
October 2001

Event

Rock River Valley Section
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Sense

The Institute of Electrical and Electronic Engineers, Inc.

Joint Computer/Control Systems, IAS, PELS Chapters Meeting
Effects of Parasitics on the Control of Voltage-Source Inverters

When

Thursday, October 25, 2001

Where

Rock Valley College, Technology Center, Room 117. I90 to Riverside Blvd., exit and go west to Mulford Rd. Go south to first light, turn east into RVC. Follow road to left to last building.

Agenda

6:00 PM Social Time
6:30 PM Dinner
7:30 PM Presentation

Program

Advancements in AC industrial drives have been propelled through improvements in power electronics and control hardware. Improvements in IGBTs allowed faster switching speeds, which provides lower thermal losses. Digital signal processors and improved control algorithms allow AC drives to address applications previously handled by DC drives. Capacitive coupling between the IGBT, power structure and control platform components influence drive dynamics and contributes to signal and waveform distortion. This differential and common mode capacitance is often disregarded

as "parasitics" and not considered in designing the control. This paper decouples the major contributors to motor waveform distortion, analyzes them, quantifies them, and presents a correction strategy. Simulations validate the analysis and experimental results demonstrate the strategy's benefits.

Speaker

Russel J. Kerkman (S'67-M'76-SM'88-F'98) received the B.S.E.E., M.S.E.E., and Ph.D. degrees in electrical engineering from Purdue University, West Lafayette, IN, in 1971, 1973, and 1976, respectively. From 1976 to 1980, he was an Electrical Engineer in the Power Electronics Laboratory of Corporate Research and Development, General Electric Company, Schenectady, NY.

He is currently employed as an Engineering Consultant at Rockwell Automation / Allen Bradley Company, Mequon, WI. His career spans twenty years of industrial experience in power electronics.

His current interests include: modeling and control of general purpose industrial drives, adaptive control applied to field oriented induction machines, application of observers to ac machines, design of ac motors for adjustable speed applications, and EMI from PWM inverters. He is a co-holder of twenty patents, all in adjustable speed drives.

Meal/Reservations

Dinner choices are: Chicken or Vegetable meal. Please reserve your space, select your meal by **calling Gloria at 815-226-2513 by Monday, Oct 22, at noon.** (Please include email address and meal selection in the information you provide Gloria - thanks). The cost of the dinner is **\$5 for members, \$13 for non-members, and \$2 for students.**

Note The meeting is open to the general public. You need not be an IEEE member. Guests are welcome. However, please call to enable us to make appropriate arrangements.

Notice of Change to Electronic Delivery Only of RRVS Newsletter

Beginning with the next newsletter, the November '01 RRVS Newsletter, the delivery will change from hard copy to purely electronic. Email notification of availability of the newsletter at the newly updated section website (NOTE NEW WEB ADDRESS ON PAGE 1 IN UPPER RIGHT HAND CORNER OF THE TITLE BAR) will be sent to all members with whom we have a valid email address on file. So please make sure we have your email address. For those members without an email address and who would like assistance in obtaining one, please contact one of the RRVS Officers for assistance.

Chicago/Rockford IEEE Consultants' Network Meeting

The next meeting will be on Monday, November 19, 2001. The optional informal dinner is at 6:15 PM at Bakers' Square (270 E. Northwest Highway and North Court), and the meeting at 7:30 to 9:00 PM at the Palatine Public Library (700 North Court, Palatine, IL 847-358-1216).

Instead of a speaker this month there will be an open discussion on "The 10 Rules for Entrepreneurs".

Members and non-members are invited to both the meeting and the optional dinner. Information about the network can be obtained by e-mail: g.l.blank@ieee.org and at our web site <http://www.drblank.com/coaction.htm>

E-MAIL ALIAS SERVICE STOPS RECORD NUMBER OF VIRUSES

The IEEE Personal Email Alias Service stopped nearly 25,000 viruses in July, five times more than in June. All IEEE email is routed through this service, which is free to all members. About 65,000 members currently use it.

Before accepting incoming email, the service scans all messages and attachments with anti-virus software, which is updated daily. If a virus is detected, the message is deleted. An alert is then sent to the sender and the recipient. Clean messages are immediately delivered.

For more information, go to <http://eleccomm.ieee.org/personal-aliases.shtml>

Sept Meeting Recap

Professor Yohji Okada from the Department of Mechanical Engineering at Ibaraki University in Japan spoke about Recent Developments in Bearingless/Self-Bearing Drives. Prof Okada is making excellent progress at applying this technology to heart pumps.

Professor Okada's colleague, Professor Akira Chiba from the Science University of Tokyo, was to also have presented, but due to the recent terrorist events in the US, he was unable to make the trip from Japan. The meeting was well attended at Linos Restaurant with approximately 40 people present. This was a joint IEEE/ASME section meeting.



November Meeting Preview

Ed Muljadi from the National Renewable Energy Laboratory will be discussing Wind Farm Technology. This annual joint meeting with the RRVS' only student branch will be held in DeKalb, IL, at the Northern Illinois University's Engineering Building.

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.

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**The Rock River Valley Section gratefully acknowledges the following
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Rock River Valley Section
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Calendar

October Section Meeting **Oct 25**
Dr. Russell Kerkman will discuss Effects of Parasitics on the Control of Voltage Source Inverters at RVC

November Section/Student Branch Meeting **Nov 29**
Ed Muljadi from the National Renewable Energy Laboratory will discuss Wind Farm Technology at NIU Engineering Building in DeKalb, IL



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Control Systems
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