

The INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, Inc.  
Eastern Idaho Section  
and the University of Idaho, Idaho Falls

Technical Seminar presented by visiting professors:

**TOPIC:           Mechatronics Research and Rule Based Control Algorithms**  
**SPEAKERS:   Professor Dan Stan and Professor Radu Balan of the Technical**  
**University of Cluj-Napoca, ROMANIA**

**DATE:**        Thursday, July 31, 2008  
**TIME:**        11:30a.m.  
**PLACE:**      University Place, Idaho Falls Idaho. 1776 Science Center Drive.  
                  Student Union Building (SUB) Room 109  
**COST:**        None.

**Abstract:**

Mechatronics is the synergistic combination of precision mechanical engineering, electronic control and systems thinking in the design of products and manufacturing processes. It relates to the design of systems, devices and products aimed at achieving an optimal balance between basic mechanical structure and its overall control. An overview of the current research in the field of mechatronics done at Dept. of Mechatronics is presented.

Model predictive control (MPC) is an optimization-based approach that has been successfully applied to a wide variety of control problems. It is presented as MPC type algorithm which uses a few candidate control sequences for on-line simulation of the future behavior of the control system. Using rule based control, these simulations are used to obtain the 'optimal' control signal. Finally, some applications, simulations and experiments are presented which include linear and nonlinear processes.

**Biographies:**

Professor Stan received his PhD from the Technical University of Cluj-Napoca. He is currently PhD Senior Lecturer at the Department of Mechatronics at Cluj-Napoca. His research is in mechatronics and its application in robotics.

Professor Balan obtained his PhD from Technical University of Cluj-Napoca. Prior to joining the faculty at the Technical University of Cluj-Napoca, he was a senior research scientist at the Research Institute for Electronics in Bucharest. His research is in Control Systems and Mechatronics.

**\*\*\* VISITORS AND NON-MEMBERS ARE WELCOME \*\*\***

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