



## IEEE NEWS FOR October 2009

Jacob Z. Schanker, P.E., Newsletter Chair

Rochester IEEE home page at: <http://rochester.r1.ieee.org>

### **Rochester Section Meeting - Tuesday, October 6, 2009**

The next Rochester Section business meeting is on Tuesday, October 6, 2009 at Noon, at the Shanghai Restaurant, 2920 West Henrietta Road, just south of the intersection with Brighton-Henrietta Town Line Road. All IEEE members are welcome to attend this meeting, meet your officers and have lunch for just \$3.00.

### **Rochester Section 2010 Officer Nominations**

The nominations committee presented the following nominations for our officers in 2010. These have been approved by the Executive Committee.

Chair:	Alexander (Alex) Loui, Eastman Kodak
Vice-Chair:	Greg Gdowski, University of Rochester
Secretary:	John Kerekes, Rochester Institute of Technology
Treasurer:	William (Bill) Fowlkes, Eastman Kodak
Development & Awards:	Sean Garner, Corning

These represent the elective offices in the Rochester section. Other Executive Committee positions are filled by appointment of the Chair, with the approval of the Excom.

Our bylaws also allow for nominations for section officer positions to be made by petition, which must be received by November 1, 2009. To be valid, nominating petitions must be signed by twelve or more Rochester Section members of member grade or higher. Petitions may be mailed to the IEEE Rochester Section, c/o RES, 150 State Street, Rochester, NY 14614

If no valid petitions are received, the election will be by voice vote at the December 1, 2009 Section meeting. If any valid petitions are received, the election will be by mailed ballot sent to all members in the Rochester Section eligible to vote. A ballot included with

the Rochester Engineer mailing fulfils this requirement. Officers begin their terms on January 1, 2010.

The nominating committee was comprised of: David Qualich, Gene Saltzberg (Co-Chair), Gaurav Sharma (Co-Chair), Jayanti Venkatamaran, and Jim Ziobro (Advisor).

## **IEEE Computer Society Event October 28-29, 2009**

The Rochester Chapter of the IEEE-Computer Society will sponsor the Rochester Security Summit, to be held at Woodcliff Hotel and Spa Conference Center, Fairport, NY, on October 28 and 29. The conference will be held from 8:00 AM to 5:00 PM each day.

The 4th Annual Rochester Security Summit is organized by the Information Systems Security Association (ISSA), Rochester Chapter. It is held each October during National Cyber Security Awareness Month. Other sponsors and partners include, Computer Associates, ISACA Western New York Chapter, the Open Web Application Security Project (OWASP), and the University of Rochester.

The 2009 Keynote will be "The Bad Guys Are Winning: So Now What?" by Ed Skoudis, Senior Security Analyst with InGuardians and SANS Instructor. The Endnote will be "Zen & The Art Of An Internal Penetration Testing Program" by Larry Pesce, CCNA, GCFA Silver, GAWN Gold, Information Systems Security, Disaster Recovery and Identity Management at Care New England and co-host for Pauldotcom.

The Security Summit is a community focal point for education and awareness in collaboration with higher education, business and industry partners, and features two tracks this year:

**Business Professional Track:** The Business Professional Track is designed to help the business professional understand information security issues and how they impact both their daily lives and their business. It will feature topics that are vital for business professionals to understand such as legal compliance, business continuity, loss prevention, risk management, and payment card industry standards.

**Technical Professional Track: Day 1: Technical and Security Professionals -** Topics include technical security standards, intrusion detection, forensics, identity theft and hacker techniques.

**Day 2: Software Developers, Architects and Designers -** This day focuses on improving the security of software developed in-house by companies and organizations. Sessions will discuss the most common design and implementation flaws in applications, security patterns, and frameworks to develop more secure code.

Attend this year to learn more about how to protect your organization's information systems and data. Registration and additional information are available at:  
<http://www.rochestersecurity.org>

## **IEEE Signal Processing Society – October 20**

**Title:** Measuring visual quality blind: No-reference video quality estimation and some applications

**Speaker:** IEEE Distinguished Lecturer Amy Reibman, AT&T Research

**Date:** Tuesday, October 20, 2009

**Location:** Imaging Science Building (No. 76) Room. 1275 at R.I.T.

**Time:** 5:30-6:00 PM Pizza and Socializing, 6:00-7:00 PM Technical Presentation

**RSVP:** Dhiraj Joshi (dhirajjoshi16@gmail.com) for pizza count

**Abstract:** Digital image processing is everywhere today: digital photography, digital radiology, digital cinema, video conferencing, and streaming video on the web. An accurate method to estimate the quality of images and video is necessary so that algorithms can be optimized, products can be benchmarked, video outages can be detected, and service-level agreements can be written. Unfortunately, the complexity of the human visual system makes accurate assessment challenging.

No-reference (NR) image and video quality estimators (QE) are more widely applicable than their full- and reduced-reference counterparts. The fundamental challenge of the so-called "blind" NR QE is to distinguish desired signal from impairment without having access to the original unprocessed images. To achieve this, NR QE rely on decoded images, the compressed bit stream, and assumptions about the impairments and about the signal itself.

In this talk, I'll provide provide a high-level overview of NR QEs. I'll start by describing a 4-step framework for NR QE, comprised of measurement, linearization, pooling, and mapping to subjective quality. Each step incorporates models and information about human perception and human preferences. I'll conclude by presenting a sampling of our recent contributions to image and video quality estimation, including catastrophic outage detection, measuring video quality inside the network, and QE for acquisition of repurposed content.

## **IEEE Photonics Society meeting in Corning**

**Title:** Review of Photovoltaic Energy Production Using Thin Film Modules

**Speaker:** Timothy Gessert, National Center for Photovoltaics, National Renewable Energy Laboratory

**Date:** October 21, 2009

**Time:** 9:00 AM

**Location:** Corning Incorporated, Sullivan Park Auditorium.

**RSVP:** If interested, please contact Carlo Kosik Williams ([kosikwilca@corning.com](mailto:kosikwilca@corning.com)) or Robert Boudreau ([boudreaura@corning.com](mailto:boudreaura@corning.com)).

**Abstract:** It is now widely accepted that thin-film photovoltaic (PV) devices will be important contributors of new US electricity generation. The annual production of PV devices needed to meet conservative U.S. Department of Energy goals for 2050 represents ~100 square miles of active module area (20 GW), or ~200 times the total area of photovoltaic modules installed in the US by 2004. However, if the rate of growth observed in PV module production for the past eight years continues, 100 square miles of annual US PV production could be achieved as early as 2018. Further, the amount PV installed by 2036 could generate the entire 2004 US Total Energy Consumption (~100 Quadrillion BTU's, i.e., the combined energy consumed in the US from petroleum, coal, natural gas, nuclear, and all renewable sources). Regardless of what assumptions are made, PV represents a significant future market for related materials and technologies. This talk will discuss thin-film PV devices within the context of the major PV technologies in production today, and indicate areas where improved material and device understanding would be beneficial. This work was performed with the support of US Department of Energy Contract No. DE-AC36-08-GO28308. This abstract is subject to government rights.

**Speaker Biography:** Tim Gessert is a Principal Scientist and Group Manager of Polycrystalline Thin Film PV Research at the National Renewable Energy Laboratory (NREL) in Golden, Colorado. He received degrees in physics from University of Wisconsin-River Falls (B.Sc.), Colorado School of Mines (M.Sc.), and University of Wales - College of Cardiff (Ph.D). His 25+ years at NREL have included leading the Device Development and Fabrication Team, and the High Performance CdTe Device Research Team. Activities have included development of vacuum and photolithographic processes, transparent-conducting oxides, photovoltaic absorber layers, and related electrical contacts. His present research is directed at understanding how choices in processes and device design affect the ultimate performance and stability of thin-film photovoltaic devices.

**The Offshoring of Engineering: The NAE Report and Future Implications**

**Tom Arrison**

**National Academy of Engineering**

**at**

**Rochester Institute of Technology**

**October 27, 2009**

**6-7:30 pm**

**Carlson Auditorium**

**Bldg 76, Rm 1125**

**FREE & OPEN TO THE PUBLIC**

**Jointly sponsored by RIT's STS/Public Policy Department and the Kate Gleason College of Engineering**

**For more information contact Ron Hira, [rhira@mail.rit.edu](mailto:rhira@mail.rit.edu)**

**ABSTRACT**

The emergence of offshoring has raised concerns about the impacts of globalization on the U.S. engineering enterprise. The National Academy of Engineering's 2008 report on *The Offshoring of Engineering: Facts, Unknowns, and Potential Implications* examined offshoring in several industries and considered the implications. U.S.-based companies that manage offshoring effectively appear to be benefiting, and expanded trade is widely assumed to benefit the U.S. economy. In contrast, some point to hardships suffered by U.S. engineers whose jobs may be sent overseas, and argue that offshoring will undermine U.S. economic strength over time. Significant data gaps make it difficult to precisely track current impacts and project future trends. Project study director Tom Arrison will discuss the report.

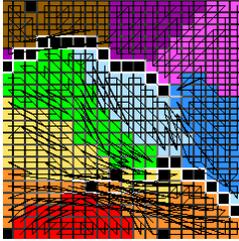
**SPEAKER**



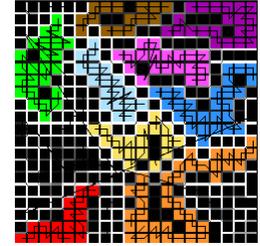
**Tom Arrison**

Tom Arrison is a senior staff officer in the Policy and Global Affairs division of the National Academies. He joined the National Academies in 1990 and has directed a range of studies and other projects in areas such as international science and technology relations, innovation, information technology, higher education, and strengthening the U.S. research enterprise. He holds MAs in public policy and Asian studies from the University of Michigan.

## Hyperspectral Eyeing of Heavenly Bodies - a Machine Intelligence Approach



Dr. Erzsébet Merényi  
Research Professor  
Department of Electrical and Computer Engineering  
Rice University, Houston, Texas



4 PM, Wednesday, November 4, 2009  
Carlson Auditorium (Room 1125)  
Chester F. Carlson Center for Imaging Science (Bldg 76)  
Rochester Institute of Technology  
Refreshments served at 3:30 PM

### *Abstract*

Hyperspectral imaging provides powerful data for remote sensing scientific inquiries. At the same time, the high spectral dimensionality, the complex relationships among the spectral features, and the large number of material classes expected to be distinguished from these data, pose great challenges for information extraction methods. I will present results from terrestrial and planetary astronomy studies in which significant new knowledge was produced through clustering and classification of hyperspectral data with self-organizing neural machine learning. I will summarize the salient aspects of this paradigm – the focus of our research – which mimics the information processing of biological neural maps observed in the cerebral cortex, and enables to look at, and extract information from, large amounts of high-dimensional, complex data in ways traditional algorithms may not facilitate. I will also present capabilities on synthetic hyperspectral imagery from RIT, which takes algorithm validation to a whole new level.

### *Biography*

Erzsébet Merényi earned an MS in mathematics (1975) and PhD in computational science (1980) from Szeged (Attila József) University, Hungary. She is a research professor in the Electrical and Computer Engineering Department of Rice University, Houston, Texas. She was formerly a staff scientist at the Lunar and Planetary Laboratory, University of Arizona, and a research associate in the Cosmic Physics Department at the Central Research Institute for Physics of the Hungarian Academy of Sciences. She worked on numerical modeling of charged particle transfer in the Heliosphere (1980–1990), and on analyzing images of the nucleus of P/Halley from the (then) Russian Vega mission. Her mathematical custom restorations of the severely corrupted, once-in-a-lifetime images were published by the European Space Agency, and are in international archives (PDS, IHW). Since 1991 Erzsébet has been focusing on analyzing spectral data for resource mapping and knowledge discovery from space missions and terrestrial remote sensing projects, including data from Clementine, the Imager for Mars Pathfinder, the Mars Exploration Rovers, telescopic measurements, and airborne hyperspectral sensors such as AVIRIS. Most recently she has been collaborating on inference of latent parameters (such as surface temperature and grain size) from high-resolution spectra, in preparation for the Pluto-Charon encounter by the New Horizon mission.



# Upstarts and Startups: Entrepreneurship Essentials and Rochester Experiences

Thursday, November 5, 2009

Rick's Inn, 898 Buffalo Road, Rochester 14624

<b>Attendee Check In and Payment:</b>	<b>12:30 - 1:30</b>
<b>Technical Presentations:</b>	<b>1:30 - 5:30</b>
• Jerome Mahone, Director, RIT Venture Creations	1:30 - 1:50
• Business and Finance Panel	1:50 - 3:20
• Break with refreshments	3:20 - 3:40
• Entrepreneurs Panel	3:40 - 5:30
<b>Dinner &amp; Keynote Speaker:</b>	<b>6:00 - 7:30</b>
• James C. Stoffel, Sr. VP CTO, Kodak, VP Corporate & Technology, Xerox, and Sr. Advisor of Private Equity (various)	

In these tumultuous and fast paced times there has never been a greater need to couple creativity and innovation with practical knowledge of how to turn ideas into reality. IEEE Technology Management Council, Rochester Chapter proudly presents a workshop about what it really takes to be a successful entrepreneur. Some of the areas covered will be business and finance (banking and venture capital), intellectual property rights, and marketing needs.

<b>Entrepreneurs Workshop Panels</b>	
<u>Essentials - Business and Finance Panel</u>	
Dennis M. DeLeo	General Partner, Trillium Group
Vaughn Stelzenmuller	Author, Consultant
Gerald W. Dibble	Founding Partner, Dibble and Miller P.C.
Helen A. Zamboni	Attorney, Underberg & Kessler LLP
Rami Katz	Director of Technology Commercialization, HTR
Jean Kase	Executive Director, The Entrepreneurs Network
<u>Experiences - Entrepreneur Panel</u>	
Lori Cohen	Consultant & Founder, Custom Quality Solutions
David Chauncey	CEO, Liban Corporation
Frank Kaduc	Partner, RocCera, LLC
Don Golini	Founder, President, QED Technologies Int'l. Inc.
Mark Redding	Founder, President, Impact Technologies

**Registration:** By October 30, call the Rochester Engineering Society at **585-254-2350** or email [res@frontiernet.net](mailto:res@frontiernet.net) with your Name, Company Name, email address, and daytime phone number. By registering you are committed to paying the registration fee

**Cost: IEEE members \$15; nonmembers \$30**, payable at the door.

**Questions:** Please Contact Tom, [tr.pian@ieee.org](mailto:tr.pian@ieee.org) or Mark, [m.schrader@ieee.org](mailto:m.schrader@ieee.org)

**Freescale Semiconductor and the Rochester Institute of Technology Jointly Host  
Designing With Freescale Embedded Technology Conference  
November 5, 2009  
Rochester Institute of Technology  
Rochester, NY 14623**

ROCHESTER, NY – September 2, 2009 – The 2009 Freescale Rochester Technology Symposium (FRTS), scheduled for Thursday, November 5th at the Rochester Institute of Technology's Center for Integrated Manufacturing Systems and the Louise Slaughter Building on campus, will bring together more than 200 customer design engineers, engineering professors and students, third-party tools partners, and executive managers for a one-day, multi-track training seminar on Freescale technologies and system design. The Symposium will kick off with an opening keynote from Dr. Lisa Su, Senior Vice President and General Manager of Freescale's Networking Systems Group.

Following the keynote, the Symposium will continue with hands-on labs and presentation-type sessions, as well as a trade show highlighting development tools, reference designs, customer products, and student applications and projects. Featured technologies include: Freescale's next generation multi-core family (QorIQ™ communications platform); 8- to 32-bit capable microcontrollers (Flexis™ series), integrated wireless connectivity (ZigBee), high performance solutions based on the ARM® core, pressure and E-field sensing technologies, and high-power radio frequency technology.

“RIT is honored to host the annual Freescale Rochester Technology Symposium.” said Professor Ken Hsu, Department of Computer Engineering, Freescale Embedded Systems Lab, “This symposium is designed for the embedded system design engineers and managers, as well as professors and students in the U.S. Northeast region.” We are very grateful that Freescale generously donates funds and equipment in support of this modern lab for our education and research.”

In addition to this look into Freescale's embedded technologies for 2010, a number of development tool giveaways, technical contests and door prizes for conference attendees are planned.

Registration opens September 7th at [www.freescale.com/FRTS](http://www.freescale.com/FRTS).

**About Freescale Semiconductor**

Freescale Semiconductor is a global leader in the design and manufacture of embedded semiconductors for the automotive, consumer, industrial and networking markets. The privately held company is based in Austin, Texas, and has design, research and development, manufacturing or sales operations around the world. [www.freescale.com](http://www.freescale.com).