

THE BEEET



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General Meeting Announcement:

Advancing Fingerprint Identification with Mathematica:

A Natural Platform for Formulating, Evaluating and Visualizing the Effectiveness of Analytical Models

SPEAKER: Dr. Sam Daniel, Engineering Fellow,
Raytheon Missile Systems

DATE: Tuesday, October 30, 2007 6:30 pm

LOCATION: University of Arizona, Room ECE530
SW of Mountain and Speedway

Check signs for parking times and availability
Extra parking NE of Mountain and Speedway

Refreshments Provided (pizza and soft drinks)

As a consequence of recent events, public safety has become a centerpiece of our global society. Motorola's relevant expertise in fingerprint identification, based on over a 30-year history of successful development and worldwide deployment, constitutes one element of the larger public safety enterprise. Work is under way to extend this technology by including other biometric and investigative information sources for delivery not only to desktops but also wirelessly through mobile technology.

For over 4 years, Motorola's Biometrics Advanced Technology Group has been using Mathematica to formulate and evaluate analytical techniques applicable to various aspects of fingerprint identification. Mathematica is being used to design interactive applications for gathering ground truth data to support subsequent investigations and to evaluate the quality of such data detected automatically. As an added attraction, Mathematica movies provide invaluable visual insight into the functionality of underlying algorithms. This and much more is being done in a backdrop of an experimental system containing a large variety of fingerprint data, organized along with a collection of Mathematica notebooks in a structured multi-directory Mac OS X system.

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Even more intriguing is the very real possibility that, by virtue of its existing SQL Database Interface, Mathematica could support the essential functionality of an Automated Fingerprint Identification System (AFIS), if not a more extensive Biometrics Identification System (BIS), not only as a platform for mathematically disciplined development but also as one capable of limited deployment.

BIOGRAPHY

Sam received his PhDEE in 1970 from the University of Illinois with a combined major in Electromagnetics and Optimal Control and a minor in Applied Mathematics. His extensive industrial experience includes 33 years with Motorola where he made significant contributions in system analysis, optimization, adaptive signal processing, artificial intelligence, and fingerprint identification, resulting 18 issued patents, 6 engineering awards, and earning the title of Dan Noble Fellow. In 2007, Sam joined Raytheon Missile Systems as an Engineering Fellow, where he is currently using Mathematica in analytical efforts related to image processing and radar applications.

Message From the Section Chair

By Joe Wu

I'd like to invite everyone in the Tucson Section to participate in IEEE. In the last year, we've conducted activities for schools, the University of Arizona, the community, and for you, the membership. These activities are a great way to get involved in IEEE and show the impact of engineers in our community.

Before the end of the year, we'll be electing new officers, starting up a micromouse contest and a student paper contest at the U of A, starting our preparations for next year's Engineers Week, and organizing additional meetings. All of this is done on a volunteer basis.

We have a great core of volunteers but we could always use your help. I'm asking people to get involved. With more people, the Tucson Section could do so much more for the membership and this community.

If you're interested in helping out or becoming an officer, contact us through the following website:

<http://www.ieee.org/tucson>

Celebrate Engineers Week February 17 – 23, 2008!

The National Engineers Week Foundation, a formal coalition of more than 75 professional societies, major corporations and government agencies, is once again sponsoring National Engineers Week in February. Engineers Week raises public understanding and appreciation of engineers' contributions to society. Founded in 1951 by the National Society of Professional Engineers, it is among the oldest of America's professional outreach efforts. Co-chairs for 2008 are IBM and the Chinese Institute of Engineers-USA.

Here in Tucson, we'll be celebrating along with many other engineering organizations with two formal events: Engineers Day at the mall on Saturday, February 16, 2008, and an awards banquet on February 19, 2008.

The mall event includes lots of hands-on activities to interest school-age children in engineering. We can always use more volunteers to staff the IEEE booth at the Mall, or to participate in other

Save these Dates!
Engineers Day at Foothills Mall:
February 16, 2008
Engineers Week Banquet:
February 19, 2008

Engineers Week events here and throughout Arizona.

For more information about IEEE Tucson section participation, contact Brenda Huettner at bphuettner@ieee.org. For more information about Engineers Week in general, see <http://www.eweek.org>.

IEEE Conferences...

...In Tucson

The 2007 IEEE 28th Real-Time Systems Symposium (RTSS) will be held at the Tucson El Conquistador from December 3 through December 6. For more information, see <http://www.rtss.org/>.

The 2008 IEEE 21st International Conference on Micro Electro Mechanical Systems (MEMS) will be held at the JW Marriott Starr Pass Resort from January 13 through January 17th, 2008. For more information, see <http://www.mems2008.org/>.

...In Phoenix

The Automatic RF Techniques Group (ARFTG) will be holding its 70th anniversary conference at Tempe Mission Palms Hotel and Conference Center up in Tempe from November 27 through November 30. ARFTG is affiliated with IEEE's Microwave Techniques and Technologies Society (MTT). For more information, see http://www.arftg.org/conferences/70th_conference.html

Keep Up with the Tucson Section: Join our email list!

The Tucson Section email list delivers the latest IEEE Tucson news right to your email box. To join, simply send an email to

listserv@listserv.ieee.org

Put the following in the body of the message:

[subscribe TUCSON-SECTION-ALL yourfirstname yourlastname](#)

You'll receive an email with instructions for confirming your new subscription.

Chapter News

AP/MTT/Com/EMC

This joint chapter is formed from members of the Antennas and Propagation, Microwave Theory and Techniques, Communications, and Electromagnetic Compatibility Societies. There are approximately 150 members in these societies combined in the Tucson Section. We're currently looking for a new Chair for this Chapter. If you're interested, contact Joe Wu at joe.wu@ieee.org.

NEW! Computer Society Chapter

A chapter of the Computer Society is forming in the Tucson Section. If you're a member of the Computer Society, or just want to learn more about it, contact Andrew Gardner at asg@ieee.org.

University of Arizona

Student Chapter

The student chapter at the University of Arizona has a motivated team of students, officers and advising faculty that take an avid interest in doing that "little bit extra" to gain an edge. Every year, they host a full schedule of activities and events, including the popular MicroMouse competition, a student paper competition, and much more.

To find out what's going on with the student chapter, check out their site at:

http://clubs.engr.arizona.edu/ieee/index_main.html

Tucson Section, Institute of
Electrical and Electronics Engineers
2626 E Malvern St.
Tucson, AZ 85716

Section Chair:

Joseph Wu (joewu@ieee.org)

Joint AP/MTT/Com/EMC Chapter Chair:
Position available!

Newsletter Editor:

Brenda Huettner (bphuettner@ieee.org)

Computer Society Chapter Chair:

Andrew Gardner (asg@ieee.org)

Student Chapter Chair:

Joey Sankman (

To report address changes:

address-changes@ieee.org

Other record changes (typographical errors)

record-changes@ieee.org

Other membership issues including subscriptions

member-services@ieee.org

General IEEE Information

1-800-678-IEEE(4333)

We're on the Web!

Visit us at:

<http://www.ieee.org/tucson>

We need to hear from you!

How can we make IEEE a better organization? We can only do it with your help. As a volunteer organization, IEEE depends on your participation to accomplish all of our goals.

As you can see from this newsletter, there are lots of activities where you can actively contribute. Are you good at organization? Volunteer to head one of our Chapters or to help organize our general meetings. Want to show off or improve your internet skills? Volunteer to help with our Web site. Interested in promoting our field to the next generation of engineers? Help with Engineers Week, or as a judge for any of our student competitions.

Even if you only have a little bit of time, there's sure to be an IEEE opportunity that will interest you. Even if you have no free time at all, but have ideas for meetings or activities that promote engineering and the IEEE, let us know! We'd like to hear from you. Please contact Joseph Wu at joewu@ieee.org or at 325-4781.

IEEE Tucson Section

2626 E Malvern St.

Tucson, AZ 85716

Tucson Section Meeting

Tuesday, October 30, 2007

6:30 PM, at the U of A, Room ECE530

SW of Mountain and Speedway

Check signs for parking times and
availability; extra parking NE of

Mountain and Speedway

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