ENGINEERS CLUB OF THE WEST VALLEY

JUNE 2010 NEWSLETTER

www.engineersaz.com

The Engineers Club is a social organization which meets regularly for lunch with a speaker on a technical topic. Spouses are invited and many attend regularly. Short field trips are occasionally scheduled. Membership is open to anyone who has worked in or had close ties to the engineering or scientific fields. Meetings are held at 11:30am on the first Friday of each month, October through June, at Briarwood Country Club, 135th and Meeker in Sun City West, Arizona.

Visitors are always welcome - - Reservations are required - - Just call (623)544-0942 to let us know you are coming.

JUNE 4 PROGRAM

Computer Modeling of Human Vision

Dr John Black, Research Scientist
Arizona State University

The human visual system is amazingly complicated and powerful. Its structure and function have been studied by scientists for hundreds of years, but its complexity has left researchers scratching their heads in wonderment. In recent decades, computing technology has allowed scientists to digitally sample and analyze neural signals in the brain. This has allowed us to gain a basic understanding of the early visual system. However, there are still many more questions than answers. Dr Black will present some startling, intriguing, and thought provoking perceptual and cognitive phenomena that illustrate the function of the visual system as well as some of its quirks and limitations. In the process, we will look at some so called "optical illusions" that provide clues about the simplifying assumptions our visual system makes in accomplishing its difficult tasks.

In 1972, after earning a BS in Electrical Engineering, and attending the Army Signal Corps Officer School, he worked for 13 years in hardware and software engineering. In 1985 he left Motorola to return to school and earn an MS in Engineering, and then co-founded OpenSystems Publishing, a technical publishing company. In 2000 he returned to Arizona State University to earn a PhD in Computer Science, and then accepted a position there as a Research Scientist. His current research is focused on modeling the structure and function of the human visual system, with the goal of using technology to enhance our natural visual abilities.

OCTOBER 1 PROGRAM

SQUID: A Safe Ending To Car Chases

Martin Martinez, President
Engineering Science Analysis Corporation

SQUID stands for Safe Quick Undercarriage Immobilization Device, which also describes its function—to safely end a dangerous car chase in a matter of seconds.

With funding from the Department of Homeland Security, engineers at the Engineering Science Analysis Corporation have designed a prototype manhole-size trap, called SQUID, which can bring a fleeing vehicle to a standstill. The device is rolled into the roadway and activated remotely as the vehicle passes over it. With the trap engaged, the driver can't accelerate, limiting the risk of injuring bystanders as the car comes to a stop. Our speaker will explain the technology and its development, and how their product will assist law enforcement in the future.

Mr. Martinez honed his analytical skills as an Aerospace Thermo-Structural Analyst at Allied Signal (now Honeywell) from 1984 to 1996. ESA, which he founded in 1991, provides consulting services and analytical software to aerospace, semiconductor, and commercial product development firms. He has over 21 years of experience in Virtual Product Development utilizing solid modeling and performing engineering analysis with finite element software and automated classical analysis. He is also a commissioner on the Arizona Governor's Aerospace and Defense Commission.

NOTES FROM . . .
President Hal Clemett

Paper Batteries

An interesting article appeared in the December 8, 2009 Science News by Rachel Ehrenberg entitled: “Paper Batteries Could Power Almost Everything”. It goes on to say “Take ordinary office paper, a little carbon and a dash of nanomaterials, and you have a perfectly functional battery”.

We’ve had a number of presentations lately discussing nanotechnology, but I found this article especially interesting since batteries play such a large role in our everyday life.

This particular effort is being spearheaded by Dr. Yi Cui and his research team at Stanford University. The article goes on to say that scientists have made batteries and supercapacitors with little more than office paper and some carbon and silver nanomaterials. The research, published online December 7, 2009 in *Proceedings of the National Academy of Sciences,* brings scientists closer to lightweight printable batteries that may one day be molded into computers, cell phones or solar panels. Performance is largely due to the paper’s porous nature: at the nano scale, paper is a tangled matrix of fibers. This vast surface area helps inks stick, says Cui. This holds true for carbon nanotube ink as well. When carbon nanotube ink touches paper, the nanotubes “get caught very tightly to the cellulose” says Cui, probably just via good old electrodes that electrolytes in solution react with.

By sandwiching a piece of untreated paper between two pieces inked with carbon nanotubes and then placing them in an electrolytic solution, the researchers made conductive paper that could be bent or rolled. Silver nanowires also made the paper conductive. The scientists have used the conductive paper to collect current inside lithium-ion batteries and were able to power a light-emitting diode.

While this represents an exciting development in nanotechnology, it would appear that considerable research will be required to bring it into practical usage. How soon? Hard to say, but keeping abreast of these efforts will be interesting indeed.

SEE YOU IN OCTOBER!
HAVE A GOOD SUMMER.

NOV 5

The Resolution Copper Mining Project

David Salisbury, President
Resolution Copper Mining

2010 OFFICERS

President	Hal Clemett	546-4941
Vice President	Don Block	546-0557
Secretary	Jodie Lawrosky	238-5256
Treasurer	Don Block	546-0557
Asst. Treasurer	Doug Keeler	541-480-8476

COMMITTEE CHAIRPERSONS

Programs	Jim & Pat Ardis	362-1013
Membership	Bob Latvalla	546-7801
Membership	Bill Lee	977-1818
Reservations	Dave Whitehouse	544-0942
Luncheons	Keith Morrow	546-3080
Scholarship	Geraldine Montag	546-7963
Scholarship	Fred Berkenkamp	214-7757
Scholarship	Rutheloise Borchardt	933-2307
Reception	Les Sherry	975-9081
Newsletter	Bill Harrison	546-4943
Event Support	Ralph Palmer	815-8143
Web Site	Jim & Pat Ardis	362-1013
Publicity	Maurice Hoyt	533-4213
Field Trips	Fred Scheske	556-2892
Past President	Fred Scheske	556-2892

BOARD EMAIL ADDRESS: board@engineersaz.com

TREASURER'S REPORT 4-30-2010

General Fund Balance: $5,575.19
Scholarship Fund Balance: $2,221.95

LUNCHEON MENUS

June 4: Chef Salad with Julienne Ham, Turkey, Two Kinds of Cheese, Tomatoes, Asparagus, Hard Cooked Eggs, Choice of two Dressings and Rainbow Ice Cream. Note: Chicken Noodle Soup and Crackers in lieu of regular pre-entrée salad. (Entrée Option: Fruit Plate)

October 1: Yankee Pot Roast with Natural Gravy, Broiled Red Potatoes, Chef's Vegetable and Apple Turnover with Vanilla Ice Cream. (Entrée Option: Fruit Plate)

RESERVATION POLICY

The cost of the monthly luncheon is $17.00 per person.
The reservation deadline is 6PM Monday before the meeting.
Late reservations cannot be guaranteed the regular meal.
Call Dave Whitehouse if you cannot keep your reservation.
A fee of $10 will be charged for "no-shows" and cancellations after 6PM Wednesday before the meeting.
Please have cash or make out your check in advance.
RESERVATIONS Dave Whitehouse (623)544-0942

WELCOME NEW MEMBERS

Graham Harris, Mike Sterry & George Swenson

Club Membership is 153

Scholarship Committee Report

At the May 2010 luncheon meeting, members were asked for suggestions as to how the club could possibly increase the base amount of our annual Engineers Club of the West Valley scholarships without raising membership dues or meal prices. For years, the amount given to our recipient has been $2,000 annually. The Board voted to increase that amount to $3,000 on an ongoing basis due to the large increase in tuition costs.

A good response was received from the membership with suggestions that ranged from 50/50 raffles, "passing the hat" at various intervals, a combination of the two, to applying for a 5013c charitable organization status. The latter was judged to be impractical for our size organization. Names of the members who submitted suggestions were placed in a hat and two were drawn to be awarded free luncheons at the next luncheon meeting.

The two lucky winners are Bill Cummings and Keith Morrow.

As a result, the Board has decided to run a 50/50 Raffle on a trial basis at the October 2010 luncheon. 50% of the proceeds will go to the raffle winner and 50% will go directly to the scholarship fund. Tickets will be $1.00 each or $5.00 for six tickets. Based upon the response at the October meeting, the board will decide whether to continue with the Raffle at future meetings or to try an alternative approach.

So if you wish to participate, and we hope you will, bring a little extra cash to the October meeting. Our future scholarship recipients will be most grateful.

IS THERE ANOTHER WORD FOR SYNONYM?

The Predator UAV

A presentation regarding the use of Unmanned Aerial Vehicles in support of military operations in Iraq and Afghanistan was the highlight of the May luncheon.