

TIPTOEING THRU THE TULIPS

You may not know it, but we are on the verge of a large government funded project on artificial intelligence. The first reaction, if it actually comes about, is admiration and thankfulness because it has been a long time coming. Undoubtedly those in charge of the sources of funds have finally been convinced that there are people with ideas who deserve to be funded, which is of course great. On reflection, however, there are aspects of this caper which deserve nothing but scorn. Of course, you have all heard of pork barrel contracts where the most competent, efficient and deserving do not receive consideration, let alone the fat juicy contract. Well, this situation smells just like that.

Before getting in too deeply a few qualifications are necessary. I know nothing officially about what is happening; however, what details are factual is not important, and if anyone feels unjustly maligned, then I have little sympathy. After all, if everything was open and above board I could speak knowledgably. Most everyone gets uneasy when things are hidden and secretive, since that usually happens when there is something that deserves to be hidden, like incompetence maybe.

With that short disclaimer, I'm told that a move is afoot to create a number of Canadian centres of excellence in A.I. Exactly how this is done, I'm not sure because my perception is that centres of excellence are decided by their results and reputation. Admittedly money would help, but unfortunately it won't buy results. It can produce the environment where results may be easier to produce but that does not always happen. In fact, it can produce negative effects. Let's hope that will not happen in this instance.

Before you get the opinion that I'm against everything including motherhood, let's be positive. Surely money should be spent on allowing Canadians, interested in A.I. or whatever aspect of computer science turns them on, to get together and discuss their problems and results. Not only would such a move benefit everyone, but there are few negative aspects. Furthermore, it would be inexpensive. I realize that there are Canadian scientific meetings, but not everyone attends and when travel funds are scarce it is easier to drop a trip to Toronto or Moose Jaw and substitute Miami, Tokyo or Munich. In addition, it makes sense to an individual since there is more prestige and probably more to be gained from the international meeting. On the other hand, why not increase the visibility, frequency and stature of Canadian scientific meetings. It could be done for less than \$50K per year, and within 5 years might even be self-financing. We also have great places to hold such meetings: Jasper, Banff, Muskoka plus many, many others. Unfortunately, besides the \$50K it takes work to put together such an event, and the individual benefits are not to great for one's efforts.

Another item which would significantly benefit scientific research is an electronic message system available to everyone. While steps are being taken to rectify the problem, they are not being done quickly enough, and government support has been small. Remember CANUNET? A great idea, but no results. With current facilities such as Datapac and Envoy, it would take little effort to put together a facility for transferring data, programs and messages across Canada. But then the so-called "Centres of Excellence" would be sharing their excellence, which might make them demonstrate that they are worthy of the title.

In perspective, maybe the reasons behind the current secrecy become clearer. But the jury is still out, and maybe nothing will happen anyway. Just like a "Royal Commission" - all study, talk and reports and no real action.

W. A. Davis
November 28, 1983

CHINA - 1985

Efforts are underway to arrange for a scientific tour of parts of the People's Republic of China in the Spring of 1985. Currently, no details are available, but the proposal would be to assemble a group of 12-15 Canadian computer scientists for a 3-week tour of 4 or 5 cities such as: Beijing, Shanghai, Shenyang, Harbin, and Wuhan. Participants would be expected to lecture and discuss current trends and developments in the computer field.

Suggestions as to sources of funds to assist in this venture are welcome. In addition, anyone interesting in participating is encouraged to notify the undersigned.

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ARTIFICIAL INTELLIGENCE IN CANADA

Presented at Graphics Interface 1983

by

Nick Cercone and Gord McCalla

- * CSCSI/SCEIO (McCalla)
- * Canadian Research (Cercone)
- * Recent High Profile AI (McCalla, Cercone)
- * Science Policy / AI (Cercone)
- * Open Discussion (Cercone, McCalla)

CSCSI/SCEIO

Gordon began this discussion with a description of the history of the CSCSI/SCEIO concentrating on the Conference history from the "get-together" in 1973 at the University of Western Ontario, the "workshop" in Ottawa in 1975 to the conferences. They began in 1976 with the First National Conference of the CSCSI/SCEIO at the University of British Columbia and were held every two years since. The second conference was held at the University of Toronto in 1978, the third at the University of Victoria in 1980 (with CIPS), the fourth at the University of Saskatchewan in Saskatoon in 1982 (with CIPS). The fifth conference is scheduled for the University of Western Ontario in May, 1984 with Ted Elcock acting as general chairman, Mike Bauer handling local arrangements, and John Tsotsos being the program chairman.

A description of the newsletters followed. There were five newsletters written in the early years: one each at UBC, Western, Toronto, Alberta, and Ottawa. Presently, the CSCSI/SCEIO newsletter is written jointly with the two organizations CIPPRS and CMCCS, thanks largely due to Wayne Davis' efforts and the University of Alberta facilities. Alan Mackworth announced that NET.CAN.AI and NET.CAN.CSCSI have been created for users of the UNIX UUCP mail facility as another vehicle for dissemination of information about Canadian AI activities.

Gordon then reported that formal accreditation came to the CSCSI/SCEIO in the form of a constitution in 1980 and the Ontario letters patent filed in that year. We became a special interest group (SIG) of CIPS in the late 1970's.

The people centrally involved in the CSCSI/SCEIO in its formative years were acknowledged and included Zenon Pylyshyn, Ted Elcock, Richard Rosenberg, John Mylopolous, Alan Mackworth and others.

Goals for the immediate future of the CSCSI/SCEIO were "announced" and included:

- (i) raise the profile of AI in Canada and of Canadian AI in the AI community in general;
- (ii) co-ordinate and encourage co-operation with other organizations in the AI community, for example, the AISB, IJCAI, AAI, SIGART, etc.;
- (iii) encourage co-operation within Canada among AI researchers;
- (iv) provide a source of AI expertise to Canadian industry and government;
- (v) promote educational aspects and aims of AI;
- (vi) be the "spokes-organization" for AI in Canada; and
- (vii) to develop a "LOGO".

CANADIAN RESEARCH

The immediate activity of the CSCSI/SCEIO in this area of Canadian AI research is to survey, for the Science Council of Canada, Canadian AI activity. Nick Cercone gently encouraged the CSCSI/SCEIO membership to fill in the questionnaire distributed in the last newsletter so that a meaningful survey could be conducted. Nick then reported an incomplete list of research by Canadian Artificial Intelligence academics (with a mention of several British Columbia industries):

* Vancouver -

- UBC:
- computational vision, representation of knowledge (Bill Havens, Alan Mackworth, Bob Woodham)
 - knowledge representation (Ray Reiter)
 - computational linguistics (Richard Rosenberg)
 - vision in pathology (Larry Paul)
 - many graduate students
- SFU:
- natural language, knowledge representation (Nick Cercone)
 - vision, knowledge representation (Brian Funt)
 - logic programming (Veronica Dahl)
 - robotics and kinetics (Tom Calvert)
 - pattern recognition (Binay Bhattacharya)
 - applications in geography (Tom Poiker)
 - some graduate students and a new installation grant for AI research

Victoria: - philosophy and AI (Charles Morgan)

Independent: - Northwest AI (Peter Rowat)
 - Syncom (Tony Dixon)
 - several companies building robot arms for submarines

* Prairies -

Alberta: - natural language, knowledge representation (Len Schubert)
 - adaptive systems (Jeff Sampson)
 - psychology and AI (Kelly Wilson)
 - search and game-playing (Tony Marsland)
 - image analysis (Wayne Davis)
 - some graduate students

Calgary: - human factors laboratory (David Hill, Brian Wyvill, Ian Witten)

Saskatchewan: - computers/education, planning (Gordon McCalla, Marlene Colbourn)

Manitoba: - biomedical applications (Robert Gordon)

* Ontario -

Western Ontario: - logic programming (Ted Elcock)
 - cognitive Science (Zenon Pylyshyn)
 - programming languages for AI (D.J.M. Davies)
 - automatic programming (Mike Bauer)
 - home of the Centre for Cognitive Science

Waterloo: - logic programming (Randy Goebel)

Toronto: - semantic nets, data bases (John Mylopoulos)
 - vision, application systems (John Tsotsos)
 - natural language (Grahame Hirst, Ray Perrault)
 - many graduate students

Ottawa: - expert systems (Doug Skuce)

Carleton: - AI programming (Wilf Lalonde)

NRC: - vision, robotics (Tony Kasvand)

BNR: - office information systems (Dick Peacocke)

* Quebec -

- McGill: - image processing, pattern recognition (Geoff Toussaint)
 - game playing (Monroe Newborn)
 - image processing (Steve Zucker, Martin Levine)
 - cognitive psychology (George Baylor, Jean Gascon)
- Montreal: - robotics (Neil Stewart)
 - natural language translation (Dick Kittridge)
 - natural language parsing (Paul Bratley)
 - psychology (George Struble)
- Concordia: - speech understanding (Ching Suen, Renaldo de Mori)
- IRSST: - machine translation (Pierre Isabelle, J. Laurent)

* Maritimes -

- Acadia: - architecture (T. Pietrzykowski)

RECENT HIGH-PROFILE CANADIAN AI

Nick Cercone discussed the latest issue of the international journal of Computers and Mathematics with applications, volume 9 (1). This was a special issue devoted to Computational Linguistics and featured seven articles from Canadian scholars including James Allen, Ray Reiter, Gordon McCalla, Bill Havens, Nick Cercone, Dick Kittridge, and Jean Guy Meunier. Nick Cercone served as a guest editor for the issue. Pergamon Press of London has decided to publish this special issue as a hardbound book in June of 1983.

Gordon McCalla then discussed the September, 1983 issue of IEEE Computer which will be a theme issue on knowledge representation. Gordon McCalla and Nick Cercone are sharing the duties as guest editors for this special issue which will again highlight Canadian work. The IEEE Computer is probably the most widely read computing journal in the world and this exposure should contribute to the cause of AI generally and Canadian AI specifically. The IEEE solicited this special issue based on the Fourth National Conference on the CSCSI/SCEIO held in Saskatoon last year. Contributions from Canadian scholars include: Alan Mackworth, Bill Havens, Brian Funt, Veronica Dahl, Ted Elcock, Gordon McCalla, Nick Cercone, Hector Levesque, Len Schubert, Mary Angela Papalaskaris, Jay Taugher, John Mylopoulos, T. Shibahara, John Tsotsos. Other scholars contributing to this landmark issue include: Bill Woods, Bonnie Webber, Ron Brachman, Richard Fikes, David Israel, Randy Davis, Howard Shrobe, Jon Doyle, Pat Langley, Lotfi Zadeh.

SCIENCE POLICY / AI

Nick Cercone presented an overview of the recent mid-January Science Council workshop on Artificial Intelligence. He also made a plea for CSCSI/SCEIO involvement and promised the Science Council the results of the survey which was printed in the last CSCSI newsletter. Alan Mackworth, who attended the workshop, presented his views when asked to do so.

OPEN DISCUSSION

The open discussion started with a discussion on the position paper of Alan Mackworth and Ray Reiter. This was followed by a brief comment on Wayne Davis' letter to the CSCSI/SCEIO newsletter. The rest of the allotted time was spent in open discussion with the audience, with an exchange of views and questions/answers.

Nick Cercone,
Burnaby, B.C.

Final Statement of CSCSI/SCEIO Conference, May 16-19, 1982
University of Saskatchewan, Saskatoon

REVENUE

Registration fees	\$5,649.63	
Less refunds	<u>236.00</u>	
		\$5,413.63
Banquet grant (City of Saskatoon (through CIPS))	700.00	
NSERC Conference Grant	2,900.00	
Advance from CSCSI/SCEIO	2,000.00	
TOTAL REVENUE		\$11,013.63

EXPENSES

Local arrangements		
- building & grounds (U. of S.)	\$ 200.14	
- telephone	77.27	
- coffee / special services	315.00	
- audio visual	25.00	
- conference office fee	200.00	
		\$817.41
Publicity		
- mailings	\$1,079.63	
- printing (U. of S.)	746.96	
		\$1,826.59
Proceedings		
- printing (SFU)	\$1,626.39	
- shipping	54.70	
		\$1,681.09
Banquet		
- U. of S. Faculty Club		\$ 881.20
Invited Speakers		
- Sheraton Cavalier Hotel	\$ 633.59	
- Brachman	918.03	
- Chandrasekaran	824.10	
- Fahlman	805.74	
- Schank	724.13	
- Webber	855.50	
- Woodham	335.50	
		\$5,096.59
TOTAL EXPENSES		\$10,302.88
BALANCE		710.75
LESS ADVANCE		2,000.00
LOSS		\$1,289.25

CSCSI/SCEIO

10 October 1983

Dr. C. T. Bishop, Editor in Chief
Research Journals
National Research Council of Canada
100 Sussex Drive
Ottawa, Ontario CANADA K1A 0R6

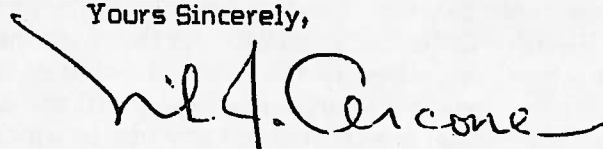
Dear Dr. Bishop,

As per our telephone conversation last Friday, we are writing to request that NRC consider publishing a timely new journal in Artificial Intelligence. The proposed journal Computational Studies of Intelligence: the Canadian Journal for Artificial Intelligence would be sponsored by the CSCSI/SCEIO. This 10 year old national society presently consists of over 300 members, holds a biennial conference and produces refereed proceedings.

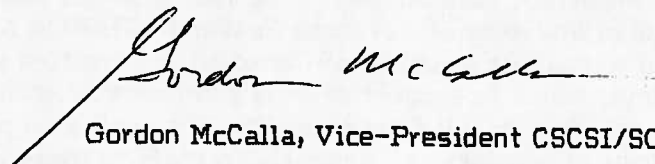
I enclose a draft information statement concerning the proposed journal and we welcome your comments and suggestions.

We have had significant experience in producing publications, organising conference sessions and entire programs and in editing special issues of journals (for IEEE and Pergamon Press). We believe there to be a serious need for a new journal in artificial intelligence (AI), especially as the field matures rapidly and all industrialised nations promote AI research and applications. We would welcome the positive support of the NRC and look forward to further correspondence with you. Thank you for your kind consideration.

Yours Sincerely,



Nick Cercone, Chairman Computing Science and President CSCSI/SCEIO



Gordon McCalla, Vice-President CSCSI/SCEIO

enclosures

cc Barbara Drew, Publishing Manager, NRC
John Tsotsos, Secretary CSCSI/SCEIO
Wayne Davis, Treasurer CSCSI/SCEIO

**An open letter to the membership of the CSCSI/SCEIO
from the President and Vice-President**

26 September 1983

Dear CSCSI/SCEIO Member,

Last spring a rather lengthy questionnaire was circulated in the Newsletter asking all CSCSI/SCEIO members to provide information about their research interests and their views on the state of Canadian AI. The response was less than overwhelming, due to a combination of the length of the questionnaire and the inertia of the CSCSI/SCEIO membership. We feel it is crucial that we be given input from as many members as possible before we prepare a report on Canadian AI that was promised at last January's Science Council workshop on AI in Ottawa. We have thus prepared an abbreviated version of the questionnaire that shouldn't take too long to answer. Please fill it out right away and return it to us at Simon Fraser University (McCalla is visiting this esteemed West Coast establishment for the year). A sample response is included for your guidance. We would like to put together the final report by Christmas at the latest!

It is urgent that a consensus of the membership be reached as to how the CSCSI/SCEIO can be made more relevant in these turbulent and exciting times for Canadian AI. Already, the CSCSI/SCEIO has been ignored in several recent developments affecting Canadian AI. The first of these developments was the Science Council workshop reported on in the last Newsletter and set up without consultation with the CSCSI/SCEIO. However, at the last minute Nick Cercone was invited and, bucking considerable resistance, did manage to extort a few minutes from the workshop organizers to promote CSCSI/SCEIO at the meeting. At that time he also promised the report on Canadian AI activity mentioned above. In his editorial in the last Newsletter, Wayne Davis pointed out many of the shortcomings of this meeting, so we won't belabour the issue here.

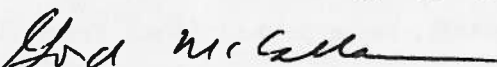
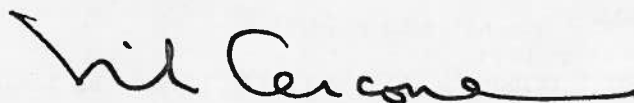
Two other significant events have happened since the workshop. One is the tendering of a contract to a consortium of four groups to prepare a report for the Secretary of State on natural language processing (especially translation) in Canada over the next 5-10 years. The report is due in December and the consortium would like feedback from all interested parties. Contact Zenon Pylyshyn at the Centre for Cognitive Science, U. of Western Ontario, London for further information. Again the CSCSI/SCEIO has had no active role either in the commissioning of the report, the selection of the consortium to prepare it, nor, presumably, will the organization have any say in the report's eventual preparation or any use to which it might be put.

Perhaps the most important development in the last year has been the burgeoning interest of the Canadian Institute of Advanced Research (CIAR) in AI. The CIAR is now actively planning to support a number of Canadian universities who are engaged in AI research by providing funds to support several prominent AI scholars and researchers in other areas to do full time research. They will also provide funds to help attract a number of scholars not currently on staff to these universities to help "take up the teaching slack", and to perhaps support the AI endeavours of these universities in other ways as well. Once again, the CSCSI/SCEIO has not been consulted.

On the positive side the CSCSI/SCEIO has achieved some prominence, especially internationally. For example, the society hosted and co-sponsored the 7th IJCAI in Vancouver (and, incidentally, past-president Alan Mackworth has been chosen as general chairman of the next IJCAI in Los Angeles in 1985). More recently, a special issue of IEEE Computer on knowledge representation has been put together by Nick Cercone and Gord McCalla which features many Canadian contributions. This special issue came about as a direct consequence of the 4th CSCSI/SCEIO conference and is scheduled to appear in October 1983. Several publishers of international reputation are interested in publishing the proceedings of next year's 5th CSCSI/SCEIO conference in book form.

So, we are asking you to take some time to ponder the current state and possible future of AI in this country. The next decade promises to be very exciting. Major decisions must be made about what influence AI will have on government and industry and what influence government and industry will have on AI. It is up to us to decide what, if any, role the CSCSI/SCEIO will play.

Thanks for your co-operation.



Nick Cercone, President CSCSI/SCEIO
Gord McCalla, Vice-President CSCSI/SCEIO

P.S. Don't forget the 5th CSCSI/SCEIO conference at the University of Western Ontario in London next May 18-20. The deadline for submission of papers is December 7, 1983 so get writing now. Ted Elcock, John Tsotsos, and Mike Bauer are putting together a very interesting programme and it should be a great conference.

CALL FOR PAPERS
C S C S I - 8 4

CANADIAN SOCIETY FOR

COMPUTATIONAL STUDIES OF INTELLIGENCE

The University of Western Ontario
London, Ontario
May 15-17, 1984

The Fifth National Conference of the CSCSI will be held at The University of Western Ontario in London, Canada. Papers are requested in all areas of AI research, particularly those listed below. The Program Committee members responsible for these are:

Knowledge Representation:

Ron Brachman (Fairchild R & D), John Mylopoulos (U of Toronto)

Learning:

Tom Mitchell (Rutgers U), Jaime Carbonell (CMU)

Natural Language:

Bonnie Weber (U of Pennsylvania), Ray Perrault (SRI)

Computer Vision:

Bob Woodham (U of British Columbia), Allen Hanson (U Mass at Amherst)

Robotics:

Takeo Kanade (CMU), John Hollerbach (MIT)

Expert Systems and Applications:

Harry Pople (U of Pittsburgh), Victor Lesser (U Mass at Amherst)

Logic Programming:

Randy Goebel (U of Waterloo), Veronica Dahl (Simon Fraser U)

Cognitive Modelling:

Zenon Pylyshyn (U of Western Ontario), Ed Stabler (U of Western Ontario)

Problem Solving and Planning:

Stan Rosenschein (SRI), Drew McDermott (Yale)

Authors are requested to prepare Full papers, no more than 4,000 words in length, or Short papers of no more than 2,000 in length. A full page of clear diagrams counts as 1,000 words. When submitting, authors must supply the word count as well as the area in which they wish their papers reviewed. (Combinations of the above areas are acceptable). The Full paper classification is intended for well-developed ideas, with significant demonstration of validity, while the Short paper classification is intended for descriptions of research in progress. Authors must ensure that their papers describe original contributions to or novel applications of Artificial Intelligence, regardless of length classification, and that the research is properly compared and contrasted with relevant literature.

Three copies of each submitted paper must be in the hands of the Program Chairman by December 7, 1983. Papers arriving after that date will be returned unopened, and papers lacking word count and classifications will also be returned. Papers will be fully reviewed by appropriate members of the program committee. Notice of acceptance will be sent on February 28, 1984, and final camera ready versions are due on March 31, 1984. All accepted papers will appear in the conference proceedings.

Correspondence should be addressed to either the General Chairman or the Program Chairman, as appropriate.

General Chairman

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Report on Graphics Interface '83

Graphics Interface '83, the ninth Canadian Conference devoted to computer graphics and interactive techniques was held at the Westin Hotel, Edmonton, from the 9th to the 13th of May 1983. The conference, the oldest regularly scheduled computer graphics conference in North America, was an outstanding success by any accepted measure. It was one of the major activities undertaken in 1983 by the CIPS Edmonton section and the Canadian Man Computer Communication Society. It was sponsored by those two organizations as well as: The Department of Computing Science of The University of Alberta, the Canadian Society for the Computational Study of Intelligence, the Canadian Image Processing and Pattern Recognition Society, and the National Computer Graphics Association of Canada, with the cooperation of the Association for Computing Machinery.

The conference included two days of tutorials, organized by W. W. Armstrong, which attracted approximately 200 registrants. The main program, organized by W. A. Davis, consisted of fourteen sessions with speakers from all over North America and attracted more than 300 delegates. A complete schedule of tutorials and talks is included.

The equipment exhibition, organized by E. Barnicoat for the Edmonton Section of CIPS, had thirty-two suppliers of the latest in graphic displays and support equipment and was viewed by over fourteen hundred interested users. This exhibition made a substantial profit, half of which goes to Edmonton Section to help with future programme costs, and half to CMCCS to support the SIG program.

A two hour film show consisting of current computer animated video and film was presented on Wednesday evening under the able direction of Eugene Fiume of the University of Toronto.

Proceedings of the conference are available from the CIPS Toronto office at a prepaid cost of \$25.00.

Special thanks are extended to the following people for their assistance in making the conference and exhibition a success:

CONFERENCE COMMITTEE:

Publicity - Bill Clark and Dave Runyan,
Local Arrangements - Rod Johnson and Norm McGinnis,
Treasurer - Pat Slinn,
Administration - Judith Abbott, and the staff of the Computing Science Department at the University of Alberta.

EXHIBITION COMMITTEE:

Publicity - Krys Madej,
Local Arrangements - Fran Hornby and Kent Meisner,
Administration - Adella Pchelnyk and Audrey Shumlick,
Booth Captains - Darwin Heinemann, Dallas Hauge, Stewart Ingram, Dave Kaun, Jim Bodie, and Dick McClure,
Booth Sales - Jeff Davis.

Members of the 1982-83 and 1983-84 executives of the CIPS Edmonton Section, Carol Kinniburgh and NAIT computing students, and many students from the Department of Computing Science also provided able assistance in many areas.

Graphics Interface '84 is planned for Ottawa in May 1984; an information sheet is included in this newsletter.

E. A. Barnicoat/W. A. Davis

GRAPHICS INTERFACE '83 - FINAL PROGRAM
9 - 13 May 1983 - Westin Hotel, Edmonton, Alberta

TABLE OF CONTENTS/TABLE DES MATIÈRES

	Page
1. RASTER GRAPHICS/INFOGRAPHIE PAR QUADRILLAGE – Chairmen/Présidents: Alain Fournier, University of Toronto; Wayne Davis, University of Alberta	
<i>Software Tools for Microprogrammed Graphics Processor Design</i> L.D. Finkel, Bell Laboratories	1
<i>A Low Cost Image Compression Test Bed System</i> T. Baleshta, B. Harron, S. Schlien, and K. Takikawa, Department of Communications	5
<i>A Parallel Scan Conversion Algorithm with Anti-Aliasing for a General-Purpose Ultracomputer: Preliminary Report</i> E. Fiume, A. Fournier, and L. Rudolph, University of Toronto	11
<i>An Algorithm for Generating Anti-Aliased Polygons in 3-D Applications</i> Guangnan Ni, P. Tanner, M. Wein, and G. Bechthold, National Research Council of Canada	23
<i>Design and Analysis of a Parallel Ray Tracing Computer</i> J.G. Cleary, B. Wyvill, R. Vatti and G.M. Birthwistle, University of Calgary	33
<i>The Design of Interactive Systems for the Creation of Precision Graphic Primitives</i> W.D. Hoskins and G.E. McMaster, Brandon University	35
<i>An Interactive and User-Oriented Three-Dimensional Graphics Editor</i> N. Magnenat-Thalmann, École des Hautes Études Commerciales, A. Larouche, Air Canada, and D. Thalmann, Université de Montréal	39
2. OFFICE AUTOMATION AND TELIDON/BUREAUTIQUE ET TÉLIDON – Chairmen/Présidents: W.W. Armstrong, University of Alberta; Brien Maguire, University of Regina	
<i>Office Automation in the Languages of the World</i> B.R. Gaines, CADRE Information Transfer Systems Inc.	337
<i>Active Messaging in the Office: A Lamp Unto My Feet</i> P.S. Licker, University of Calgary	47
<i>Transcoding Between the Virtual Device Interface and Telidon Standards</i> H. Newman, Department of Communications	55
<i>“USIPS”: A Telidon Picture Creation Station</i> E. Neufeld and P. Sorenson, University of Saskatchewan	65
<i>NAPLPS Implementation: Hardware and Software Issues</i> L. Lax, NORPAK Corporation	71
<i>Measuring Text graphic Activity</i> F.H. Lakin, Palo Alto Veterans Administration Medical Center	77
3. ROBOTICS/ROBOTIQUE – Chairmen/Présidents: Neil Stewart, Université de Montréal; Martin Levine, McGill University	
<i>Robot Vision and Visual Inspection</i> T. Kasvand, National Research Council of Canada	85

Table of Contents/Table des matières (Cont'd/Suite)

	Page
<i>Robotic Vision and Graphical Display Based on the IBM PC</i> M. Feeley and N.F. Stewart, Université de Montréal	97
<i>VEGA: A Geometric Modelling System</i> R.F. Woodbury and G.J. Glass, Carnegie-Mellon University	103
<i>Computer Graphic Animation Tools for Robotics</i> S. Kretch, McDonnell Douglas Automation (MCAUTO)	111
4. APPLICATIONS/APPLICATIONS – Chairman/Président: Fred Peet, Pacific Forest Research Centre	
<i>Computer Visual Inspection of Liquid Crystal Displays</i> S.J. Dickinson, L.M. Galot and M.E. Jernigan, University of Waterloo	113
<i>Interactive Computer Graphics and the Design of Woven Textiles</i> J.A. Hoskins and M.W. King, University of Manitoba	119
<i>Interactive Creation of Chinese Characters</i> D.B. Ward, X. Wang and W.A. Davis, University of Alberta	123
<i>Three Dimensional Display of Objects from Planar Contours</i> J. L. Paul, University of British Columbia	129
5. GRAPHICS PROGRAMMING/PROGRAMMATION GRAPHIQUE – Chairman/Président: Peter Tanner, National Research Council of Canada	
<i>High-level Language for an Interactive Graphics Work Station</i> R. Heuft and A. Schmidt, University of Alberta	133
<i>Advanced Concepts for High-level Graphics Languages</i> G.F. Schrack, University of British Columbia	135
<i>Programming Language PROGRAPH: Yet Another Application of Graphics</i> T. Pietrzykowski, Acadia University, S. Matwin, University of Ottawa, and T. Muldner, Acadia University	143
6. COMPUTER CARTOGRAPHY/CARTOGRAPHIE PAR ORDINATEUR – Chairman/Président: Jean-Claude Muller, University of Alberta	
<i>Matching and Intersection of Random Curves</i> T.K. Poiker, J.J. Little, and R. Lubensky, Simon Fraser University	335
<i>Computer-assisted Mapping for Census Collection – Application Experiences</i> J.Z. Yan, Statistics Canada	147
<i>Is Half the Life of Knowledge of a Digital Cartographer Now Less than One Year?</i> A.R. Boyle, University of Saskatchewan	155
<i>Visual Fidelity Criteria in a 3D Homogeneous Color Space</i> B.J. Kurz, University of New Brunswick	161

Table of Contents/Table des matières (Cont'd/Suite)

**7. MAN-COMPUTER INTERACTION/INTERACTION HOMME-ORDINATEUR – Chairmen/
Présidents: David Hill, University of Calgary; Renée Elio, University of Alberta**

<i>MENULAY – An Automatic Program Generation Module for a User Interface Management System</i> W. Buxton, M. Lamb, D. Sherman, and K.C. Smith, University of Toronto	169
<i>Colour Selection, Swath Brushes, and Memory Architecture for Paint Systems</i> P. Tanner, W. Cowan, and M. Wein, National Research Council of Canada	171
<i>Visibility in the Star User Interface</i> D.C. Smith, Xerox Office Systems Division	181
<i>Personalizable Directories: A Case Study in Automatic User Modelling</i> I.H. Witten, S. Greenberg and J. Cleary, University of Calgary	183
<i>Continuous Hand-Gesture Driven Input</i> W. Buxton, E. Fiume, R. Hill, A. Lee, and C. Woo, University of Toronto	191
<i>Reaching the Color Blind with Computer Graphics</i> D.S. Raker, Design and Systems Research Inc. (presentation only/présentation uniquement)	
8. ANIMATION/ANIMATION – Chairmen/Présidents: Marcell Wein, National Research Council of Canada; Martin Tuori, Defence and Civil Institute of Environmental Medicine	
<i>Computer Animation at Lucasfilm</i> W.T. Reeves, Lucasfilm Ltd.	197
<i>Computer Assisted Filmmaking: A Review</i> T. Calvert, Simon Fraser University	199
<i>Actor and Camera Data Types in Computer Animation</i> D. Thalmann, Université de Montréal, and N. Magnenat-Thalmann, École des Hautes Études Commerciales	203
<i>Dynamic Graphics and the Low Bandwidth Communication Barrier</i> J. Amanatides, University of Toronto	211
<i>A Structured Motion Specification in 3D Computer Animation</i> P. Bergeron, Université de Montréal	215
9. GEOMETRIC MODELING/MODÉLISATION GÉOMÉTRIQUE – Chairman/Président: Gunther Schrack, University of British Columbia	
<i>Controlling the Shape of Parametric B-Spline and Beta-Spline Curves</i> B.A. Barsky, University of California at Berkeley, and J.C. Beatty, University of Waterloo	223
<i>Analysis of a 3D Design Language</i> D.P. Makris, IBM Corporation	233
<i>A Research Perspective on Solid Modeling</i> R.B. Tilove, General Motors Research Laboratories	241

	Page
<i>Programming Facilities for User Modification of Solid Modeling Systems</i> G.J. Glass, Carnegie-Mellon University	243
<i>Locating, Replacing and Deleting Patterns in Graphics Editing of Line Drawings</i> D. Thalmann, L.-P. Demers, Université de Montréal, and N. Magnenat-Thalman, École des Hautes Études Commerciales	249
10. CAD/CAM/CFAO – Chairman/Président: David Bonham, University of New Brunswick	
<i>Experiences with a Graphical Data Base System</i> M. Green, M. Burnell, H. Vrenjak, and M. Vrenjak, McMaster University	257
<i>New Requirements for User Interaction with CAD/CAM Databases</i> F. Vernadat, National Research Council of Canada	271
<i>CAD/CAM at Mitel – (presentation only/présentation uniquement)</i> M. Caughey, Mitel Corporation	
<i>On Tailoring the Drawing System for Various Styles and Practices in Design</i> C.K. Liu, Formative Technologies Inc.	281
<i>Realizing Benefits Following the Acquisition of a CAD System</i> L. Sveinson, Nova, An Alberta Corporation	283
11. SPEECH ANALYSIS AND SYNTHESIS/ANALYSE ET SYNTHÈRE DE LA PAROLE – Chairmen/ Présidents: Ching Suen, Concordia University; R.C. Snell, Royal Roads Military College	
<i>Automatic Speech Generation and Understanding</i> R. De Mori, Concordia University	291
<i>The Future of Speech Processing Technology</i> A.L. Bridges, VeXP Research/Systems, Ltd.	301
12. RESOURCE APPLICATIONS/APPLICATIONS DE RESSOURCE – Chairman/Président: Ted Barnicoat, Alberta Department of Energy and Natural Resources	
<i>Creation of an Automated Natural Resources Data Base – (presentation only/présentation uniquement)</i> H. Walters, Alberta Department of Energy and Natural Resources	
<i>Geographic Applications for Satellite Data</i> G. Nagy, University of Nebraska	311
13. IMAGE PROCESSING/TRAITEMENT D'IMAGE – Chairman/Président: Murray Press, Royal Roads Military College	
<i>Recovering the Meaning of Diagrams and Sketches</i> A. Mackworth, University of British Columbia	313
<i>Computer Recognition of Handprinted Characters Based on Syntactic and Semantic Analysis</i> Y. Mong and C.Y. Suen, Concordia University	319
<i>A System for Acquiring, Editing and Analyzing Optical Microscope Data</i> F.G. Peet and T.S. Sahota, Pacific Forest Research Centre	327
<i>Enhancements to the Progressive Transmission Model</i> S.E. Walker, Jr., University of Maine, and F.S. Hill, Jr., University of Massachusetts	329

Graphics '84 Interface

University of Ottawa
Ottawa, Ontario
May 28 - June 1, 1984

Graphics Interface '84 is the tenth Canadian Conference devoted to computer graphics and interaction techniques, and is the oldest regularly scheduled computer graphics conference in North America. Now an annual conference and exhibition, Graphics Interface has established a reputation for a high-quality technical program. The 1984 meeting will be held at the University of Ottawa, May 28 to June 1, 1984.

Contributions are solicited describing research results and applications experience relating to the following areas of computer graphics:

- Office Automation
- CAD/CAM
- Computer-Aided Building Design
- Computer-Aided Engineering
- Videotex
- Geocartographics
- Graphics and the Arts
- Image Processing
- Interaction Techniques
- Image Synthesis
- Geometric Modelling
- Robotics
- Dynamics

A 1000 word summary is due **October 31, 1983**. Authors will be notified by **January 1, 1984**. The full paper is due by **February 29, 1984**.

Send summaries to:

Dr. Neal M. Holtz
Graphics Interface '84
Department of Civil Engineering
Carleton University
Ottawa, Ontario
Canada K1S 5B6
Tel: (613) 231-2677

Conference and Exhibit Information:

Ms. Danielle Baum
7th Floor Coates Bldg., Section P
Statistics Canada
Tunneys Pasture
Ottawa, Ontario
Canada K1A 0T6
Tel: (613) 996-7017

Authors are reminded that if it is desirable to publish the material elsewhere, a summary is sufficient for inclusion in the proceedings. This conference is being held in association with the National Computer Graphics Association, the Ottawa chapter of the Canadian Information Processing Society, the Canadian Man-Computer Communications Society, and other professional societies.

ISO MEETING REPORT
M.Wein, Chairman, Working Group in Graphics

In September, the International Standards Organization Working Group 2 (Graphics) met in Gananoque, Ontario. The meeting was hosted by the Canadian Working Group in Graphics (which is part of the CSA Committee on Programming Languages). Canadian delegates to the meeting were Hannah Newman of DOC, Marcell Wein of NRC, Geoffrey Williams of AECL, Gunter Schrack of UBC and Christian Mannhardt of BNR.

GKS

GKS is now a Draft International Standard (DIS), with only minor editorial changes remaining. There are several implementations becoming available - see the GKS Newsletter attached.

Language Bindings

The draft standard specifies the functionality of the graphics system, but does not include language binding, i.e., specifications of the language interface. Working Group 2 (Graphics) has asked the parent body (ISO/TC97/SC5) to establish a work item which will permit the development of language bindings. The first one is a FORTRAN binding, which was developed in Germany with contributions from USA and it is nearly complete. The binding is a definition of FORTRAN 77 calls for GKS functions.

A definition of graphics functions in BASIC was also developed through negotiation with the BASIC Committee. Initially, the BASIC draft defined different and incompatible graphics functions. After negotiation BASIC now includes a subset of GKS level 0 as intrinsic verbs in BASIC.

A Pascal binding is being developed in Great Britain, while there is significant effort in the USA to define an ADA binding for GKS.

Extension to 3D

A simple extension to 3D of the GKS transformation pipeline will be undertaken by Paul ten Hagen of The Netherlands and a report will be presented in June 1984.

Graphics Metafiles

Following the acceptance of the Graphics Metafile as an ISO work item, ANSI presented the working draft of the ANSI metafile document. That document had significant contributions from Hannah Newman, Chris Mannhardt and Olga Lapczak. The definition of the functionality is fairly stable now and most major issues have been resolved. The metafile will have three encodings: a character encoding of binary data for communications, a pure binary encoding for use inside an information system and a clear-text encoding for transfer between highly dissimilar systems.

Hierarchical 3D Standard (PHIGS)

ANSI reported some new work in the development of a rich 3D standard that is consistent with new technologies, workstations and high performance graphics processors.

PHIGS will be able to traverse highly structured graphical data and will support dynamic graphic displays, permitting rapid retraversal of the data structures. This work is still in the early stages and will not be formally introduced until 1984. In some ways this effort represents a revival of activities between 1966 and 1972 in the graphics community. How to deal with graphical data structures in a general way. That former effort may have been premature.

Possible CSA Canadian Standard

By participating in ISO, delegates representing Canada make an implicit commitment to process an ISO standard to become a national standard by endorsing the ISO standard or the ANSI standard as appropriate. The Committee on Programming Languages will be asked to forward GKS for processing as a CSA Standard. There are two versions in existence: the ISO version and the ANSI version which includes two additional parts: (a) A level "M" of functionality which is a subset of level 0, and hence much simpler and more consistent with microcomputers; and (b) the FORTRAN binding is included as an appendix making the document more complete. There is preference in the Working Group to endorse the ANSI document as a CSA Standard. The only advantage of the ISO version is the existence of a French translation.

There is, of course, the third choice: Not to process GKS as a CSA standard until there is greater commercial pressure. Your comments will be appreciated.

Graphics Interface '83
Preliminary Unaudited Statement
as of October 1, 1983

REVENUE

Exhibition	\$31,174.25	
Conference	40,687.93	
Tutorials	27,268.83	
Grants, etc.	4,766.88	
Total Revenue		\$103,897.89

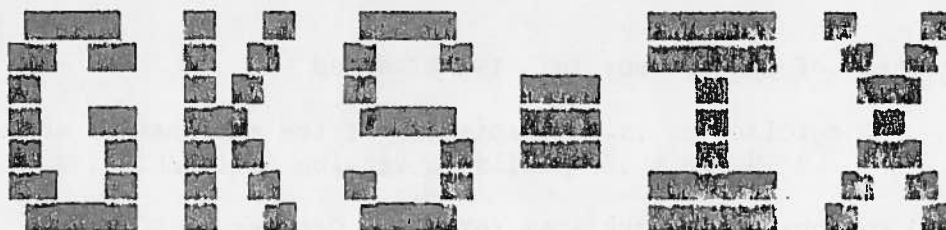
EXPENSES

Exhibition	\$16,782.23	
Conference	26,182.80	
Publicity	14,493.96	
Tutorials	19,920.31	
Total Expenses		\$77,379.30
Net Profit		\$26,518.59

Profit Distribution:

CMCCS-----	\$22,946.04
CIPS-----	\$3,572.55

P. Slinn, Treasurer
November 7, 1983



(GKS Information Exchange)

GKS-IX number 1 :: published 18 August 1983

E D I T O R I A L

The purpose of the GKS Information Exchange

This newsletter will be a place where information about GKS can be broadcast from those who know to those who want to know. It will contain information about implementations, devices, packages and systems that are related to GKS; for all these, it will try to give names, addresses and telephone numbers that will allow its readers to follow up leads they find interesting.

It can also act as a "Wailing Wall" for people who want to know or find something. For these, GKS-IX will provide a billboard where the request can reach a wider audience.

Any other number of purposes might be served as long as people write to GKS-IX; suggestions for collaborations, notification of conferences, lectures or tutorials, broadcast of bugs, Christmas Card competitions... The main point is that GKS-IX can only relay what it receives. There is only a limited amount of time to read the Press which, in any case, cannot be expected to be fully up-to-date. So write to GKS-IX, about anything evenly remotely close to GKS: the address is on the last page.

C O N T E N T S

Item		Page
1	Progress of GKS towards full ISO standard	2
2	Language Bindings	2
3	A brief summary of implementations	3
4	Getting GKS into firmware	9
5	Getting GKS into silicon	10
6	Further reading	10
7	A tutorial on GKS	11

1 Progress of GKS towards full ISO STANDARD

[The following is an adaptation of the explanation added]
[by ISO to their published version of ISO/DIS 7942]

ISO approved this work item (GKS) in October 1980. The third draft was registered as a draft proposal and voted on by ballot. Only 1 country (USA) indicated disapproval. In June 1982 all comments received in the ballot were addressed and the USA changed its vote to one of approval. A revised text has been prepared and has been submitted as a draft International Standard (DIS) for letter ballot.

[End of adapted extract]

The significance of this is twofold:

1. The letter ballot that should establish GKS as a Draft International Standard is now under way; it is due to finish on 23 December 1983.
2. ISO has now published GKS 7.2, ending the long period during which copyright problems have limited the number of people who have read the up-to-date document.

Copies of the ISO document are available from GKS-IX at the (cost) price of £7 (includes VAT, postage etc..). An order form will be enclosed with this GKS-IX; if that has been lost, send a cheque for the right amount payable to the

"Science and Engineering Research Council"

together with a very clear indication of your name and address (sticky labels most acceptable) to the address at the end of this newsletter.

2 LANGUAGE BINDINGS

As most of you will already know, GKS was defined in a way that is language independent. Therefore, before it can be implemented, a binding must be defined for the language from which it will be called. It is everyone's aim that language bindings will be defined for all standard languages (Fortran, PL/1, COBOL, BASIC, Pascal, ADA etc..) but of course this takes effort, not least because at least two independent parts of ISO have to agree (the graphics part and the appropriate language part).

Great progress towards a Fortran 77 binding has been achieved as a result of DIN sponsoring the effort and it is hoped that an agreed binding will result from the imminent ISO meeting in Canada (late September). Initially the effort was towards a Fortran 66 binding, but discussion within ISO and ANSI (the sponsors of the Fortran standard) showed that Fortran 66 had been replaced by Fortran 77 and the Fortran 77 subset as the standard language. The Fortran binding document indicates how Fortran 66 may be used with only mechanical changes from the Fortran 77 subset.

18 August 1983

GKS-IX number 1

A chapter on graphics in BASIC has been under discussion with BASIC standards people throughout 1983 and progress is being made there. Contact Ken Brodliie at Leicester University or Terry Hewitt at Manchester for latest information in this field: their addresses are given at the end of item 7.

Mel Slater of Queen Mary College (see one of the implementations below) is working on a standard Pascal binding; this effort is being sponsored by BSI and Mel aims to include ideas from existing Pascal bindings proposed by GMD Bonn and Italy.

Geraldine Cuthbert of Harris Corporation is heading a DoD-sponsored project to define an ADA binding (and implement it) on IBM PC/XTs.

3 A brief survey of IMPLEMENTATIONS

It has proved quite difficult to gather information on all the implementations we know about, but here is some information about a number of them. Some of the information has been gathered from the latest (March 1983) Computer Graphics Forum - the journal of the Eurographics Association. That information was compiled by Guenther Enderle, who is attempting to improve its accuracy and publish an expanded catalogue. For those interested in more details of the implementations, Guenther's article is most useful. Naturally, it is impossible to vouch for the accuracy of the information, but most of it has been checked. Addresses are in England unless noted; telephone numbers are as given to us.

=====

AED

Implemented by:

AED Arbeitsgemeinschaft fuer Entwicklungsplanung
und Datenverarbeitung
Michaelplatz 4/IV
(Altstadt-Center)
D 5300 BONN 2
West Germany

Tel: 0228 356176

Distributed by:

GKS-Verein
Kaiserstrasse 179a
D 7500 KARLSRUHE
West Germany

Tel: 0721 26474

As far as is known, this is a Fortran (66?) implementation of GKS 6.2, running on PDP11, VAX11, Prime, DG Eclipse and Siemens computers.

-----ooOoo-----

GKS-IX number 1

18 August 1983

AMTE

Implemented by:

Phillip Webb
 Admiralty Marine Technology Establishment
 Applied Psychology Unit
 Teddington
 Middlesex

Tel: 01-977 3231

This is an implementation of GKS 6.2, with both input and output facilities (so probably old level 2a). As far as I know it was written to provide a graphics system with no thought about tracking changes in the standard, so is still at version 6.2.

-----ooOoo-----

CGM

Implemented by:

Rainer Buhtz
 Freie Universitaet Berlin
 Wissenschaftliches Rechenzentrum
 D 1000 BERLIN 33
 West Germany

Our most recent information (from 1982) suggests that this system, written in Fortran 66, implements GKS 6.4. It has been installed on CD Cyber 835 and 172, Siemens 700, Harris H100, IBM, VAX and Univac machines. It has been described in a number of papers, including Eurographics '82 proceedings. Its exact current status (of implementation and marketing) is not known.

-----ooOoo-----

CML

Implemented by:

Peter Robinson
 Computer Laboratory
 University of Cambridge
 Corn Exchange Street
 CAMBRIDGE
 CB2 3QG

Tel: 0223-352435

This implementation is of GKS 7.0 and is written in Modula 2. It implements the GKS output system but has a wholly different input model. It runs on VAX and MC68000 under Unix and Tripos and relies heavily on Cambridge's own Modula 2 system. It is distributed as part of the Modula 2 package.

-----ooOoo-----

18 August 1983

GKS-IX number 1

DG

Implemented by:

Data General Corporation
 4400 Computer Drive
 Westboro
 MASSACHUSETTS 01580
 USA

Tel: (617) 366-8911

DG have announced an implementation of GKS 7.0 under AOS/VS; it corresponds to a lowish level of GKS (0b or 1b) as far as we know; the language binding used is stated as the one "proposed by ANSI"; it is not known whether DG intend to move to GKS 7.2 and the any updated (but agreed) binding. Their system appears, from advertising literature, to be a complete GKS system, aiming to conform in spirit to GKS.

-----ooOoo-----

GKSGRAL

Implemented by:

Herbert Kuhlmann
 THD, Technische Hochschule Darmstadt
 Institut fuer Informationsverarbeitung
 und interaktive Systeme
 Alexanderstrasse 24
 D 6100 DARMSTADT
 West Germany

Tel: 06151 163478

Marketed by:

Norbert Cullmann
 GRAL GmbH
 Haus der Datenverarbeitung
 Preussenstrasse 19
 D 6600 SAARBRUECKEN
 West Germany

Tel: 0681 65578

This implementation has now been upgraded to GKS 7.2 and has been running at Darmstadt and some other German institutes for some time. It is now marketed by the firm noted above; we have no idea of current prices. The implementation is in Fortran 66 and was written on a Siemens machine; it now also runs on MC68000, Varian 7000 and Univac systems. Our own experience of putting up its predecessor (GKS 6.2) on our VAXes showed that it was highly transportable.

-----ooOoo-----

GKS-IX number 1

18 August 1983

GKS-X

Implemented by:

Kate Stuart-Smith
 System Simulation Ltd.
 101 St. Martin's Lane
 LONDON WC2N 4AZ

Tel: 01-240 7821

This is an implementation in C, initially tested on a PDP 11/34. It supports output primitives and their attributes other than raster output functions and also provides cursor input. It runs under Xenix and two application systems have been written above GKS-X.

-----ooOoo-----

GKS-300

Implemented by:

Klaus Kansy
 GMD, Gesellschaft fuer Mathematik und Datenverarbeitung
 Schloss Birlinghoven
 Postfach 1240
 5202 St. Augustin 1
 West Germany

GMD has implemented GKS 7.0 to level 2c in Fortran 66 and Pascal. When I last spoke to Klaus, he said they did not have effort available to update their 7.0 implementation to 7.2. Siemens (R30 and 7000) machines are supported.

-----ooOoo-----

GRIBS

Implemented by:

S.E.P.P
 Sandstrasse 18
 D 8551 Roettenbach
 West Germany

Distributed by:

GKS-Verein
 Kaiserstrasse 179a
 D 7500 KARLSRUHE
 West Germany

Tel: 0721 26474

This implemented GKS 6.2, but Sepp Preston anticipated updating this to GKS 7.2 level 0b by Easter 1983. It runs on lots of machines (mostly quite small) and a wondrous range of terminals and plotters.

-----ooOoo-----

18 August 1983

GKS-IX number 1

GSS

Implemented by:

GSS Inc.
 (Possible Address)
 PO Box 673
 29783 S.W. Town Center Loop
 Wilsonville
 OREGON 97070
 USA

Tel: (503) 682-1606

Marketed in UK by:

Digital Research (UK) Ltd.
 Oxford House
 Oxford Street
 Newbury
 Berkshire
 RG13 1JB

Tel: 0635 35304

GSS have produced a system called GSS-Kernel which is advertised as "drawing lines, polygons and text according to ... GKS". This is an extension facility for CP/M and a set of higher level routines are available from a library called GSS-PLOT to make use of these. As yet we have had no chance to see where GSS-Kernel matches GKS: can anyone help?

-----ooOoo-----

INRIA

Implemented by:

Andre Ducrot
 INRIA Institut National de Recherche en
 Informatique et Automatique
 B.P. 105
 78153 de Chesnay, Cedex
 France

Tel: (3) 954-90-20

This project, started by Andre Ducrot and Howard Watkins, has suffered from the departure of Howard Watkins from ECMWF. As far as is known, there is no current work on it, since Andre is busy working on the French translation of GKS, which has to be available for GKS to become an International Standard. The project was based on CDC machines at ECMWF.

-----ooOoo-----

GKS-IX number 1

18 August 1983

MC

Implemented by:

Dr. P J W ten Hagen
Mathematical Centre
1098 SJ Amsterdam
Kruislaan 413
The Netherlands

Tel: 020 592 4133

Paul ten Hagen, the convenor of the ISO working group that reviewed and refined GKS, has produced an implementation of GKS in and for the language C, for use under Unix. David Rosenthal, the chairman of the BSI group that worked on GKS, was also involved in the development and has described the C language binding in a paper presented at Eurographics '82.

-----ooOoo-----

QMC

Implemented by:

Mel Slater
Queen Mary College
University of London
Mile End Road
London E1

Tel: 01-980 4811

Mel started writing a GKS implementation about two years ago and has continued to update it as the document changed. He is at present in the process of bringing the whole system up to GKS 7.2. The system is written in Fortran 66 and has run on ICL 2900, ICL PERQ and GEC 4000 machines. A number of device handlers have been written and more are planned. Mel is now also working on a Pascal binding for GKS.

-----ooOoo-----

18 August 1983

GKS-IX number 1

RAL

Implemented by:

Chris Osland
 Computing Division (Graphics Section)
 Rutherford Appleton Laboratory
 Chilton, DIDCOT, Oxon
 OX11 0QX

Tel: 0235 21900 ext 6565

This implementation started after the June 1982 meeting which resolved the issues raised by the letter ballot and brought GKS 7.2 into existence. It is being written by several of those involved with GKS in Britain (Osland, Rutcliffe, Osland) together with a team from ICL; the implementation language is Fortran 77, the target level 1b or 2b, and the target machines ICL PERQ, DEC VAX, IBM (CMS and MVS), Prime and GEC 4000 series. The output system is complete and work is in progress to complete input and segments later this year. At the time of writing the marketing arrangements were not settled; contact RAL for latest information.

-----oo0oo-----

SYSGRAPH

Implemented by:

SYSGRAPH Graphische Computer Systeme GmbH
 Castellezgasse 4/13
 A 1020 VIENNA
 Austria

Very little known except that the target was GKS 7.2 early in 1983.

4 Getting GKS into FIRMWARE

Sigma Electronics announced (and have demonstrated at numerous shows) the 6100 workstation. To quote from the advertisement: "The new 6100 Series provides both monochrome and colour intelligent raster graphics workstations with inbuilt GKS functionality. Display primitives with individual or bundled attributes, segmentation, workstation transformation and an integral GKS input model with logical device support and prompt/echo types."

Ray Spiers, who was another person active in the GKS work, is largely behind this development by Sigma. Note that as of mid-1983, Sigma's marketing wing is known as Sigmex. Their address is as follows:

GKS-IX number 1

18 August 1983

Sigmex Ltd.
 Sigma House
 North Heath Lane
 Horsham
 West Sussex
 RH12 4UZ
 Tel: 0403 50445

5 Getting GKS into SILICON

The Germans have been looking to see how much of GKS can be put onto one chip. A joint venture by TH Darmstadt (the origin of one of the implementations of GKS and the place most associated with GKS) and Siemens in Munich has been working on the problem. The result will probably be implemented using a ULA (Uncommitted Logic Array) as a testbed, but may be engineered as a custom chip at a later stage.

Intel have also been working on chips for graphics functions, principally from the idea of a Virtual Device Interface; can anyone tell GKS-IX how they are doing and how much of GKS they are putting on the chip?

6 Further READING

The inevitable crop of conference articles are available about GKS; time is too precious to list them now. However, in addition to the publication of the standard (see above), two books have been written on GKS.

The first, published by Academic Press, is by the Rutherford group (Hopgood, Duce, Gallop and Sutcliffe) and is called "Introduction to the Graphical Kernel System (GKS)"; it is part of the APIC Studies in Data Processing Series and costs £11.60 or \$19.50. The blurb says:

The main aim of this book is to provide an introduction to the concepts of GKS, so the authors have assumed a basic knowledge of computer graphics. The first main part of the text covers the background and major ideas of the system, and the second covers those features more likely to be required by the specialist graphics programmer. Appendices and an index allow the work to be use as a reference manual.

The second book is by the Germans: Enderle, Kansy and Pfaff, who were amongst the originators of GKS and very active throughout its review. Their book will soon be published by Springer-Verlag and is called "Computer Graphics Programming: GKS - The Graphics Standard". Its blurb notes that

This book gives an overview over the GKS concepts, the history of the GKS design and the various system interfaces. A significant part of the book is devoted to a detailed description of the application of GKS functions both in a Pascal and a Fortran-language environment.

18 August 1983

GKS-IX number 1

Those who thirst for more should try the Eurographics '82 (published) and '83 (not yet published) tutorial notes and proceedings. These (and details of membership of the Eurographics Association) may be obtained from

Eurographics Association
c/o Carlo Vandoni
PO Box 199
CH-1211 Geneva 16
Switzerland