sound. We design powerful man/machine interface with multimedia properties and efficient tools for knowledge transfer and cooperative work environment.

We have defined new tools to access, collect, build up and handle very large information volumes. Besides these benefits the knowledge elicitation is simplified and the systems can dynamically grow and be validated. The systems also get easy to maintain, change and integrate due to the modular system build up.

The KBS-MEDIA LAB

Since the autumn 1987 I have been responsible for building up the KBS-MEDIA (Knowledge based Systems - Media) environment at the department of Structural Engineering at Lund University. Demonstration systems have been and are built to support different applications in the building process, for example: Building Maintenance (the DELPHI-project), Material and Vendor Information (AMVI), City Advisor, Knowledge Transfer to Building Site. The KBS-MEDIA LAB at the Civil
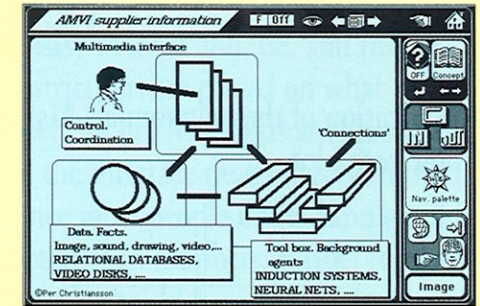
In the KBS-MEDIA (Knowledge Based Systems-Media) environment demonstration systems are dynamically built. "Background agents" use induction systems, neural nets and HyperCard stored procedures. Communication between users and the system takes place in the context environment. This communication passes short-term memories/"note-books" which are also used by the background agents. Separate facts bases belonging to the application are connected; (a) relational databases, (b) images, film, sound on optical videodiscs, (c) text, sketches, speech, animations and (d) images and drawings on hard disk or CD ROM.
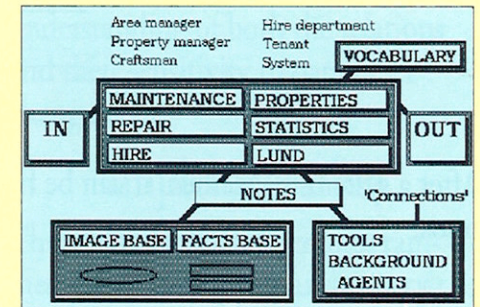
Logical structure of the 'DELPHI' demonstration system. Three layers can be seen: the context level with its different views, short-term memories/"note-books", facts bases and tools/background agents.

Engineering School at Lund University also carries through basic research concerning representation, search, and building up of knowledge. New representation forms as neural nets are tried out as well as advanced multimedia environments for simulations, analogue reasoning and virtual realities.

New concepts

The KBS-MEDIA environment hosts the development of demonstration systems which are used to capture, test and transfer ideas among system users in the building process and the system builders (tool-makers).

We integrate advanced software tools and optical media which enables us to use different knowledge representations in cooperation (object oriented, decision tress, neural nets, relational databases, hypertext, analogical, calculation procedures). For different problem domains we define adapted tools for problem solving (decision support, information browsing and search, model building and maintenance tools, background agents, navigation palettes).

Among other tools we have develo-
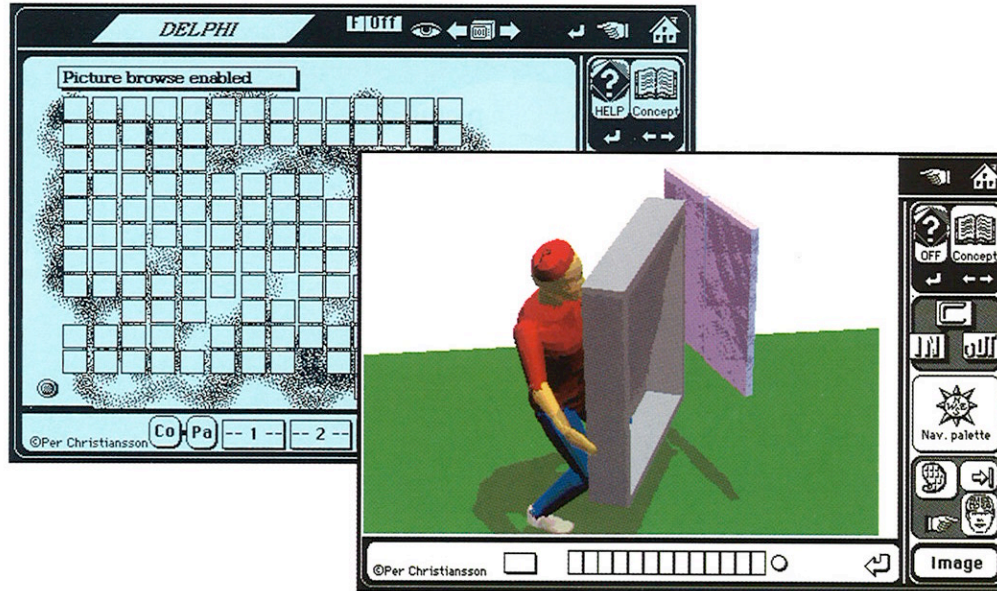
Animations and video sequences gives instruction on how to install and repair windows (from the Material and Vendor Information System, AMVI). In the background, a palette for browsing video images (from the Building Maintenance system, DELPHI).

ped special browse tools to traverse and handle the information space for example in the form of palettes for browsing video images, navigational palettes, product browse palettes etc. All the time the background agents are there to help you.

As we develop the demonstration systems we also make fast prototyping and gradually together with the users we define and implement search strategies, tools, and user interfaces. New ideas can be tested and communicated

very easily during system development.

Knowledge dissemination

I have had the opportunity to extensively spread the KBS-MEDIA ideas and research results through demonstrations, and lectures in fruitful interaction with my work as scientific advisor to the Swedish Building Research Council (within the information technology area). I have thus

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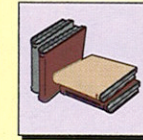
■ Christiansson "Properties of Future Building Hyper Documents" Proc. from the 1st CIB W74/W78 Seminar on Conceptual Modelling of Buildings. Oct. 1988 Lund University.
■ Christiansson "The KBS-MEDIA Project". Proc. from ARECDAO 89. Barcelona 1989.
■ Christiansson "Building a City Advisor in a Hyper Media Environment". (To appear in Journal of Planning & Design Feb. 1991).
■ Christiansson "Building Information for the future". Colloque Informatique de l'Ecole d'Architecture de Grenoble. Jan. 1990
■ Christiansson "Advanced Material and Vendor Information System". Lund University. Report SE-LUTVDG/TVBK-90/3027
■ Christiansson "Background agents to Enhance Access and Growth of Loosely Coupled Models for Building Design". Proc. from the 5th International Conference on Systems Research, Informatics and Cybernetics. Baden-Baden. Aug. 1990.
■ Christiansson "Advanced Information Technology in Building Maintenance Support". CIB Seminar. Tokyo. Sept. 1991.

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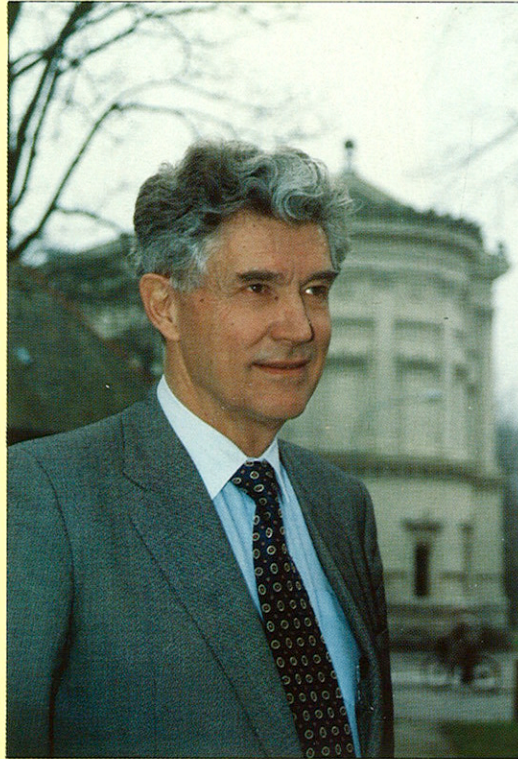
It has been a fascinating experience to watch the Apple concept spread over Lund University. The multiversity offers all kinds of academic atmospheres, from technology to theology, medicine to musicology, and architecture to archaeology.

When the Macintosh entered this stage, it met with scholars and students with highly varying computing ability, from expert to zero-level.

The Lund/Apple Joint Project has done much to bridge the gap between these extremes, as well as providing many valuable contacts over faculty borders.

Lund University is grateful and proud of the Apple project.

Håkan Westling
Vice-chancellor

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Lund/Apple Joint Project

– A Catalyst for Visions, A Possibility for Applications

The personal computer has had an immense impact on the academic environment. All types of academics: student, teachers, researchers, administrators, now use computers as a ordinary tool in their daily work.

Many of them have great ambitions to implement their ideas into pragmatic applications. Others have an interest in getting acceptance for their concepts in the university environment. For some of them the Lund/Apple Joint Project has been the key for progression.

It has been an extremely interesting task to head this project through the late 80-ies. We have met freaks and utopians, exciting and excited people with one compelling mission: Using their Macintosh to renew and create new solutions for their research or teaching process.

During the five years the project has run, their work has been idealistic and their efforts have made higher education more creative and down to earth. This brochure presents the diversity of endeavour in the project. Every application endorsed by the project is unique. We are sure that many of them can be made applicable in other departments, schools and universities as well. Their concepts can also be valuable for others, who are engaged in developing new tools for teaching and research.

Our project has been tailored for the academic world. The conception and promotion of the project has been a dynamic process in which both parties have been giving and taking. May this process proceed many years to come!

Lund University, April 1991.

Skotte Mårtensson

Kjell Åke Modéer

A personal computer certainly is one of those amplifiers of the capabilities of Man, much as the loudspeaker (to convey information to a crowd) or the telephone (to reach greater distances).

However, the personal computer is an all-round tool whilst all other such amplifiers are specialized to one function only.

This is what makes a personal computer interesting in a pedagogical and research setting: you can learn more in less time. With a user-friendly system the user can concentrate his energy on his hypothesis.

This is why it feels so good to provide researchers, students and administrators with the Macintosh, a professional and user-friendly system which may be used at all stages in a person's life. It is the same feeling as that of reading a good book or seeing a good film – you simply have to recommend it to your friends!

Visions...

Contrary to widespread belief, especially among younger people, it is difficult to be young and visionary – the lack of experience and perspective ties young people down to rather small

Jorge de Sousa Pires

Providing people with real tools

things, such as the execution times of a particular subroutine and the like.

Thanks to visionary people such as Skotte Mårtensson and Kjell Åke Modéer who did see beyond the initial shortcomings, the Macintosh was introduced in Europe very early, indeed in a matter of days.

So the Lund/Apple Joint project had to become a reality and so it did: Lund University was the spearhead of progress, well before other universities, government institutions and even the industry. I think this is the best that can happen a nation, having its universities leading the way.

From the beginning, we have made our decisions with a strong feeling of togetherness, with a common desire of developing the research and the pedagogical functions of Lund University.

Over the years, computing has evolved and so did the demands of the researchers and of the teachers. Listening to these people who have the time to think clearly and deeply, Apple has gone back to the workbench and done more fine tuning here and accomplished new things there.

Knowledge is a different kind of love

We have provided, not only user-friendly computers and peripherals but also means of distributing knowledge and filling a catalytic function among research groups. The European University Consortium (EUC) meeting is a scientific conference of a different type: you meet there to discuss the tools of research and how to apply the same techniques and programs to altogether different disciplines; multimedia, hypertext and laser discs can be applied to show a surgical operation in Medicine as well as to show

symbols and judges in 'Iconography of Law' – so this is a conference where a professor of Law and a professor of Medicine may speak for hours! Not to speak of the fact that they are attending the same meeting, which would be almost unthinkable otherwise. This brochure reflects this variety and when you read it, ponder and admire the spread and the innovation in this bouquet of projects.

Managing such a large quantity of research and pedagogical projects is not an easy task. I would like to profit the occasion to thank Mr. Olof Nelsson of Lund University for his invaluable help with this task.

Managing the Apple/Lund Joint Project has been a privilege to all of us who work at Apple. Our roots are within the University community. We will stick to you. We will empower you, the individual, with personal and innovative tools so that you may work with efficiency and joy. That is a promise.

Apple Computer AB, April 1991
Research and Education

Jorge de Sousa Pires
Ass. Professor