



# IEEE NEWSLETTER KITCHENER - WATERLOO SECTION



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## Section Officers

Chair: Chandra Kudsia, (519)622-2300 ext. 276  
 Vice Chair: Rafaat Mansour, (519)622-2300 ext. 246  
 Secretary: Rosalind Hood-Morris, (519)570-0300  
 Treasurer: John Mowbray, (519)884-1710 ext. 371, 569

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 Antennas and Prop.,  
 Microwave Theory and  
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 Electron Devices:\* C.R. Selvakumar, (519)885-1211 ext. 3978  
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 Education: Rosalind Hood-Morris (519)570-0300  
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 Arvind Vyas (519)884-1710 ext. 245  
 Membership and  
 Transfers: Arvind Vyas (519)884-1710 ext. 245  
 Publications: Tom East, (519)746-7809  
 (News Letter): C.R. Selvakumar (519)885-1211 ext. 3978  
 Awards: Shesha Jayaram, (519)885-1211 ext. 5337  
 Nominations: R.H. MacPhie (519)885-1211 ext. 2842

## Student Activities Chairs

Conestoga College: VACANT  
 Univ. Of Waterloo: e-mail [ieeesb@electrical.watstar.uwaterloo.ca](mailto:ieeesb@electrical.watstar.uwaterloo.ca)  
 (519)885-1211 FAX: (519)746-3077  
 Stream A: Anton Cheng, [askcheng@electrical.watstar](mailto:askcheng@electrical.watstar).  
 Winter 1994: Daniel Miller, (519)885-1211 ext. 5215  
 Stream B: Mark Carrier, [mcarrier@electrical.watstar](mailto:mcarrier@electrical.watstar).  
 Fall 1993: George Freeman, (519)885-1211 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](mailto:KWieee@sunee.uwaterloo.ca)

## Contents

### Meetings

March 1, 1994 Andrew Wong on Vision and Knowledge Based Robotics page 2  
 March 23, 1994 Student Papers Night - NOTE CHANGED DATE page 2  
 May 30, 1994 Annual General Meeting - advanced notice page 2

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.



## **ANDREW WONG ON VISION AND KNOWLEDGE BASED ROBOTICS**

Presented by the Computer Chapter

Time: 5:30 p.m., Tuesday, March 1, 1994

Place: University of Waterloo Davis Center, Rm. DC 1302

Speakers: Professor Andrew Wong, PAMI Laboratory, University of Waterloo

Subject: Vision and Knowledge Based Robotics

Tour: Tour of the PAMI Laboratory, University of Waterloo, 6:30 - 7:00 p.m.

Dinner: After the presentation and tour. Phone Professor Jayaram at 885-1211 ext. 5337 by Friday February 25 for reservations.

**Speaker:** Dr. Andrew K.C. Wong is a full professor in the Department of Systems Design Engineering and the Director of the Pattern Analysis and Machine Intelligence Laboratory (PAMI), both at the University of Waterloo. He has conducted extensive research in pattern recognition, machine intelligence, computer vision and knowledge based systems. He has published over 200 papers, edited "Machine Intelligence and Knowledge Engineering for Robotic Applications" and authored over 12 chapters in other books. In 1988, he founded VIRTEK (Vision Intelligence Robotics Technology Inc.) to transfer technologies from the PAMI Lab to industry. Professor Wong received his B.Sc. and M.Sc. in Engineering from Hong Kong University and a Ph.D. from Carnegie Mellon University in 1968. He is the 1991 recipient of the Federation of Canadian Chinese Professionals Award of Merit.

**Subject:** The talk will address some of the recent vision and knowledge based robotics research being carried out at the PAMI Lab of the University of Waterloo. Its focus will be on the machine vision and knowledge based systems which provides integrated online control of manipulators and automated guided vehicles. The vision system is capable of 1) 3-D object model synthesis; 2) 3-D object recognition and pose determinations and 3) 3-D scene interpretation. The robotics system is developed to support space robotic and flexible manufacturing tasks which include: 1) visual recognition and interpretation of task environment; 2) visual inspection of manufacturing parts; 3) vision directed task planning for robot manipulators; 4) vision guided trajectory generation with obstacle and singularity avoidance capability; 5) on-board coordination, navigation and control of mobile robots, and 6) space autonomous robotics in support of the Canadian Space Program and the Freedom Space Station to be launched in the mid 90's.

## **STUDENT PAPERS NIGHT RESCHEDULED TO MARCH 23RD**

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

Time: 7:00 p.m., **WEDNESDAY, MARCH 23, 1994**

Place: University of Waterloo Davis Center, Rm. 1302

You are cordially invited to the annual Student Papers Night.

Students from Conestoga College and/or 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.

## **ANNUAL GENERAL MEETING SET FOR MAY 30TH**

The Annual General Meeting of the Kitchener-Waterloo Section of the IEEE will be held on Monday, May 30th, 1994.

Further details in our next issue.

