

The INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, Inc.
Eastern Idaho Section
Idaho Falls Informal Seminars

TOPIC: ICIS/IEEE/ISA “Brew with the Crew” presents: **Graceful Degradation: How the House of Cards Falls One Level at a Time**

SPEAKER: **Humberto Garcia, Idaho National Laboratory**

DATE: Thursday, May 19, 2011

TIME: 4:30P.M.

PLACE: The Zone, 1505 West Broadway, Idaho Falls, Idaho

COST: Order your drinks from the menu. Light hors d'oeuvres provided by the crew organizers.

Abstract:

This presentation will discuss the design and performance analysis of an autonomous resilient condition assessment monitoring (ReCAM) system that degrades gracefully under natural or malicious sensor malfunctioning. Along with their measurements, the sensors are characterized by data quality, and a method for estimating process variables, based on sensor measurements and data quality, is developed. Using these estimates, the plant status assessment is carried out, and the entropy of the resulting assessment is used to drive the so-called rational controllers that force the monitoring system to operate in optimal information states. Along with analytical results, the presentation discusses numerical examples, which illustrate the ReCAM system resilient performance.

IEEE members make plans to join your colleagues for the May informal technical seminar series event “Brew with the Crew*” organized by the INL’s Instrumentation, Controls and Intelligent Systems (ICIS) Distinctive Signature, the Eastern Idaho Section of the Institute for Electrical and Electronics Engineers (IEEE) and the Idaho Falls branch of the International Society of Automation (ISA).

Biography:

Dr. Garcia has a broad background in dynamic-systems modeling, simulation, integration, analysis, and optimization, including advanced sensor, monitoring, and decision systems technologies, gained from numerous RD&D efforts. His interests include optimal information collection, exploitation, and execution, on-line condition monitoring, anomaly detection, interpretation and isolation, sensor networks/systems, resilient systems, life-extended control, hybrid energy systems design and integration, computational intelligence, advanced proliferation/counter-proliferation technologies, and control/decision theory applications. His current duties include R&D lead, Monitoring and Decision Systems, and principal investigator (PI) in several projects on energy and national security applications. Developed technologies have been successfully demonstrated, not only on real-time and hardware-in-the-loop experimental settings, but also on engineering-scale systems.

The Bulletin:

See other section news and information at <http://www.easternidahoieee.org/news.htm>

*Brew with the Crew is an after work event, that takes place every third Thursday of the month at The Zone to provide an opportunity for instrumentation, control and intelligent systems researchers and practitioners to interact with others in their community.

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

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