



# IEEE NEWSLETTER

## KITCHENER - WATERLOO SECTION



November 1996

### MEETING

Mark this date on your calendar:

November 27th: Morteza Esmaeili on Quasi-cyclic and Convolutional Codes, University of Waterloo, Davis Centre, Room 1302, 5:30 p.m. (see page 2).

### Feature Articles

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**MORTEZA ESMAEILI ON QUASI-CYCLIC AND CONVOLUTIONAL CODES**

Time: November 27th 1996 at 5.30 pm  
 Place: University of Waterloo, Davis Centre, Room DC 1302  
 Speaker: Morteza Esmaeili  
 Subject: A Link between Quasi-cyclic Codes and Convolutional Codes

Speaker: Dr. Esmaeili is a Post-Doctoral Fellow in the Department of Electrical and Computer Engineering at the University of Waterloo.

Subject: Given a quasi-cyclic code with minimum Hamming distance  $d$ , a set of convolution codes is derived with free distance equal to  $d$ . It is shown that an increase in the rate of these codes results in a decrease in the memory length. The connection between these codes is illustrated with several well-known quasi-cyclic codes. The free distance of some partial unit memory convolutional codes can be determined using these results.

**LEONARD CHOW'S HISTORY OF RADIO ASTRONOMY AND ITS TELESCOPES**

by Robert MacPhie

Professor Len Chow gave a lively overview of radio astronomy since its beginning after World War II with surplus radars.

He began with a comparison of various optical images of astronomical objects such as spiral galaxies with the corresponding radio telescope images which sometimes show quite different brightness distributions. This was followed by a description of the early radio telescopes of Jansky and Reber, and the giant dishes at Jodrell Bank in Britain (circa 1953) and in Arecibo in Puerto Rico (1963). He next discussed interferometers and arrays of dishes including the 3 element array in Penticton BC as well as the Mills Cross in Australia.

The most interesting part of Len's talk was about the VERY LARGE ARRAY (VLA) which was proposed by Len himself when he was at the National Radio Astronomy Observatory in Green Bank, West Virginia (1964-1966). This array of 27 dishes in a Y-configuration with variable positions on each arm of the Y was built in the later 1970's in Socorro, New Mexico and gives a resolution of less than 1 arcsecond when used in the Earth rotation synthesis mode. The array stretches over 27 miles at its largest extent, about the size of Hong Kong where Len will be a Visiting Professor in 1996-1997.

Next, he described the most recent systems such as the Very Large Baseline Array (VLBA) consisting of 10 dishes of which 8 are in the US mainland, one in Hawaii and one on the Virgin Islands.

Finally, Len spoke on the proposed Millimeter Array of 40 dishes, each of 8 metre diameter to be located on a circular configuration on a mountain in Chile where he assured us it hadn't rained in 400 years!

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.

## NEWS FROM CONESTOGA

Greetings from a previously silent Conestoga College IEEE Student Branch. After a reasonably long and unintentional hiatus, our student branch is reorganized and ready for the new school year.

My name is Brent Clements, and I am the current Student Chairman of the Conestoga College student branch. We have been busy rearranging and refurbishing the branch office. We have embarked on a major fundraising effort by selling computer systems and upgrade hardware. The proceeds from this have paid for a complete overhaul of the out-dated computer systems available for our members.

After many years of steadily decreasing membership, the executive produced the largest, most thorough membership drive in years, which has doubled our membership to well over 35 members since September.

Our student branch has increased its exposure in the College. Our members and our activities are drawing the attention of the college's newspaper and the student government. This increased exposure has increased the number of students that know who we are, which is a step in the right direction.

I hope to keep the IEEE community better informed about our activities. It is my promise that you will hear more from the Conestoga College Student Branch.

R. Brent Clements  
Student Branch Chairman  
Conestoga College IEEE

## CONFERENCES IN CANADA

### 1997

- Feb 23-26 1997 MTT-S International Topical Symposium on Technologies for Wireless Applications. Vancouver. Richard A. Sparks 617-862-3000, e-mail: r.sparks@ieee.org
- May 12-16 Particle Accelerator Conference. Vancouver. E. Driessen. 604-222-7352, e-mail: pac97@triumf.ca
- May 20-22 IEEE Instrumentation & Measurement Technology Conference IMTC 97. Ottawa. R. Myers 310-287-1463, e-mail: bob.myers@ieee.org
- May 25-28 1997 Canadian Conference on Electrical and Computer Engineering. St. John's Nfld. Paper deadline 97 Feb 21. D. Collett 709-737-1372, e-mail: t.d.collett@ieee.org
- Jun 3-6 IEEE International Conference on Multimedia Computing and Systems. Ottawa. Nicolas D. Georganas 613-562-5800, e-mail: georgana@mclrlab.uottawa.ca, URL: <http://www.mclrlab.uottawa.ca/ICMCS97.html>
- Jun 3-6 ICMCS-97. Deadline for papers - six hard copies by November 30 by courier to Ibrahim Gedeon, 1431 Merivale Road, Nepean, Ont.
- Jun 8-12 ICC'97 - IEEE International Conference on Communications. Montreal. Celia Desmond 905-615-6507, e-mail: c.desmond@tc.resonet.com

- Jun 8-12 1st IEEE Enterprise Networking Mini-Conference (ENM-97) in Conjunction with ICC'97. Montreal. Vijay Bhagavath e-mail bhagavath@bell-labs.com
- Jun 9-12 1997 IEEE Digital Cross-Connect Systems Workshop VII. Whistler BC. James H. Simester 908-949-7336, e-mail: sims@bostare.ho.att.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
- Jul 21-23 1997 IEEE Signal Processing Workshop on Higher Order Statistics. Banff Alberta. Keh-Shin Lii 909-787-3836, e-mail ksl@ucrstat.ucr.edu
- Jul 24-25 DMS'97. Pacific Workshop on Distributed Multimedia Systems. Vancouver. Deadline Jan 15 1997. Taieb Znati 412-624-8490, e-mail: znati@cs.pitt.edu
- Jul 27-Aug 1 IASTED International Conference on Applied Modelling and Simulation. Banff, Alberta. Deadline Jan 13 1997. IASTED Secretariat, 403-288-1195, e-mail: iasted@cadvision.com <http://www.cuug.ab.ca:8001/~warwodad/iasted.html>
- Aug 24-28 SPS'97 Space Power Systems Conference, Montreal. Deadline for abstracts Jan 15. Canadian Aeronautics and Space Institute 613-234-0191, email: casi@casi.ca
- Aug 25-27 1997 10th International Symposium on High Voltage Engineering. Montreal. Farouk A.M. Rizk 514-652-8210
- Sep 21-26 ISS'97 World Telecommunications Congress (International Switching Symposium). Toronto. 'Intent to submit' deadline Dec 21 1996. Final paper deadline Feb 21 1997. Irving Elbert 416-588-3522, <http://www.ISS97.org/> e-mail info@ISS97.org/
- Oct 5-8 1997 IEEE Ultrasonics Symposium. Toronto. Stuart Foster 416-480-5716, e-mail: stuart@srcl.sunnybrook.utoronto.ca
- Oct 6-9 OCEANS'97. Halifax. Ms. Michael Ellis 908-562-5362, e-mail: m.ellis@ieee.org

### 1998

- May 4-7 1998 IEEE/IAS Industrial and Commercial Power Systems Technical Power Conference (I&CPS). Edmonton. M. Bince 403-468-6673
- May 18-21 1998 IEEE Vehicular Technology Conference (VTC). Ottawa. Tara Hennessy 613-990-4711, e-mail: hennessytara@ic.gc.ca

### 1999

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

### **NEW RULES FOR PROFESSIONAL ENGINEERS IN THE USA**

According to information received from IEEE/USA, Professional Engineers in the US have to take two exams in one day to become registered, and these exams have recently been modified. You can get a free info-pack from Engineering Update Institute, phone 847-474-4007, e-mail 102220.1406@compuserve.com.

It is not clear whether Canadian Professional Engineers practicing in the US would have to go through this procedure, or would bypass it through NAFTA.

### **UW CENTRE FOR WIRELESS COMMUNICATIONS SPONSORED BY ERICSSON**

Ericsson Communications Canada has donated \$200,000 per year for five years to establish the Centre for Wireless Communications (CWC), a graduate program in the Department of Electrical and Computer Engineering. Subjects will include: broadband communications networks, communications over fading dispersive channels, microwave and RF engineering, wireless communications systems and multimedia communications in wireless and wire networks.

### **HIGH-TECH ANIMAL CARE**

Heard at Sunnyside Home

A man brought his dog to the veterinarian to see whether it was alive or dead. The vet offered to find out: he called his cat, who walked three times round the dog and walked away: neither the cat nor the dog said a word. The vet pronounced the dog dead and agreed to dispose of it. His bill was \$235.00: \$35 for burying the dog and \$200 for the CAT scan.