



IEEE NEWSLETTER KITCHENER - WATERLOO SECTION



April 1995

MEETINGS

Mark these dates on your calendar:

- May 11-12, International Science and Engineering Fair, Hamilton
May 25, K-W Section Annual General Meeting and Presentation "Bell's Vision for Fibre Optics in Waterloo Region"

For details see page 2

Feature Articles

Conferences in Canada	page 3	News from Industry ComDev Ltd.; Open Text Corp.	page 4
New Ground Rules for Life Membership	page 3	Nuclear Fusion in the Bruce?	page 4
Student Papers Night a Great Success	page 3	Power News	page 5
Wellington Freespace to Connect Guelph to the Internet	page 4	Cell Phone Suspected of Causing Brain Cancer	page 5
Terry Wilkinson Describes Object Oriented Programming	page 4	Electric Vehicles - Good and Bad News	page 5
Delighted Customer the Goal of Susan Carreon's Software QA	page 4	Access to the Internet	page 5

Section Officers

Chair: Rafaat Mansour, (519)622-2300 ext. 246
 Vice Chair: David Wang, (519)885-1211 ext. 3968
 Secretary: Rosalind Hood-Morris, (519)570-0300
 Treasurer: John Mowbray, (519)884-1710 ext. 371, 569

Chapter Chairs

Computers: Manh Le, (519)884-1710
 Antennas and Prop., Microwave Theory and Tech.:* Len Chow, (519)885-1211 ext. 2822
 Circuits and Systems, Electron Devices:* Aroka Nathan, (519)885-1211 ext. 4803
 *Combined Chapter

Committee Chairs

Publicity: Ed Spike, (519)885-1211 ext. 3716
 Education: Rosalind Hood-Morris (519)570-0300
 Program: Shesha Jayaram, (519)885-1211 ext. 5337
 Membership and Transfers: Arvind Vyas (519)884-1710 ext. 245
 Publications (News Letter): Tom East, (519)746-7809
 Awards: Shesha Jayaram, (519)885-1211 ext. 5337
 Nominations: R.H. MacPhie (519)885-1211 ext. 2842

Student Activities Chairs

Conestoga College: Jake Huschilt
 Univ. of Waterloo: e-mail
 ieesb@electrical.watstar.uwaterloo.ca
 (519)885-1211 ext. 6955
 FAX: (519)746-3077
 Daniel Miller, (519)885-1211 ext. 5215
 Stream A: Bernhard Woo,
 Summer 1995 bkwoo@electrical.watstar.uwaterloo.ca
 Stream B: George Freeman, (519)885-1211
 Winter 1995 ext. 2876

Address IEEE
 K-W Section
 c/o Elect. & Comp. Eng. DC2597
 University of Waterloo
 Waterloo, Ont., N2L 3G1
 E-Mail: KWieee@sunee.uwaterloo.ca

INTERNATIONAL SCIENCE AND ENGINEERING FAIR

Copps Coliseum, Hamilton, Ontario.

Open to the Public May 11th and 12th 1995.

This is a very high level North American event for High School competitors. It has been dubbed the "World Series" of Science Fairs. It is administered by Science Service Inc., a non-profit organization headquartered in Washington, D.C. Finalists are selected from more than 365 affiliated fairs from over 30 foreign countries.

For further information, contact Ed Donenichetti, phone 905-522-1337.

**ANNUAL GENERAL MEETING
KITCHENER-WATERLOO SECTION, IEEE**

Date: Thursday May 25th 1995.

Time: After the presentation which starts at 7.00 p.m.

Place: University of Waterloo, Davis Centre Room 1302.

1. PRESENTATION: BELL'S VISION FOR FIBRE OPTICS IN WATERLOO REGION

Speaker: Joe Murphy, Regional Managing Consultant, Integrated Community Networks, Bell Ontario.

Speaker's Dinner: Meet the speaker and members of the executive before the presentation if you wish - at 5.30 p.m. at the Fox and Pheasant (University Avenue, East of Phillip St.). Phone Rosalind Hood-Morris at 886-4571 by May 22nd for reservations.

2. ANNUAL GENERAL MEETING - K-W SECTION, IEEE.

The Nominating Committee (chairman Robert MacPhie) has proposed a slate of names to serve on the K-W Section's Executive Committee from July 1, 1995 to June 30, 1996. The names of the individuals are listed below. Members may nominate other members as alternative candidates under the following conditions:

For each nominee

- a) obtain agreement in writing to stand,
- b) obtain supporting signatures of two percent of the voting members,*
- c) submit these documents to the Secretary, Rosalind Hood-Morris, 266 Whitmore Drive, Waterloo, Ontario by May 15th 1995.

If alternate nominations are received, elections will be held at the Annual General Meeting.

*This section has about 560 voting members.

SLATE PROPOSED BY THE NOMINATING COMMITTEE FOR 1995-1996

Section Officers:

Chair: Raafat Mansour, ComDev
 Vice Chair: David Wang, University of Waterloo
 Secretary: Rosalind Hood-Morris, Waterloo County Board of Education
 Treasurer: John Mowbray, ATT-GIS

The Kitchener-Waterloo Section of the Institute of Electrical and Electronics Engineers serves all members whose mailing address is in Bruce, Grey, Perth, Waterloo or Wellington Counties.

Chapter Chairs:

Antennas and Propagation, Microwave Theory and Techniques: Len Chow, U. Waterloo
 Circuits and Systems, Electron Devices: (C.R. Selvakumar, U. Waterloo)
 Computers: (Arokia Nathan, U. Waterloo)
 Manh Le, ATT-GIS

Committee Chairs:

Awards: VACANT
 Publication: Tom East, TEES
 Program: Shesha Jayaram, U. Waterloo
 Nominations: R.H. MacPhie, U. Waterloo

Student Activities Chairs:

Univ. of Waterloo: Daniel Miller
 George Freeman
 Conestoga College: Jake Huschilt
 Education: Rosalind Hood-Morris
 Membership: Arvind Vyas, ATT-GIS
 Publicity: Shesha Jayaram

CONFERENCES IN CANADA

1995

- May 9-11 IEEE Intelligent Networks Workshop - IN95. Ottawa. J. Erfanian 905-615-6486.
- May 17-19 IEEE Pacific Rim Conference on Communications, Computer, Visualization and Signal Processing. Victoria. D.G.Goodenough 604-721-7209, e-mail: pacrim@csr.uvic.ca
- May 30-Jun 2 15th International Conference on Distributed Computing Systems. Vancouver. Jane Liu 217-333-0135, e-mail: janeliu@cs.uiuc.edu
- Jun 4-11 IEEE Holm Conference on Electrical Contacts CPMT. Montreal.
- Jun 12-16 IEEE Pulp and Paper Industry Conference. Vancouver. P. Fransen 604-270-7728.
- Jun 14-16 International Workshop on Quality in the Telecommunications Network. Victoria. W. Hoberg 708-224-7754, e-mail: hoberg@nwsca.att.com
- Jun 19-22 1995 IEEE Digital Cross Connect Systems Workshop VI. Banff, Alberta. R. Hamley 613-781-7969.
- Jul 9-14 CASE 95, Eighth International Workshop on Computer-Aided Software Engineering. Toronto. Hausi Muller 604-721-7630, e-mail: hausi@csr.uvic.ca
- Aug 21-25 1995 IEEE Software Engineering Standards Symposium. Montreal.
- Sep 17-22 IEEE International Symposium on Information Theory. Whistler, BC. Vijay Bhargava 604-721-8617.
- Sep 20-23 17th International Conference - IEEE Engineering in Medicine and Biology Society. Montreal. Fernand Roberge 514-343-7515.

- Sep 24 IEEE International Workshop on Software Evolution Processes and Measurement. Victoria. J.C.Munson 904-474-2545.
- Sep 27-29 PIMRC '95 - Personal, Indoor and Mobile Radio Communications. Toronto. J. Erfanian 416-964-9476, e-mail: javan@comm.toronto.edu
- Oct 2-4 1995 IEEE Holm Conference on Electrical Contacts. Montreal. Phone 908-562-3870.
- Oct 22-25 1995 IEEE International Conference on Systems, Man and Cybernetics. Vancouver. Venue West Ltd 604-681-5226.
- 1996**
- Jun 16-19 1996 IEEE International Symposium on Electrical Insulation. Montreal. Randy James 615-574-6213.
- 1997**
- Jun 8-12 ICC 97 - IEEE International Conference on Communications. Montreal. Celia Desmond 905-615-6507.
- Jul 14-18 IEEE AP-S International Symposium and URSI Radio Science Meeting. Montreal. Stanley Kubina 514-848-3492.
- 1998**
- May 4-7 1998 IEEE/IAS Industrial & Commercial Power Systems Technical Conference (I&CPS). Edmonton. Marty Bince 403-468-6673.

NEW GROUND RULES FOR LIFE MEMBERSHIP

Before 1993, to be a life member you had to be at least 65 and your age and years of IEEE membership had to add to 100. In 1992 the rules were changed: from 1998 onwards a member will only have to have 40 years of membership in IEEE. In the meanwhile, a grandfathering arrangement applies:

Year:	1995	1996	1997	1998 on
Age/membership	65/35	65/35	65/35	40 years
years	or 64/36	64/36	64/36	
	or 63/37	63/37	63/37	
		62/38	62/38	
			61/39	

Life membership entitles you to receive, free of charge, the services provided in the basic membership fee, including your subscription to Spectrum magazine and the Institute. By the way, you do not have to be a grandfather.

STUDENT PAPERS NIGHT A GREAT SUCCESS

The annual Student Papers Night was held at the Davis Centre, University of Waterloo on March 8th. About 40 people were present altogether.

The three judges were:
 Prof. Andrew Heunis, University of Waterloo
 Ms. Susan Ferguson Carreon, ATT Global Information Solutions
 Dr. George Bulik, Conestoga College

Three teams from Conestogo College competed for the Ken McKenzie Award. Kevin Tessler won first prize for his paper, "An On-board Computer System for the Conestogo College Solar Car".

The other two papers tied for second place. "Albumen Height Gauge" was presented by Dave Hudson, Geoff Jones, Eric Scott and James Webster. "Completely Hands Free Telephone System" was presented by Kelly Schmidt and Rob Walsh.

The University of Waterloo contest was for the George Dufault Award. The judges awarded the first prize to Stephen Bagshaw for his presentation on "Wireless Networking in a LAN Environment".

The second prize was awarded to Jon Pocock for his paper on "Reliability of Plastic Encapsulated Components on the HIDS Design". Alfred Cheung received the third prize for "Consequences of Leakage Inductance on Switching Mode Power Supplies".

Each prize consisted of a pen and a sum of money: the pens were contributed by AT&T Global Information Solutions.

WELLINGTON FREESPACE TO CONNECT GUELPH TO THE INTERNET

A grant of \$250,000 obtained through the Ontario Network Infrastructure Program (ONIP) was presented to Wellington FreeSpace, a volunteer organisation, on March 24th. Further funding will be generated by advertising and services. The MPP for Guelph, Derek Fletcher, said "Wellington FreeSpace gives the people of Guelph and those in large rural areas of the county greater access to information since it provides a gateway to community information and to the global information highway".

FreeSpace was set up by a committee containing University of Guelph students and researchers, and by members of the North Wellington Advisory Group. It will be a central hub for connections to e-mail and World Wide Web access on the Internet.

TERRY WILKINSON DESCRIBES OBJECT ORIENTED PROGRAMMING

by Rosalind Hood-Morris

About 50 people were in attendance at the highly entertaining and informative talk given by Terry Wilkinson, of CS Design Inc. Terry spoke about the history of object-oriented (OO) technology and the evolution of programming. He showed how 'modularization' led to 'structured programming' which led to 'data driven design', and finally culminated in the OO approach to creating applications and systems. He then went into the details of the five basic concepts of OO, namely:

1. Abstract Data Types - a generalisation of intrinsic data types
2. Instances of data types - the memory space that's used
3. Encapsulation - abstract data types with associated functions as well as public and private components
4. Inheritance - factoring out common data and functions
5. Polymorphism - specializing the behaviour of functions

Terry concluded with a bibliography of OO literature.

Even for those who, like myself, have had some exposure to OO technology, the talk gave a good, high-level perspective on the concepts and clarified its relationship with the more traditional approaches to data modelling and systems design. I found his view of the relationships between the traditional entity relational data modelling and OO to be particularly helpful. Well done Terry!

DELIGHTED CUSTOMER THE GOAL OF SUSAN CARREON'S SOFTWARE QA

by Tom East

On March 15th Susan Ferguson Carreon gave a lively interpretation of Quality Assurance as applied to Software. QA has finally come into its own in Manufacturing but still has a long way to go in software in her opinion.

Susan describes the ultimate goal of any software development as "a delighted customer". She told some horror stories of well known companies: one had to ask the customer "Which version of the program did we send you?". She suspects that a company which sells you "upgrades" is really fixing the bugs at the customer's expense.

Susan is Director of Quality Assurance at AT&T GIS in Waterloo, which generates software and also buys it from outside the company. We wish her luck in her campaign to smarten up the whole software industry.

NEWS FROM INDUSTRY

ComDev receives Ontario Government funds

A contribution of \$4.7M towards a \$10.4M development program was handed to ComDev this month. The program is for the development of miniature filters and multiplexers for spacecraft.

Open Text Corporation, Waterloo

At a publishing industry trade show in Boston, Open Text Latitude, a new software product was given an award. Four hundred companies exhibited: eleven received awards. The product was developed in conjunction with Caterpillar, an Illinois heavy equipment manufacturer. One thousand Caterpillar dealers around the world will be receiving support information using this system. Open Text Corporation is only the second Canadian company to be honoured by Seybold, the show's organizers.

NUCLEAR FUSION IN THE BRUCE?

In the February 1992 edition of this newsletter, we described the continuing effort to achieve stable, useful nuclear fusion of Hydrogen into Helium, and plans to build ITER, the International Thermonuclear Experimental Reactor, a combined effort of four consortia: Europe, Japan, USA, USSR (now superseded by Russia). Canada's team is part of the European consortium.

The Bruce Nuclear Power Development near Kincardine, Ontario is being suggested as a site for ITER. It has a stable electrical grid which can supply the large amounts of power required for the experiments, and room to house the 280 hectare site required. Another site being considered is Darlington in eastern Ontario. Of course, other countries are interested, though it was agreed at an early stage to leave out the USA and USSR. The ITER partners may make the final decision next year.

POWER NEWS

Queenston, Ontario:

The Adam Beck no 2 hydroelectric plant at Queenston, which started delivering power from Niagara Falls in 1954, is to receive a major upgrade costing over \$100M, according to Ontario Hydro.

Cernovada, Romania:

Atomic Energy of Canada Limited announces that the Candu reactor installed in Eastern Romania has been brought into working order (after a rough time under the Communist Regime) and is expected to start producing power in May. It is rated at 680 MW. Romania is considering building a second unit.

CELL PHONE SUSPECTED OF CAUSING BRAIN CANCER

A car salesman in Coquitlam BC used his cellular phone for up to 25 hours per month. He died of brain cancer and his widow suspects there is a link.

A US author, Dr. David Perlmutter, claims that close correlation has been found between the position of the antenna in hand-held cellphones and the tumours in cancer patients. Some researchers say the phones may give three times the allowed limits of radiation. However, health department officials say there is no evidence of danger from use of cellphones.

ELECTRIC VEHICLES - GOOD AND BAD NEWS

Recent test results under real world conditions have emphasized some of the limitations of electrically powered road vehicles.

Electric trains have largely replaced coal and diesel powered trains in Europe and Japan, removing their pollution to central power stations where it can be more easily minimised. Electric cars and trucks would presumably do the same, and will have to be used in California and in some other states, at least in small numbers, to comply with laws. The problem is providing batteries with enough capacity, and easily chargeable.

Road tests by Ford show that in Europe, their Ecostar delivery trucks averaged 160 km between charges under good conditions, but could drop to 32 km in very cold weather. Nissan found that a compact station wagon could only cover 48 km at 0C.

Intensive research on batteries continues.

ACCESS TO THE INTERNET

Owen Glendower: I can call spirits from the vasty deep!

Hotspur: Why, so can I, and so can any man.
But will they come when you do call for them?

Shakespeare: Henry 4th part 1 Act 3 Scene 1.

My wife and I invested in a modem early this year. We were looking forward to receiving e-mail and faxes, and especially to surfing the Internet, which is supposed to bring us within shouting distance of the Global Village. However, our experience to date has been one of frustration and disappointment. I can receive e-mail from Waterloo, and send to, but not receive e-mail from, England. We sometimes set up the ironing board beside the monitor, and several shirts get ironed while waiting for access to our server: sometimes the 10 minute time limit expires before we get through. If we do get through to the server, our request is often greeted with "Unable to locate host". In some cases, the Home Page consists of a title only (not worth waiting ten minutes for).

Of course, it beats "snail mail" (Canada Post), but I am tempted to call it "mouse mail".

What has been your experience? Please fill in the form overleaf and send it, or a copy, to:

The Editor,
K-W Newsletter,
IEEE,
c/o Dept of Elect. & Comp. Eng. DC-2597
University of Waterloo,
Waterloo, Ontario N2L 3G1

I will publish the results in a later newsletter.

Please rate the response to your attempts to get information through the Internet: quick, reasonable, slow, crawl, none.

	Daytime	Evening	Weekend
Access to your server			
e-mail			
Fax			
Access to IEEE			
Access to other destination (name your favourite, eg, model railroads, Australia, etc.) Name:			
Access to Usenet			

Please add:

Name of Server (CSR, Hookup, Sentex, uwaterloo, etc.)

Name of modem and software

Comments

Signature (optional)
