
November 2003

Rock River Valley Section

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Event

Sense

The Institute of Electrical and Electronic Engineers, Inc.

Computer/Control Systems, PELS, and IAS Chapters Meeting

Wind Energy and Power Systems

When November 20, 2003

Where Northern Illinois University, DeKalb, IL; Engineering Building Auditorium, Room 101. Please call Don Zinger at 753-0540 if you need directions from outside DeKalb.

Please see the map on page 2.

Parking will be allowed in the engineering parking lot behind the engineering building after 5:00 PM at no charge.

Agenda

6:00 PM	Networking
6:30 PM	Dinner
7:30 PM	Presentation

Program For various reasons environmentally friendly, renewable energy sources are being developed for commercial application. Of these sources, energy derived from the wind is one of the most developed. Its lack of fuel costs and low environmental impact make it a viable source of alternative energy.

The biggest problem with wind energy is the lack of control of the source. Wind can vary considerably over short periods of time. Some techniques, such as hydrogen generation, can be used to average the generation variations of the wind. Although a large power system can absorb most of the variations, there is still considerable concern about interaction between wind turbines and power systems as the scale of turbines increases.

There are several areas of concern

when considering connection of large scale wind sources to a power system. For one thing, variation on the power system might cause negative effects on the wind turbine. This is more of a concern for wind than other sources because there is less control of the source. Thus it is harder to compensate for such disturbances. Also as the amount of wind power generated grows with respect to the power system size, concern about the overall stability of the power system exists. When a large percentage of the power generation comes from wind sources, wind variations may cause large disturbances in the power system.

This presentation will discuss current trends in wind technology. Effective uses of wind energy will be shown. A description of some initial investigations of the interaction between wind turbines and power systems will be given. Results of a study showing the effect of power system transients on a wind turbine will be given.

Speaker Don Zinger is an associate professor in the Department of Electrical Engineering at Northern Illinois University where he has been for ten years. There he teaches courses and does research related to electric power, electric drives, power electronics, and controls.

Having an active interest in wind

power and other alternative energy sources, Professor Zinger was a summer fellow at the National Renewable Energy Laboratory (NREL) in 1995 and 1996. Also in the summer of 2003 he worked at NREL under a contract to develop models for wind turbines connected to power systems.

As an active member of IEEE, Professor Zinger has held several offices in the Industry Application Society and the Rock River Valley Section. He is a senior member of the institute.

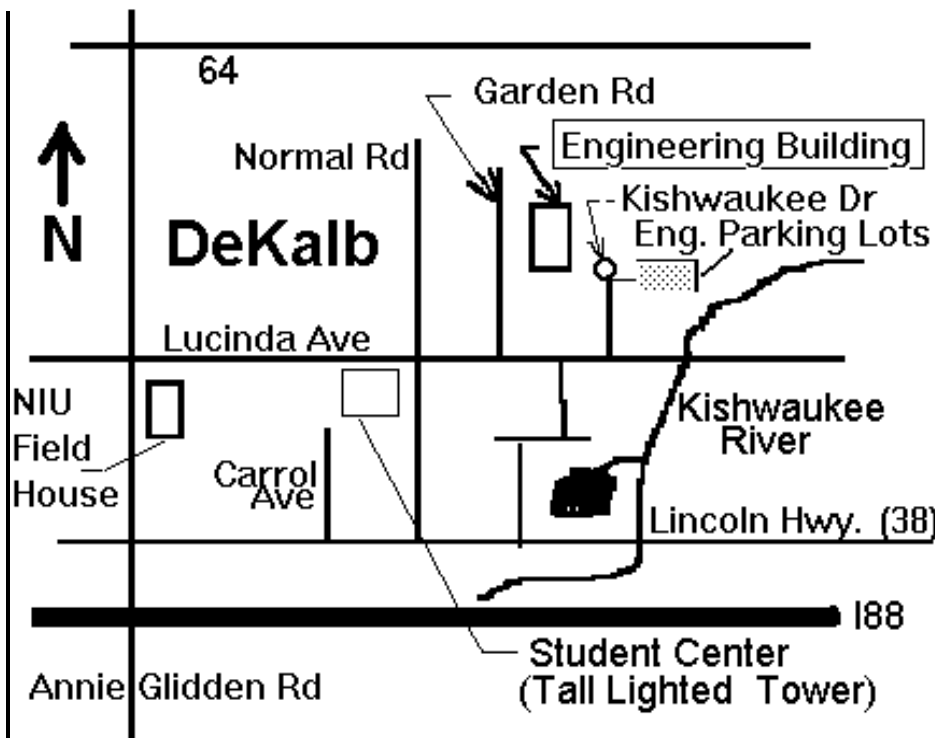
Meal/Reservations

There will be a chicken and vegetarian selection. Please reserve your space and/or dinner selection by **calling Tricia at 815-753-9974 or sending an email (fisher@ceet.niu.edu) by Wednesday, Nov 19, at noon.** Please include your name, phone number, email address, IEEE member number and meat or vegetarian selection. 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.

Map of Routes to Get to NIU's Engineering Building



October Meeting Recap

Mr. Mark Blackburn, Ph.D., discussed model-based software test automation which addresses the problems of late error identification encountered by current software development methodologies. This contributes to significant additional project costs.

Poor software testing processes cost the industry \$59B according to NIST. One well known example is the Mars Polar Lander. After five years of development and \$165M spent, most likely, an undetected software error caused the rocket engine to shut off 40 meters above the surface of Mars and bring the Lander crashing to the surface and unable to perform any of its tasks. Model based testing done after the crash easily revealed the software code errors.

Model based testing is a conceptual process. It uses the software requirements of a project to build a model. Then, software applies every input test vector possible into the model and analyzes the model's output for proper responses. This method has been used in various industries including medical, aviation, sonar, etc.

Results at Lockheed-Martin have shown that software error identification occurred significantly earlier in the product development process, thus providing major savings to the project. Thirty per cent added work up front encountered to model the software requirements and enable the use of model-based testing, saved 60% work later in the integration and test process. This process has successfully been used by Lockheed-Martin on the successful Joint Strike Fighter project. As a result, manual test efforts were reduced by 90%.

January Meeting Preview

The Director of Network Services Architecture in the Mobility Solutions Group at Lucent will discuss the technology behind high speed mobile data services.

MEMBER-GET-A-MEMBER (MGM) /STUDENT-GET-A-STUDENT (SGS) CAMPAIGN

Do you have a good IEEE experience to share with a colleague? Why not tell your peers about some of the benefits that you have experienced as an IEEE member? You can help make your colleagues more informed about IEEE, and at the same time earn yourself an incentive for successfully recruiting them.

IEEE conducts the MGM and SGS campaigns annually to encourage members to actively recruit their colleagues or fellow students to become IEEE members. The program makes sense, since who is better equipped to extol the benefits of membership than our existing members? This year's program will run from 2 September 2003 through 15 August 2004. In return for their efforts, a small financial "thank you" will be awarded to all recruiters that can be used as a credit towards IEEE or Society membership dues, or towards the purchase of IEEE services and products. For rules of the programs and recruiting tips, visit: <http://www.ieee.org/mgm> or contact Felicia Taylor via email at f.taylor@ieee.org.

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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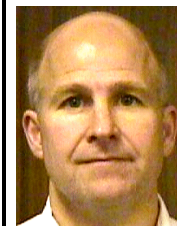


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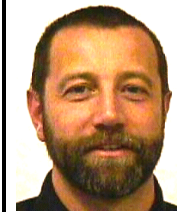


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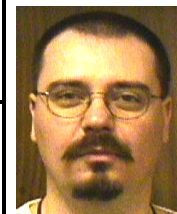
*Messages for student officers can be left at the NIU Dept of
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Rock River Valley Section
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Calendar

- November Section Meeting** **November 20**
Wind Energy and Power Systems at NIU's Engineering Building in DeKalb, IL
- January Section Meeting** **January 29**
High Speed Mobile Data Services and Technology
- February Section Meeting** **February 26**
Electric Power Distribution Infrastructure
- April Section Meeting** **April 29**
Homeland Security



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Time-Sensitive Material

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