PROCLAMATION: 2011 National Engineers Week – San Diego

City of San Diego – Mayor Jerry Sanders
San Diego County Board of Supervisors – Chair Greg Cox

NEW 2011 SAN DIEGO AWARDS
San Diego County Engineering Council (SDCEC)

The SDCEC NEW 2011 Awards are:

OUTSTANDING ENGINEER: The award recognizes an engineer from the San Diego area who has made outstanding contributions to the field of engineering which serve the engineering profession and the general public. (SDCEC)

Byung K. Yi, Ph.D.

OUTSTANDING ENGINEERING EDUCATOR AWARD: The award recognizes an engineering educator from the San Diego area who has made outstanding contributions to the field of engineering education that serve the engineering profession and the general public. (SDCEC)

Subrata Bhattacharjee, Ph.D.

OUTSTANDING ENGINEERING PROJECT AWARD: The award recognizes an outstanding engineering project in the SD area that benefits the public. (SDCEC)

Rady Children's Hospital Acute Care Addition
Rady Children's Hospital

DR. THOMAS AVOLT KANNEMAN OUTSTANDING ENGINEERING SERVICE AWARD: The award recognizes individuals who have given outstanding professional and/or public service in or for engineering that directly enhances the engineering profession. (SDCEC)

Frank Shadpour

OUTSTANDING ELECTRICAL ENGINEERING PROJECT AWARD:
Co-Sponsored by The Institute of Electrical and Electronic Engineers, the award recognizes an outstanding electrical engineering project that benefits the public. (SDCEC/IEEE)

Cloud-Mobile Convergence for Virtual Reality
CALIT2/UCSD

Co-Sponsored by The American Society of Civil Engineers, the award recognizes an outstanding civil engineering project that benefits the public. (SDCEC/ASCE)

David Kreitzer Bicycle Pedestrian Bridge
T.Y. Lin International and San Dieguito River Park

OUTSTANDING MANUFACTURING ENGINEERING PROJECT AWARD:
Co-Sponsored by The Society of Manufacturing Engineers, the award recognizes an outstanding manufacturing engineering project that benefits the public. (SDCEC/SME)

Acoustic and Electric Guitar Manufacturing
Taylor Guitars

NEW 2011 San Diego Award Recipients

Outstanding Engineer (SDCEC)

Byung K. Yi, Ph.D.

Dr. Byung K. Yi, known as "BK" to those of us who admire him, is an engineer who has demonstrated outstanding success in academic, industrial, and business environments. Dr. Yi has a strong and fascinating technical career culminating in his current leadership of the Mobile Research Center as an executive of electronics industry powerhouse: LG. BK Yi's work was instrumental to the development & proliferation of 3G wireless technology that is prevalent in modern communication systems around the world. Dr. Yi was a leader in standards development including the mobile broadband technology EV-DO (Evolution Video-Data Only) that allows cellular systems to operate at the data rates needed by advanced features. BK is credited with conceiving the idea of adaptive bandwidth systems: utilizing real human perceptions and prior experiences to reduce the bandwidth requirements for appropriate communication quality. BK also proposed a mechanism whereby the user can set or change the bandwidth that the communicating party would be willing to pay for at the initial call set up process. Called “User directive QoS change during the call”, it is an international patent. Most recently, BK's work in mobile communication systems includes guiding 4G wireless research in Healthcare Systems, Smart Power Grid, and Public Safety Systems. Few individuals have been as successful as Dr. Byung K Yi as measured by his contributions to vital communication systems the world over. The San Diego engineering community recognizes Dr. Byung K. Yi’s outstanding contributions to engineering projects in San Diego County.

Outstanding Engineering Educator (SDCEC)

Subrata Bhattacharjee, Ph.D.

Students who have come in contact with Prof. Bhattacharjee have experienced first hand Sooby's passion for thermodynamics. Sooby is best known for his continued development of courseware for thermodynamic called *The Expert System for Thermodynamics* (TEST) which is accessible at www.thermofluids.net. TEST is used by thousands of students, educators, and professionals around the world. More than 2500 educators have registered to use this comprehensive site and more than 200 campuses have acquired the free Academic Site License to use TEST in the classroom. The courseware integrates sophisticated thermodynamic calculators, graphics, animations, problems, examples, and technical forum for a wide range of topics from simple property calculations through engines, gas and steam turbines, refrigeration, psychrometrics, gas dynamics, and chemical equilibrium. Sooby has written a book on this

courseware (published by Prentice Hall) and a 900 page thermodynamics book that is going through final copy editing before its publication this year. The San Diego engineering community recognizes Dr. Subrata Bhattacharjee's outstanding contributions to engineering education and research in San Diego County.

Outstanding Engineering Project (SDCEC)

Rady Children's Hospital Acute Care Addition

Rady Children's Hospital

The Rady Children's Hospital project included the design of a new five-story, 270,000sf Acute Care Hospital. The new facility includes a complete sterile processing unit to service the 16 new, state of the art operating rooms. Additionally, the new hospital wing contains a 38 bed Hematology and Oncology inpatient unit along with a Hematology/Oncology outpatient clinic, 84 adaptable medical-surgical beds, a 32 bed neo-natal intensive care unit, a new data center, and a new MRI facility. The facility contains positive/negative pressure isolation rooms, bone marrow transplant rooms and a 56 bed post anesthesia recovery unit. A wind tunnel study was performed to establish the impact of the new generator building as well as fresh air intakes on the roof. This study addressed the impact of isolation room exhaust, cogeneration and boiler exhaust, and the helicopter flight path on the common areas, rooftop terraces, vehicle traffic, fresh air intakes and adjacent buildings. Rady Children's Hospital Acute Care addition is the most energy efficient hospital and the first LEED certified Hospital in California. The Hospital's innovative approach earned over $320,000 of incentives from SDG&E. In addition, several design features such as occupancy sensors in the Operating Rooms, variable frequency drives on air handling units, cooling tower fans, and heating hot water pumps, carbon dioxide monitoring, a cogeneration plant, and a supply air temperature reset strategy are state of the art. With all these measurements in place, the Acute Care addition was 15.1% below Title 24 Energy Efficiency Standards. Rady Children's Hospital sets the standard in design quality for healthcare facilities by utilizing an integrative building approach. The patients, staff, medical

professionals, and the surrounding community all benefit tremendously from the Hospital's leadership in reducing energy use, operating costs and environmental impacts. Rady Children's Hospital's vision for energy efficiency and environmentally responsive solutions is evident in making the Acute Care addition project a success. The San Diego engineering community recognizes the Rady Children's Hospital Acute Care Addition as an outstanding technical achievement.

Dr. Thomas Avolt Kanneman Outstanding Service Award (SDCEC)

Frank Shadpour

Frank Shadpour is a distinguished engineer serving within the County of San Diego for nearly 29 years. Frank teaches comprehensive engineering courses and frequently speaks on topics that enhance the field of engineering. He encourages his students to have a strong work ethic and a responsibility to society as well as the engineering profession. Recent courses that Frank has taught at the University of California, San Diego Extension School cover HVAC Systems Design and Control topics, utilizing a text book which he authored. He has been an instructor there since 1987 and looks forward to seeing his students excel professionally. Frank is also a past president of the San Diego Chapter of ASHRAE and currently serves as the Program Chair of ASHRAE (Society) Technical Committee TC1.4, "Control Theory and Application." Along with this, Frank Shadpour also conducts SDG&E workshops and mentors small business owners and employees, engineering interns and other professionals. The San Diego engineering community recognizes Frank Shadpour's years of selfless outstanding service to others.

NEW 2011 SAN DIEGO BANQUET PROGRAM
KEYNOTE ADDRESS

The Great Pacific Garbage Patch

KEYNOTE SPEAKER

Miriam Goldstein

Scripps Institution of Oceanography (SIO) at UCSD

Miriam Goldstein is a Ph.D. student at Scripps Institution of Oceanography (SIO) at UCSD studying biological oceanography. She has an M.S. in Marine Biology from SIO at UCSD and a B.S. in Biology from Brown University. For her thesis work, she is investigating the distribution and abundance of plastic debris in the North Pacific Gyre, as well as the potential for plastic debris to impact the distributions of invasive species. Miriam is an avid educator and actively popularizes science with appearances and articles on CNN, CBS News, National Geographic, Associated Press, Union Tribune, NPR Science Friday, and PRI's The World, and many other media outlets.

In August 2009, as chief scientist on the Scripps Environmental Accumulation of Plastic Expedition (SEAPLEX), Miriam Goldstein led a group of doctoral students and research volunteers on a 20-day expedition to study the "Great Pacific Ocean Garbage Patch" with an estimated area the size of Texas. Miriam will discuss why plastic is accumulating in the remote open ocean, what the "Garbage Patch" looks like, and how it impacts the marine ecosystem. She will discuss current efforts to control marine plastic pollution through prevention, legislation, and technology.

Outstanding Electrical Engineering Project (SDCEC/IEEE)

Cloud-Mobile Convergence for Virtual Reality

CALIT2/UCSD

Cloud-Mobile Convergence for Virtual Reality (CMCVR) is a collaborative project between the California Inistitute for Telecommunications and Information Technology at the University of California, San Diego (Calit2/UCSD) and Qualcomm Research Center. The vision and goal of the project is to build advanced display systems, networking middleware, as well as visualization toolkits for visualization and virtual reality, in a novel manner that cloud-based resources and mobile devices can be seamlessly integrated to bring users revolutionary experiences. For example, Interactive exploration of multi-terabyte datasets has been identified as a critical enabler for scientists to glean new insights in a variety of disciplines, such as biomedical imaging, geoscience and high-energy physics. Practically, these large-scale datasets must flow among a Cloud of instruments, physical storage devices, visualization displays, and computational clusters. These applications have a real and insatiable need for tens to hundreds of gigabits-per-second of bandwidth that are best satisfied by interconnecting Cloud resources with dedicated networks dynamically created by concatenating optical light paths (lambdas). This is called LambdaCloud by researchers. Visualization and Virtual Reality are the preferred applications for LambdaCloud because it possesses the most diverse and complex networking requirements of any other category of application, and is a capability required by many disciplines. Calit2/UCSD researchers have built ultra-high resolution display systems called the StarCAVE and Varrier as Visualization and Virtual Reality testbeds. The CMCVR project has produced a deep understanding of what influence the efficiency of synergy between Cloud resources and the mobile devices from the

point of view of data flows and their interaction with backplane, OS, memory, CPU, system bus and network elements. This project has produced a demonstrable architecture with a scalable approach for interconnecting distantly located Cloud computing elements and the mobile devices. With the primary project location being Calit2/UCSD, the CMCVR project also contributed in training the next generation of graduate and undergraduate students, post-docs, assistant professors, and systems engineers to think and solve networking problems from a multi-disciplinary and global perspective. The success of the CMCVR project is further underscored by the premium IEEE CMCVR workshop held annually by the IEEE San Diego section. Proceedings of the CMCVR workshop features high quality papers and a wide range of subscribers. In the 2010 annual CMCVR workshop, participants include researchers from Nokia, MIT, UCSD and GIST, just to name a few. The UCSD student team who did summer research on the CMCVR project has been awarded twice for best papers in IEEE Region 6 contests. The San Diego engineering community recognizes Cloud-Mobile Convergence for Virtual Reality as an outstanding electrical engineering achievement.