

October 1997

Rock River Valley Section  
www.ieee.org/regional/section/rock\_river/



The Institute of Electrical and Electronic Engineers, Inc.

## RRV Section & IAS/PELS Chapter Meeting

# True Sensorless Control of AC Drives

**When** October 30, 1997

**Where** Rock Valley College, Technology Center, Room 117. Enter from Mulford, just north of Springbrook Rd.

**Agenda** 6:00 PM Social Hour  
6:30 PM Dinner  
7:30 PM Program

**Program** True Sensorless (Self-Sensing) Control of AC Drives including Zero Speed Operation.

Controlled operation of AC drives, both PM and Induction, without mechanical position/velocity sensors at zero and high speeds has long been a goal for both drive manufacturers and researchers. The reliability advantages and cost advantages have driven this quest. Within the last several years significant research breakthroughs have occurred. Zero speed sensorless (self-sensing) techniques have been developed, demonstrated, and are now operating in applications which would not be practical without this technology. This presentation will discuss

the basic techniques involved in this rapidly emerging technology.

**Speaker** Dr. Bob Lorenz is a

**Controlled operation of AC drives, both PM and Induction, without mechanical position/velocity sensors at zero and high speeds has long been a goal for both drive**

Full Professor in both Mechanical Engineering and in Electrical and Computer Engineering at the University of Wisconsin-Madison. He is also Co-Director of the Wisconsin Electric Machines and Power Electronics Consortium, "WEMPEC", which has 63 industrial sponsors and is celebrating its 17th anniversary this year. His interests are in control and estimation in power converters and drives.

Before joining the faculty he worked 12 years in industry and is very familiar with precision control of electrical drives. Since joining the University 13 years ago, he has over 90 publications, 12 patents issued and 13 prize

paper awards from the IEEE, Industry Applications Society and its international counterparts in Japan and Europe.

He regularly spends considerable time at the Technical University of Aachen, Germany, (including 3 weeks last summer) in the Electrical Drives and Power Electronics Institute, the Electrical Machines Institute and in the Machine Tool and Production Engineering Institute. He speaks German and Spanish fluently.

**Door Prizes** Sponsored by RRVs

**Meal** Dinner will be a buffet style (with a min. of 15 people) featuring Chicken Divan. Please make your **dinner reservations** by calling **Gloria at 815-226-5247 by Tuesday, October 28, 1997, (please include your e-mail address in the information you provide Gloria - thanks).** The cost of the **dinner** is **\$5.00** for **IEEE members** and **\$14.00** for **non-members**. Unemployed members may call one of the officers for special arrangements.

## RRVS Election Results

The following section officers were re-elected by unanimous vote at the May section meeting for the 1997/1998 meeting season:

Chair	Bob Parro
Vice Chair	Bill Barber
Treasurer	Larry Wachowiak

## Motorola Tour

We thought we might be able to coordinate the subject tour for the October 30 meeting but were unable to make it happen so soon. We are attempting to coordinate a 4 section meeting for the tour - Madison Section, Milwaukee Section, Chicago Section and the Rock River Valley Section. It now looks like it will be sometime in January through April, 1998. Please be patient, we do feel we will be able to put it together for this

## Student Mentor Program

The Northern Illinois University student branch would like to organize a mentoring program for the IEEE student members. This program will help motivate young aspiring engineers by talking to practicing professionals and seeing how what students are learning can be applied in industry. **The student branch is currently soliciting volunteers from industry to act as mentors in the program.** The mentor will have initial conversations with an assigned student and

hopefully spend a day to show the student around the workplace. If you are interested in volunteering for this program, please **contact Don Zinger**, the student branch counselor. He

## STUDENT MEMBER DUES REDUCED!

The IEEE Board of Directors approved the reduction in Student membership dues to give students - the future of the IEEE - more value for their membership dollars. The reduction in dues will allow Students to enjoy all the benefits of membership with no reduction in service, and will give them financial room to join any of the IEEE Societies. Beginning 1 September 1997 for the 1998 calendar year, IEEE Student membership dues will be:

\$19.00 Regions 1-6 (United States) includes IEEE Potentials magazine.

What Students get for their money:

Publications - All IEEE Student members receive the award winning publication IEEE Spectrum magazine and The Institute. Student members in the U.S. and Canada also receive IEEE Potentials magazine with their dues. IEEE Potentials, the publication for up-and-coming engineers, is published five times a year with a career supplement in the April/May issue.

Price Reductions - Student membership prices reflect a 50% reduction on all Society memberships and a 25% reduction on optional society publications. Student Members with no breaks in service are eligible for the Graduated Student Dues Program, allowing recent graduates to pay reduced rates for IEEE and Society

memberships over the first 4 years of their professional lives.

Resources - Students will find the world's most comprehensive electrical, electronic, and computer engineering information at the IEEE.

Networking opportunities to interact with industry leaders.

Opportunities to gain valuable leadership experience and develop interpersonal skills by getting involved in Student Branch, Section and Region activities.

## September Meeting Recap

An excellent video was shown on The English Channel Tunnel - From a to b Without c. The task of developing the tunnel was highly interesting as illustrated in the video with an imaginative

## November Meeting Preview

Prof. Don Zinger and the NIU Student Branch of the RRVS are coordinating with ComEd in bringing in a speaker to discuss the ramifications of the deregulation of the Electric Utility Industry. Sounds

## Submissions to *Event Sense*

Send articles and job ads to the *Event Sense* editor, Bob Parro, via e-mail (preferred), or fax. Job ads will run for two consecutive months. Contact the *Event Sense* editor if the ad needs to run longer. Please make submissions by the twenty-fifth of the month. All submissions are subject to editing for style, clarity, and space considerations.

e-mail: b.parro@ieee.org  
fax: (815) 394-2497

**RRVS Executive Committee**

(l-r) **standing:** Larry Wachowiak, Treasurer; Hassan Mansir, IAS Chapter Chair; Don Zinger, NIU Student Branch Counselor; Matt Zimmer, Secretary and IAS Chapter Vice Chair; Roger Caruana, Education and Technical Activities Chair; **seated:** Caio Ferreira, Past Section Chair and current IAS Chapters' Department Chair, Bob Parro, Section Chair; Bill Barber, Section Vice Chair and Membership Chair; Jim Buerosse, PELS Chapter Chair; Paul Peterson, Joint Computer/Control Systems Chapter Chair and Awards Chair

**The Rock River Valley Section would like to give recognition to the following area companies and university for supporting Section Officers:**

**Sundstrand Corporation • 3C Computer Systems • William Barber & Associates • Northern Illinois University**

### Rock River Valley Section of the IEEE 1997-1998

[WWW: [www.ieee.org/regional/section/rock\\_river/](http://www.ieee.org/regional/section/rock_river/)]

#### Elected Executive Committee

Chair	Bob Parro	b.parro@ieee.org	(815) 394-2947
Vice-Chair	Bill Barber	b.barber@ieee.org	(815) 235-4110
Secretary	Matt Zimmer	m.zimmer@ieee.org	(815) 394-3456
Treasurer	Larry Wachowiak	l.wachowiak@ieee.org	(815) 394-5676

#### Appointed Executive Committee Chairs

IAS Chapter Chair	Hasan Mansir	h.manisr@ieee.org	(815) 226-6875
IAS Chptr. Vice Chair	Matt Zimmer	m.zimmer@ieee.org	(815) 394-3456
Comp/CS Chapter Chair	Paul Peterson	paul.peterson@ieee.org	(815) 226-2584
PELS Chapter Chair	Jim Buerosse	j.buerosse@ieee.org	(815) 226-6078
Educational Activities	Roger Caruana	r.caruana@ieee.org	(815) 332-4606
Technical Activities	Roger Caruana	r.caruana@ieee.org	(815) 332-4606
Membership	Bill Barber	b.barber@ieee.org	(815) 235-4110
Awards	Paul Peterson	paul.peterson@ieee.org	(815) 226-2584
Publicity, Newsletter Editor	Bob Parro	b.parro@ieee.org	(815) 394-2947
Nominations	Roger Caruana	m.zimmer@ieee.org	(815) 394-3456

#### Northern Illinois University - Student Branch Officers

St Br Counselor	Prof. Don Zinger	d.zinger@ieee.org	(815) 753-0706
St Br Chair	Jamie Phillips		
St Br Vice-Chair	Michelle Marotta		
St Br Secretary	Rob Reeder		
St Br Treasurer	Ryan McMillin		

Messages for student officers can be left at the NIU Dept of Electrical Engineering,  
(815) 753-9974 or e-mail at [sb.niu@ieee.org](mailto:sb.niu@ieee.org)

## Calendar

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**October Section Meeting** ..... **Oct 30**  
True Sensorless Control of AC Drives

**November Section Meeting** ..... **Nov 20**  
Impact of Electric Utility Industry Deregulation - at NIU in DeKalb

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### Time-Sensitive Material

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