



# IEEE NEWSLETTER

## KITCHENER - WATERLOO SECTION



**January 1996**

Mark these dates on your calendar:

January 15th: Deadline for papers to ICCI'96 (see page 3).

February 7th: Videoconference - Faraday Lecture: 1:00-2:30 pm (see page 4).

February 19th: CWMEWS'96 - Canadian Workshop on Micro Electro Mechanical Systems, University of Waterloo, Davis Centre, Room 1302, 8:30 am to 6:00 pm (see page 2).

March 20th: Student Papers Night, University of Waterloo, Davis Centre, Room 1302, 7:00 pm (see page 2)

### Feature Articles

CWMEWS96	page 2	News from Industry	page 5
Student Papers Night	page 2	Kudsia Provided a Road Map for the R&D Function	page 5
8th International Conference of Computing and Information, ICCI'96	page 3	Leap into 1996	page 5
Conferences in Canada	page 4	Radarsat in Orbit	page 5

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**CWMEWS'96 - CANADIAN WORKSHOP ON MICRO ELECTRO MECHANICAL SYSTEMS**

Time: Monday, February 19 1996, 8.30am to 6.00 pm

Place: University of Waterloo, Davis Centre Room DC 1302

The 1996 workshop on MEMS will be held at the University of Waterloo. This meeting would be similar to the previous two or three get-togethers we have had: however, since this is a workshop, everyone in Canada (universities and industry) will get a chance to participate/present their work. There will not be a proceedings but all presentations will be compiled for circulation amongst participants. The theme will be as broad as possible and topics would include:

- Microactuators
- Microsensors
- Microsystems
- Fabrication and machining technologies
- Computer-aided-design
- Material properties
- New materials
- New applications

Workshop Chair: Arokia Nathan, Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario N2L 3G1. Tel 519-888-4803, Fax 519-746-3077, e-mail anathan@venus.uwaterloo.ca

Sponsors: IEEE KW Section; Electrical and Computer Engineering UW; Information Technology Research Center (ITRC); Institute of Computer Research (ICR).

To register, please mail the following information to A. Nathan:

I would like to present some of my results at the workshop  
\_\_\_\_\_ Yes \_\_\_\_\_ No

Name \_\_\_\_\_

Address/Organization \_\_\_\_\_

e-mail \_\_\_\_\_

phone \_\_\_\_\_

fax \_\_\_\_\_

Registration: IEEE members \$120 Membership no \_\_\_\_\_  
Non-members \$150, Students \$160. Make cheques payable to CWMEWS'96.

**STUDENT PAPERS NIGHT WEDNESDAY MARCH 20TH (advance notice)**

Presented by: K-W Section; Student Branch B, University of Waterloo; and Student Branch, Conestoga College.

Time: 7.00 p.m. Wednesday March 20, 1996

Place: University of Waterloo Davis Centre, Room 1302

You are cordially invited to the annual Student Papers Night.

Students from Conestoga College and the University of Waterloo will deliver oral presentations of their technical papers. The best paper from the College is awarded the Ken McKenzie Award and the best paper from the University receives the George Dufault Award; the awards include cash prizes.

Refreshments will be provided.

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.

**8th INTERNATIONAL CONFERENCE OF  
COMPUTING AND INFORMATION ICCI'96 (in  
Cooperation IEEE Computer Society)**

Date: June 19 - 22, 1996

Place: University of Waterloo

ICCI'96 will be an international forum for presentation of new results in research, development, and applications in computing and information. The organizers expect both practitioners and theorists to attend. In past conferences, ICCI has attracted participants from over 40 different countries.

For further information contact:

Frank Tompa, University of Waterloo, Canada

Farhad Mavaddat, University of Waterloo, Canada

S.Q. Zheng, Louisiana State University, USA

**CALL FOR PAPERS**

**DEADLINE: January 15, 1996 Paper submission deadline to the appropriate Stream Chair.**

PLEASE insure your email address is correct, current, and present.

1. Select the right stream for your paper:

Stream A: Data Theory and Logic, Information and Coding Theory, Theory of Programming, Algorithms, Theory of Computation

Stream B: Distributed Computing and Communications

Stream C: Concurrency and Parallelism

Stream D: Database Theory, Database Systems, AI Methodologies, Expert Systems, and Knowledge Engineering

Stream E: Software/Data Engineering and CASE Methodology

Stream F: Environmental Applications of Computer Science

2. Submit five copies of your manuscript to the appropriate Stream Chair (see below) by the submission deadline. Papers should be written in English, and contain a maximum of 5000 words. Each paper should include a short abstract and a list of keywords indicating subject classification.

Please note that a blind review process will be used to evaluate submitted papers. Authors' names and institutions should be identified only on a cover page that can be detached. No information that clearly identifies the authorship of the paper should be included in the body.

Authors of accepted papers will be asked to prepare the final version in postscript form for publication in a Special Issue of the CD-ROM Journal of Computing and Information (JCI): an issue devoted to the Proceedings of ICCI'96. The proceedings will also be available via WWW Site and Anonymous FTP over the Internet. To view the proceedings for ICCI94 and ICCI95, please see <http://phoenix.trentu.ca/jci>

Also note that the Organizers of this conference advocate the use of electronic mail for communications. Hard-copy mail will only be used to send letters pertaining to acceptance and in those rare cases where email communication is not available. Please insure that your email address is present, current and correct in all correspondence.

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**Registration Fees**

- > Postmarked Before May 15: \$300 (Cdn)
- > Postmarked After May 15: \$340 (Cdn)
- > 10% discount to IEEE/Computer Society Members
- > 50% discount to students (provided there is only one author)
- > Only one discount may apply
- > Flat rate of \$150 (Cdn) for non-authors (not presenting a paper)
- > Registration Fee does not include accommodations
- > U.S. Exchange Rate to be determined

For further information, please contact:

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**VIDEOCONFERENCE - FARDAY LECTURE**

Time: February 7, 1:00 to 2:30 pm  
Rogers Cable Channel 20.

Topic: From a to b without c - the story of the building of the Channel Tunnel.

**CONFERENCES IN CANADA**

**1996**

- Feb 19 CWMEWS'96 Canadian Workshop on Micro Electro Mechanical Systems. Waterloo, Ontario. A. Nathan 519-888-4803 e-mail anathan@venus.uwaterloo.ca Deadline for papers Jan 15. See page 2
- Apr 23-25 Broadband Communications 96. Montreal. L.G. Mason 514-765-7836. e-mail: lorne@inrs-telecom.quebec.ca
- Apr 27-28 TechNet Canada 96 "Government and Industry Info Exchange on Transition to the Future" presented by AFCEA Canada (Armed Forces Communications and Electronics Association). Ottawa 613-594-8788
- Jun 2-5 18th Biennial Symposium on Communications, Queen's University. Kingston, Ontario. 613-531-9210, e-mail: events@adan.kingston.net Deadline for abstracts to H.T.Mouftah 613-545-2934, e-mail mouftah@eleceng.ee.queensu.ca, Jan 22 1996
- Jun 16-19 1996 IEEE International Symposium on Electrical Insulation. Montreal. R.James 615-574-6213
- Jun 19-22 ICCI 8th International Conference of Computing and Information. Waterloo, Ont. Farhad Mavaddat 519-885-1211. Deadline for papers Jan 15 1996
- Jul 9-11 3rd Workshop on Finite Element Methods in Electromagnetic Wave Problems. Halifax. Z.D.Chen fax 902-422-7535 or G.Pelosi e-mail FEW96@ingfil.ing.unifi.it
- Aug 18-21 IEEE International Engineering Management Conference EM 96. Vancouver. WA Wallace 518-276-6854, e-mail: wallaw@rpi.edu

**1997**

- May 20-22 IEEE Instrumentation and Measurement Technology Conference IMTC 97. Ottawa. R. Myers 301-287-1463, e-mail: bob.myers@ieee.org
- Jun 8-12 ICC 97 - IEEE International Conference on Communications. Montreal. Celia Desmond 905-615-6507, e-mail: celia.desmond@tc.resonet.com
- Jul 14-18 IEEE AP-S International Symposium and URSI Radio Science Meeting. Montreal. Stanley Kubina 514-848-3093, or G. Delisle 514-765-8202, e-mail: delisle@inrs-telecom.quebec.ca
- Oct 7-10 IEEE Ultrasonics Symposium. Toronto. S Foster e-mail: stuart@owl.sunnybrook.utoronto.ca

**1998**

- May 4-7 1998 IEEE/IAS Industrial and Commercial Power Systems Technical Power Conference (I&CPS). Edmonton. M.Bince 403-468-6673

**1999**

- Jul 18-22 1999 IEEE Power Engineering Society Summer Meeting. Edmonton. D Fraser 403-448-3554

## NEWS FROM INDUSTRY

Electrohome Ltd. has received ISO 9001 certification for its projection and business display systems.

EMJ Data Systems of Guelph plans to acquire Hookup Communications, an important service provider for the Internet.

MKS has taken steps to become listed on the Toronto Stock Exchange by closing a warrant transaction, which will lead to publicly traded shares.

In December, Open Text Company was advertising 25 positions, including 9 in the R & D Department. Raytheon Canada and Watcom have also been looking for recruits.

Raytheon Canada Limited has won a contract for the supply of two Air Traffic Control systems to Switzerland: the contract is said to be worth \$7.5 million. It includes the newly designed all solid state primary radars: the company has sold 16 of them so far. Contrary to the report in the Kitchener-Waterloo Record, this is not the company's first European order: in the 1960s, Raytheon Canada also supplied two (vacuum tube) ATC radars to Switzerland. The company recently awarded scholarships to four children of its employees.

## KUDSIA PROVIDED A ROAD MAP FOR THE R & D FUNCTION

On November 9, Dr. Chandria Kudsia, Chief Scientist of ComDev Ltd gave an inspiring talk on Managing Innovation and Technology. Referring specifically to Space Programs, he pointed out that while in the 1970s a conception took 10 to 20 years through planning, construction and launch to reach payback, in the 1990s, this time has been reduced to 5 to 10 years. In the early, planning, phase, technical risks must be retired, and one must get to know the customer's customer.

ComDev is a heavily oriented R & D company. It has established a couple of "core technologies", from which it was able to capture niche markets, including multiplexing and switching equipment for communication satellites worldwide. After early successes with the ANIK-B and INTELSAT V satellites, ComDev is becoming involved in Wireless Communications and space remote sensing (such as the recently launched Canadian Radarsat). The company's strategy is: combine high technology with high profitability, invest heavily in R & D, employee ownership.

Success requires an R & D mission statement which is continuously re-assessed, and includes goals against which performance can be measured. Technology thrusts have to be compatible with management goals - the CEO must be involved.

Kudsia's winning strategy is to build products around world class "core" technologies which span more than one niche. He advocates patience - look beyond the quarterly "bottom line" - and Total Quality Management. He thinks government should ensure a level playing field in international markets, and foster private investors. There is a commonality of interests between industry, government and universities in medium and long term R & D. He believes industry should support university research under clearly defined conditions.

## LEAP INTO 1996

Tom East

The solar year is a bit longer than 365 days, so every now and then we have to add an extra day to our calendars. To be precise, when the year is divisible by 4, it is a leap year, except that when it is divisible by 100 it is not, unless it is divisible by 400, when it is, except that when it is divisible by 4000 it is not a leap year.

The way this works out, the length of our calendar year is, on average:  $365 + 0.25 - 0.01 + 0.0025 - 0.00025 = 365.24225$  days which is a pretty good approximation to the length of 365.2422 days observed in 1900 when these rules were proposed. If the rotation of the earth stayed constant, the calendar would be one day out after 200,000 years.

Actually, the earth is slowing down, but I don't think we will notice the difference. Nearly 50 years ago, the Astronomer Royal and others gave up defining the second by astronomical observations and defined it by an atomic clock.

To keep the atomic time in line with the rotation of the earth, a "leap second" is inserted at the beginning or the middle of a year from time to time. If you are checking your own clocks against NRC time signals, you may have noticed that they appeared to gain one second this New Year's Day.

## RADARSAT IN ORBIT

The Canadian Space Agency achieved another success when Radarsat was launched into polar orbit from Vandenberg Air Force Base in California on December 2nd and its radar antenna was unfurled a day or two later. The advantage of radar in satellite surveillance is that some parts of the world are almost continually covered in cloud: radar penetrates cloud better than optical methods, and can achieve good resolution using synthetic aperture techniques. ComDev and SPAR Aerospace are among the partners in RSI (Radarsat International) which will gather the data and distribute it to subscribers worldwide. The satellite will scan any given point on the earth every few days. ComDev also supplied a number of vital components for Radarsat.

Com Dev Atlantic will be supplying instruments to the Canadian Space Agency to measure conditions on Mars.

