

Fragments from the Swedish history of computer graphics with SIGRAD

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Abstract

This overview is to some extent fragmental, but may hopefully give some patterns of the development of the computer graphics area in Sweden, from the horizon of SIGRAD, the Swedish Computer Graphics Society. It gives some facts of 30 years of computer graphics from a Swedish perspective. Things discussed include early software, applications, people involved, international visitors, computer graphics societies in other countries, conferences, bulletins/newsletters, courses and seminars.

CR Categories:

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Foundation of SIGRAD

The first pictures drawn with a computer in Sweden was performed on the BESK computer around 1953 on an oscilloscope. Not very much happened after that, but during 70ies the interest in the possibilities to draw pictures with computers grew at several places. Some expensive displays (vector technology) were bought, different plotters were used including plots done at ordinary line printers.

The time was mature to collect people around the possibility of drawing pictures and the call for an association gave responses from around 100 persons, which was a surprise for some people. At a meeting with 55 participants at KTH in December 1976 the Swedish Computer Graphics Association was founded, later given the name SIGRAD.

The people that showed interest in the new association came from different disciplines with different backgrounds having interest in areas such as basic software, CAD/CAM, GIS, computer art, statistics, and industrial supervision. This turned out to characterize and to be a strength for SIGRAD. Due to the variety in interest it was also decided to keep the new society independent to other organizations. Things as standardization and terminology were pointed out as being of special interest for the society. It was also expected to be a forum for discussions and dissemination of information. Financial support from various sources in the beginning made it possible to work without member fee during the first five years when building the infra structure.

The first interim executive committee had members from KTH, SCB, Lunds Datacentral, Stockholms Datacentral, Elektronmusikstudion/EMS, SAAB-Scania, Statens Vägverk, K-konsult and HSB. After six months a list of 140 names with interested people had been collected. The application areas represented varied very much, which contributed to the society becoming a very dynamic forum.

The first years focused on two topics: to show the variety of applications and to discuss the variety of software with a need for standardization.

A seminar conference in April 1977 included presentation of 7 different software packages and 100 participants came to this event.

A similar seminar but on graphics displays was held in November, 1977. This year the first bye-laws were presented by Axel Andersson, who also suggested the name SIGRAD for the new society.

Kind of activities

The activities of SIGRAD have included annual conferences/events, courses, education workshops, study visits, international cooperation with societies and experts from various countries mainly in Europe, publication of a bulletin/newsletter, maintaining a web page (when the use of www had become established) and keeping a list of individual members with annual fees.

Application areas

The applications that have been presented during SIGRAD events, study visits and conferences varies. Some applications have after some years been an established part of day to day work and therefore became of less interest for a society like SIGRAD. One example of such an area is business graphics. Applications include CAD, architecture, GIS, HCI, mathematics, statistics, environmental visualization, games, chemistry, medicine, virtual reality, business graphics etc. Below are included examples of early applications such as presented in a few images from a special bulletin issue from 1979.

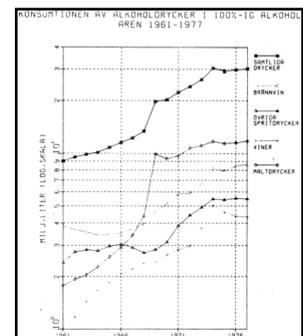
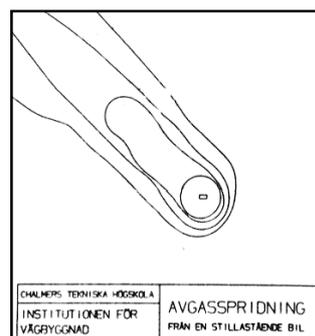


Figure 1: Illustrations of pollution distribution and alcohol consumption

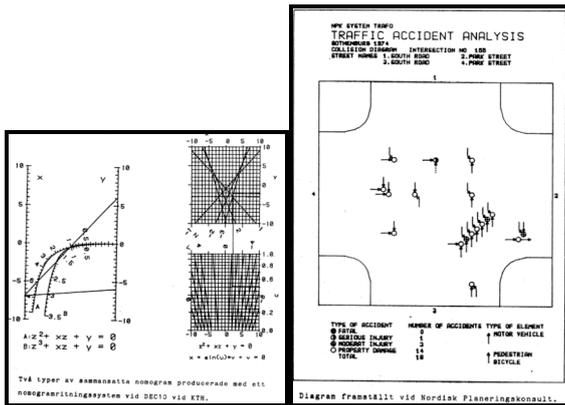


Figure 2: nomogram drawing and traffic analysis

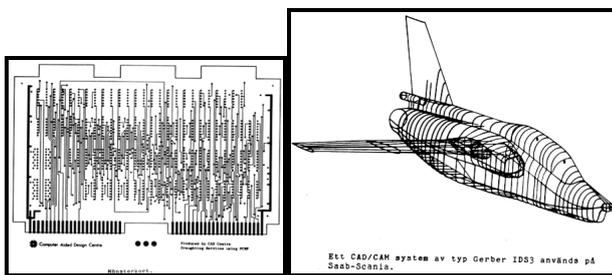


Figure 3: printed circuit card and CAD/CAM picture

Software

In the middle of the 70-ties a numerous variety of software packages existed. These packages were often adapted to different hardware concepts and to different applications. Due to this variation the packages used basic graphics concepts that were incompatible and often very hard to convert. It was also hard for programmers and users who had to relearn when switching from one package to another. The international efforts also had seen these problem and they were discussed at the Seillac workshop in 1976 [1], which later gave the result when an international standard called GKS was accepted by ISO. The standard was used during a few years but was later in practice abandoned for software adjusted to the latest technology.

The SIGRAD events during the 70-ties often had a focus on basic computer graphics software. After that, when de facto standards driven by technology dominated, SIGRAD spent much less efforts in basic software problems.

Hardware

The hardware development were important in the 70-ties and 80-ties. The interest were focused on three sub areas, i.e. displays, plotters and interaction devices.

Conferences

The annual conference was established in 1981, but also before that there were some one day events with a flavor of a conference. In the appendix of this paper a list of notes about the conferences/events can be found.

One can see some trends in these notes. In the beginning software and to some extent hardware was in focus together with applications. Later when the standards were established the interest shifted towards fundamental techniques and concepts such as interaction, colour, text and image etc Later when web appeared web graphics together with visualization captured the interest of the events. From the beginning of 2000-ties there was a shift from an event with invited speakers towards a more scientific event with submissions and a review process. The proceedings then also become a publication that was printed and made available through web (links are given at the end of the paper). Finally it should be said that applications have always been an important part of the activities.

Courses

In 1979 a two day course in computer graphics with a focus on software for colour printers was given in cooperation between Lund data center and SIGRAD. The software used was later developed to the UNIRAS software. The interest for the course forced the organizers to give the course twice.

As part of the annual conference some basic courses were also occasionally given. International experts have sometimes been used, such as José Encarnaç o (a course on standards for computer graphics) and Daniel Thalman (a course on animation).

Study visits

As part of the annual conference or as part of the annual assembly there have often been study visits at different companies. Examples of companies and institutions that SIGRAD visited are IBM, Silicon Graphics, SUN, Sj oland&Thyselius, FOA, KTH, Boliden, Chalmers, SVT (public television), HSB, PCG, ABB These visits have usually had 10-30 attendees with many discussions and contacts being established.

Education workshops

At regular basis SIGRAD arranged education meetings with discussions on course curriculums, lab assignments, text books etc. The meetings were usually held biannually with 10-15 participants and at different universities in Sweden.

Bulletin and newsletter

An important forum for the SIGRAD was the "SIGRAD Bulletin", who was published 2-3 times/year. These bulletins provide an interesting reading about the society from 1976-1997. After 1997 a newsletter replaced the bulletin. It was sent out by email and was made available through the web site of SIGRAD [2].

An interesting bulletin is for instance, the one published in January 1979 with collections of pictures from different applications (mentioned earlier).

Cooperation with other societies, international visitors

Early, during 70-ties, a contact was established with our sister organization in Norway, Norsigd being started approximately at the same time as SIGRAD (actually two years before SIGRAD).

Norsigd had/have a somewhat different character than SIGRAD using company members instead of individual members, and also getting incomes from a software product (GPGS-F). An early contact with Norway also resulted in a two week Nordic Research course on computer graphics in Trondheim, 1978, organized mutually between people from Sweden and Norway.

Contacts between Eurographics and SIGGRAPH have existed for many years. An affiliation agreement with Eurographics was signed in the 90-ties. In 2007 this agreement was replaced by SIGRAD becoming a Eurographics Chapter.

The contacts with SIGGRAPH have resulted in some agreements on discounts etc.

SIGRAD has during the years tried to get international speakers for conferences and courses. Some examples of people that have visited Sweden usually invited by SIGRAD are Daniel Thalman, José Encarnação, Jos Stam, David Duce, Judy Brown, Dale Sutcliffe, Ian Hurrington, Roger Hubbard, Martin Göbel and Andries van Dam.

People involved

Many different kind of people have been involved in SIGRAD, some for just a year and some for decades. We list some of the key persons below and start with the chair persons:

Lars Kjelldahl, 1976-1980, Sten Hultman, 1980-1981, Mikael Jern, 1981-1985, Anna Holst, 1985-1990, Lars Kjelldahl, 1990-1993, Olov Fahlander, 1993-1995, Mikael Jern, 1995-2001, Anders Ynnerman, 2001-2004, Anders Backman, 2004-2007, Kai-Mikael Jää-Aro, 2007-

A selection of other persons: Sten Kallin, Jan Lidén, Ulf Rozén, Brita Larson, Michael Pääbo, Pierre Lingheim, Kersin Malmqvist, Gunnar Petersson, Sven-Ove Westberg, Larsgunnar Nilsson, Magnus Bondesson.

Concluding remarks

In addition to issues discussed in the previous paragraphs, it is interesting to observe the shift from Swedish as main language for the activities (with lists of Swedish terms in computer graphics) towards more English orientation with the annual conference also becoming more international from that point of view.

A project to describe the Swedish IT history is currently taking place (<http://ithistoria.se/>). This paper could be seen as a small contribution to that work.

SIGRAD conferences, list of short notes

Miniconference, April, 1977, KTH: software presented was GINO-F, GPGS-F, GCS, GD3, DISSPLA, COLOR, PLAM
Miniconference, April, 1978, KTH: GIS, with speakers from Lunds Tekniska högskola, KTH/fotogrammertri, Statens lantmäteriverk, Jacobson&Widmark, K-konsult, VIAK and Centralnämnden för fastighetsdata
Miniconference, March, 1980, Skellefteå: CAD-systems, local activity

SIGRAD81: December, Esso Motor Hotel, Järva Krog: Survey of computer graphics with a focus on software and the experience of the use of software.

SIGRAD82: December, Stockholm, Interaction, Colour and Ergonomy

SIGRAD83: Trygg-Hansa, Stockholm, Picture/image output, transfer, and storage. Among speakers: Mikael Jern, Yngve Sundblad, Program committee: Mikael Jern, Lars Kjelldahl, Brita Larson, Anna Holst

Course, March, 1984, Andries van Dam, together with Paralog, two day course

Course, 1984, José Encarnação, GKS, survey of computer graphics

SIGRAD84: December, Stockholm Convention Center, Program committee: Sten Kallin, Lars Kjelldahl, Anna Holst. Theme: text and image, Among speakers: David Duce, Pete Harrison, Jan Winblad, Jan Johansson, Jerker Lundequist, Astrid Sampe, Veine Johansson, Staffan Romberger, Sten Carlqvist

SIGRAD85: December, Stockholm Convention Center, two one day courses and a two day conference on computer graphics with state of the art and trends, Among speakers: Dale Sutcliffe, Two courses were given (tutorial on computer graphics; standard introduction)

SIGRAD86: Inhouse publishing, Silja Line, conference on the boat with a trip between Stockholm and Helsinki (and back)

SIGRAD87: Computer Graphics with a message – image and text, Silja Line, conference on the boat with a trip between Stockholm and Åbo (and back)

SIGRAD88: Kiruna, Interaction and GIS

SIGRAD89: Electrum, Kista, Object oriented methods, architectural applications, interaction

SIGRAD90: IBM Forum, VR – computer graphics is changing

SIGRAD91: SUN, Kista, Graphical User Interfaces

SIGRAD92: KTH, Computer graphics and planning of resources
SIGRAD93: Linköping, animation course, interest groups (VR, education, art, animation, etc)

SIGRAD94: Nacka Forum, Living pictures, visualization, with among others Judy Brown and Paul Rea

SIGRAD95: Nacka Forum, Visualization, animation and interaction in Windows, invited speakers were Martin Göbel and Ian Currington

SIGRAD96: Nacka Forum, web graphics, including talks on Spotfire and AVS/UNIRAS

SIGRAD97: Graphics on web, Nacka Forum, Stockholm

SIGRAD98: 3D Visualization

SIGRAD99: Stockholm, KTH, 3D Graphics on the Net Facing 2000, talks on CAVE,

SIGRAD2000: Norrköping,

SIGRAD2001: Stockholm, KTH, Real-Time Graphics

SIGRAD2002: Norrköping, Special Effects and Rendering [4]

SIGRAD2003: Umeå, Real-Time Simulations [5]

SIGRAD2004: Gävle, Environmental Visualization [6]

SIGRAD2005: Lund, Mobile graphics [7]

SIGRAD2006: Skövde, Computer Games [8]

SIGRAD2007: Uppsala, Computer graphics in healthcare

References

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