



SPRING CONFERENCE

Thursday Evening, April 25, 2013

University of Michigan Dearborn
Fairlane Conference Center, Dearborn, MI

Meeting Agenda:

-  4:30pm - 5:00pm Registration
-  Student Tables / Vendor Tables / University Tables / Student Posters
- 5:00pm - 6:00pm 1st Technical Track
- 6:00pm - 7:00pm 2nd Technical Track
-  7:00pm - 7:30pm Sponsor Tables, Student Posters, Networking
-  7:30pm - 8:15pm Dinner, Recognition, Sponsor Recognition
-  8:15pm - 9:00pm Keynote Presentation

Can Image Processing and Artificial Intelligence Help in Cancer Detection, Diagnosis and Treatment Response Monitoring?

Lubomir Hadjiiski

Keynote Address
Research Associate Professor
Department of Radiology

University of Michigan, Ann Arbor, MI



Cancer is the second leading cause of death in the US. Early detection and diagnosis of cancer is crucial for patient survival. The rapid development of imaging technologies such as fast and high resolution computed tomography (CT) and magnetic resonance imaging (MRI) scanners combined with advanced image processing and artificial intelligence methods allow the development of powerful tools that can assist physicians in cancer detection, diagnosis and monitoring of treatment response. Computer-aided diagnosis systems (CAD) are such decision support tools that can provide objective and reproducible second opinion or information to the physicians. However, in order to evaluate the effect of CAD on physicians' performance in cancer detection, diagnosis and treatment response monitoring, it is critically important to study and understand the interaction between physicians and CAD, and determine whether CAD will improve patient care.

Lubomir Hadjiiski has authored or coauthored more than 90 publications in peer-reviewed journals and more than 240 abstracts and presentations. He has been the principle investigator on National Institute of Health (NIH) and Department of Defense (DOD) grants. He has served as a grant reviewer for NIH, Food and Drug Administration, Dutch Cancer Society, and Dutch Technology Foundation.

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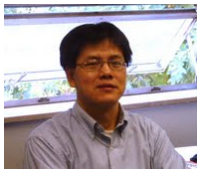
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Technical Track Presentations

Vehicular Networking

5:00PM Room #110 



Dr. Jinhua Guo

Dir. Veh. Networking
Assoc. Professor
Computer and Info.
U of M Dearborn.

Wireless technologies evolution provides opportunities to support advanced vehicle safety applications. By offering real-time traffic conditions, collision-avoidance assistance, automatic emergency incident notification, vision enhancement systems, the communication-based vehicle will help drivers to make better informed, more coordinated, and more intelligent decisions.

Trends in High Performance Computing and the emerging Discipline of Data Science

6:00 PM Room # 110 



**Sharan
Kalwani**

HPC Specialist

Computing technology has seen tremendous change in the last 50 years but what is less known is that it has been driven by High Performance Computing (HPC). Methods & technologies in the HPC field later become ubiquitous in the general domain. Drawing upon history and milestones, we will share what we can expect in the future nationally as well as globally

Designing for Power Integrity: Status, Challenges and Opportunities

5:00 PM Room #111 



**Madhavan
Swaminathan, PhD.**

Elect. and Computer Eng.
Georgia Tech
E-System Design
Founder and CTO

Designers have been developing sophisticated methods for managing power integrity in packages and printed circuit boards which has had a direct impact on the signal integrity of systems. The noise on the power distribution can over shadow the signals in fast switching environments in high speed computing systems. These challenges are opportunities for university research that can lead to interesting and innovative solutions. This talk will review past developments and focus on present challenges and potential solutions in the area of power delivery.

Dielectric Sensing using Metamaterial Technologies

6:00 PM Room #111 



**D.V.B.
Murthy, Ph.D**

Research Assistant

Microwave engineering needs precise knowledge on electromagnetic properties of materials. Microwave resonant cavities in compact devices are required for small measurement systems. Epsilon-Near-Zero (ENZ) metamaterial technology has the potential in miniaturization and enhanced sensitivity as energy can be tunneled through a narrow waveguide which presents higher sensitivity and compact size when compared to conventional dielectric sensing systems.

Dinner and Keynote Presentation Follow Technical Tracks

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Technical Track Presentations

Medical Device Development From a Small Business Perspective

5:00 PM Room #120



Scott Merz
MC3 Corp.
Founder

MC3 has focused on development of early-stage technologies in critical care and surgical devices. Two of MC3's largest projects have been in blood pump design and development of an artificial lung. The stringent regulatory environment in medical devices presents unique challenges for device development in a small business setting, but it also provides opportunities for small businesses to support large manufacturers.

A Incorporating Social Intelligence Into Virtual Game Worlds Using Cultural Algorithms

6:00 PM Room #120



Dr. Robert C. Reynolds

Computer Science
Wayne State Univ.

The techniques used in virtual worlds and games tend to favor the acquisition of knowledge for individual agents. Cultural Algorithms can be used to incorporate both individual and social knowledge into a virtual world. Examples are drawn from ancient, modern, and imaginary worlds.

While on the surface vastly different, all of these examples exhibit a "social fabric" in which social intelligence can be embedded.

Can Wearable Personal Healthcare Gadgets Make us Happier and More Productive?

5:00 PM Room #121

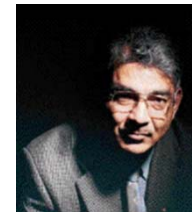


Dr. Dean Aslam
Professor
Computer Eng.
Mich. State Univ.

Collaborations between engineers and psychologists are developing gadgets for monitoring and analyzing a person's sleep patterns, exercise, diet and body parameters (BP, T, heart rate, etc.) to predict individual's performance at workplace. A number of inexpensive mind and body monitoring devices, that upload the data to smart phones, are available in the market. Functionalized Bricks with Embedded Intelligence (FBEI) go beyond the commercial gadgets.

Machine Learning for Multimedia Information Retrieval

6:00 PM Room #121



Ishwar K. Sethi, Ph.D

Professor
Computer Sci. & Eng.
Oakland Univ.

A great deal of machine learning effort has gone towards multimedia information retrieval in the last ten to fifteen years. Being unstructured and of multimodal nature, the multimedia data poses some interesting opportunities for machine learning researchers. In this talk, I will present an overview of machine learning efforts aimed at multimedia data and show how the social media interactions are being used to improve multimedia retrieval.

Vehicular State and Driver Estimation in Ionosphere-Thermosphere Using Retrospective-Cost Based Adaptive State Estimation

6:00 PM Room #116



Asas Ali

PhD. Candidate, Aerospace Eng. Dept., Univ. of Michigan

The thermosphere is a strongly driven system in which the global state can be rapidly altered by the drivers. We consider the problem of estimating the unknown solar driver at wavelength 10.7 cm and physical states in the ionosphere-thermosphere using the Global Ionosphere-Thermosphere Model and retrospective-cost adaptive state estimation. This method drives the estimator output toward the output from the physical system. This technique is used to estimate F10.7 using simulated data as well as real satellite data.

Dinner and Keynote Presentation Follow Technical Tracks

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