

# ARIZONA Civil View

## CEEM Welcomes New Geotechnical Professor

The department is pleased to welcome Dr. Lianyang Zhang, P.E. as the newest member of the geotechnical faculty. Dr. Zhang received his Ph.D. in geotechnical engineering from the Massachusetts Institute of Technology in 1999.

Dr. Zhang's research experience and interests include optimal design of rock-socketed shafts under different loading conditions, efficient and effective characterization of jointed rock masses, investigation of dynamic properties of soils and rocks, prediction and mitigation of liquefaction and subsidence of soils, and geotechnical analysis and design of landfills. He has developed methods for predicting the end bearing capacity of rock-socketed shafts under axial loading and for conducting nonlinear analysis of rock-socketed shafts under lateral loading. The empirical expression he developed for predicting the end bearing capacity has been adopted in the FHWA design manual and successfully used by several state DOTs in real designs. Dr. Zhang's research on the characterization of jointed rock masses has led to the development of methods for effective estimation of mean trace length and intensity of discontinuities and determination of deformability and strength of jointed rock masses. He has also developed the stereological relationship between trace length and size distributions of elliptical discontinuities, which is an important advancement in the area of discontinuity size characterization. The results of his research on rock-socketed shafts and rock characterization are presented respectively in his books *Drilled Shafts in Rock—Analysis and Design* published by A. A. Balkema Publishers and *Engineering Properties of Rocks* published by Elsevier.



Dr. Zhang is currently working on the development of a rock expert system (RES) for effective characterization of jointed rock masses, the behavior of rock-socketed shafts under cyclic and long-term loading, and the mechanical behavior of rock joints under small amplitude cyclic loading. The RES will provide engineers an easy-to-use and effective tool to estimate rock properties based on information available. The tool can be used to complement and verify project-related information, leading to safer and more economical designs of structures founded on or in rock. The research on rock-socketed shafts under cyclic and long-term loading is an extension of his research on drilled shafts and will enhance the long-term performance of rock-socketed shafts. The investigation of the mechanical behavior of rock joints under small amplitude cyclic loading includes both experimental study and numerical modeling. The results can be used to evaluate the effect of small repetitive earthquakes on rock stability and study how small earthquakes trigger earthquakes.

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## Highlights from this year

**By Juan B. Valdés, CEEM Head**

At the end of August I will have served as department head for the Department of Civil Engineering and Engineering Mechanics for a total of 11 years and will have completed my most recent 5-year commitment made in 2003 to serve in that capacity. I have officially notified Dean Peterson of my desire to step down as department head on August 29, 2008.

During my 11 years as department head I have benefited from the advice and counsel of all of you and from your unselfish dedication to the academic goals of the department, for which I am very grateful. I believe we have accomplished a great deal together.

After I step down as department head, I plan to continue as

a faculty member in CEEM. Also, beginning in September I expect to serve as Director of the UA-based Center for Sustainability of semi-Arid Hydrology and Riparian Areas (SAHRA). My involvement with SAHRA over the past 8 9 years has provided opportunities for our faculty to link CEEM work with other disciplines. I believe my continuing collaboration with SAHRA in my new capacity will enhance the opportunities for additional collaborative research among the various departments within and outside of the College of Engineering. I also expect my new position to benefit my own teaching, research and service within CEEM as well. Our cover article in this issue features the research interests of our newest

faculty member Lianyang Zhang. His research interests exemplify the important research that all of our faculty are engaged in. Their research has an immediate impact for our nation. Nothing exemplifies this greater than the work of Professor Yi-Chang Chiu who was contacted by the Federal Highway Administration after the collapse of I-35W to use his cutting edge computer model to reroute traffic around the collapsed bridge. This is just one of many examples of the contributions that our faculty and students make to society.

### CEEM Mission Statement:

"We are committed to work together to provide a quality educational experience for our students. to pursue excellence in research, and to serve the profession, state, and nation."

### Attention Alumni



## Smerdon Receives Top Education Award



Ernest T. Smerdon, Ph.D., P.E., Hon.M.ASCE received the 2008 Outstanding Projects and Leades Awards (OPAL) for his service to engineering education. Dr. Smerdon was Vice Provost and Dean of the College of Engineering from January 1988 to January 1998 as well as a professor in CEEM.

Dr. Smerdon was made an Honorary Member of ASCE in 1994. Other honors include the 2006 Golden Vector Award of the Pan-American Union of Engineering Associations (UPADI), 2005 John C. Park Outstanding Civil Engineer Award of the Arizona Section of ASCE, the 2002 Lifetime Achievement Award of the Environmental and Water Resources Institute of ASCE, the Royce J. Tipton Award and Outstanding Journal Paper Awards from both ASCE and ASAE. He received the Icko Iben Award of the American Water Resources Association and was selected as Engineer of the Year in Education by the Arizona Society of Professional Engineers.

## Grad Students Win Water Awards

Graduate students Mary Yaeger and Adam Raczynski were awarded scholarships from the Arizona Floodplain Management Association. Mary has been studying the effects of increased channel sediment in the Rillito River under the direction of Professor Jennifer Duan. She plans on going on to get her Ph.D. and work for a federal agency like the USGS or EPA. Adam is modeling a water distribution system in San Francisco under the direction of Professor Kevin Lansey. He intends to go on for his MBA and ultimately open his own engineering firm.

## Bernal Wins Top Public Works Award



John Bernal, '69, was named a 2007 Top Ten Public Works Leader of the Year by the American Public Works Association. Mr. Bernal has been the Deputy County Administrator for Pima County since 2001. He oversees the county's eight Public Works departments including Environmental Quality, Transportation, Regional Flood Control District, Regional Wastewater Reclamation and Natural Resources. From June 1994 through March 2001 Mr. Bernal was a Presidential Appointee, serving as the United States Commissioner for the U. S. Section of the International Boundary and Water Commission (USIBWC), an international agency responsible for the application of boundary and water treaties between the United States and Mexico and for the amicable resolution of any differences arising in relation to those agreements.

CEEM congratulates John Bernal on this prestigious award and thanks him for his many years of service to the community and civil engineering profession.

### The ARIZONA Civil View

Spring 2008 Issue

The Civil View discusses research, student activities and news of the Civil Engineering and Engineering Mechanics Department of The University of Arizona.

Editor/Writer  
David Langen

The Civil View newsletter is published twice per year.

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# Homecoming

The department had another succesful homecoming celebration with two well attended events. On November 2nd a luncheon was held at the University Park Marriott to honor the 2007 Centennial Award Winners. The event was emceed by Dave Zaleski 'XX and Dave Gildersleeve 'XX. Mayor Bob Walkup gave the keynote address and presented the following awards:

Centennial Professor Award  
Quentin Mees (Posthumous)  
Frank Kelton (Posthumous)  
Ralph Richards

Distinguished Alumni  
Joseph Gervasio '57  
Thomas McGovern '73

Outstanding Young Alumni  
Marla Smith Nilson '91



Tom McGovern ' 73



Ralph Richard



David Areghini '65



Above: Professor Chiu delivers a presentation on traffic modeling in Minneapolis.



Above right: Alumni and studetns join together to honor the award recipients.

Below right: AIC Chair Dave Gildersleeve, Professor Juan Valdes and Mayor Bob Walkup prior to the ceremony.



# Homecoming

On November 3rd students, alumni, faculty, staff and friends of CEEM gathered in the building courtyard and enjoyed food from Bubbs Grubb and drinks. Special thaks to our homecoming sponsors:

Tom McGovern '73  
Mark Woodson '79  
John Woodson '03  
Gervasio & Associates (Joe Gervasio '57)  
Castro Engineering (Frank Castro) '78  
Mick Mathiue '80  
Juan & Maria Valdes  
Jack Buchanan  
David Areghini '65

The Fall 2008 homecoming celebration will be held October 25th in the CE courtyard. Festivities will start three hours prior to kick off. For more information please call David at (520) 621-6564.





# 2008 ASCE Pacific Southwest Regional Conference - California State University, Northridge



Photos 1-4: Students design, build and test the steel bridge.

Photo 5: Surveying competition

Photo 6: Closing dinner

Photo Credits: Lily Gharib, Jaime Kafader, Rachel Popp



## 2008 ASCE Pacific Southwest Regional Conference - California State University, Northridge (Continued)



Students Build and compete in their concrete canoe.  
Photo Credits: Lily Gharib, Jaime Kafader, Rachel Popp

## In Memoriam



### David J. Hall

David J. Hall (93) died peacefully at home surrounded by family members February 2, 2008. He was born the youngest child of Herbert and Lizette Hall on June 24, 1914 in East Lansing, MI. He graduated from Michigan State University and received his Master's Degree in Civil Engineering from the the University of Michigan, and then taught civil engineering at Michigan State from 1941-1947. While in Michigan, he met his "Dearie" of 65 years, marrying Mildred Ann "Mickie" Hesser in June 1937 and raising six children with her. In July 1947, they set off for the small town of Tucson to begin a long and distinguished career at the University of Arizona where he taught civil engineering and was Associate and Acting Dean of the College of Engineering until his retirement in 1979. A teacher and mentor, he corresponded with many of his students until the end of his life. He was a partner in the materials testing lab, Southwest Testing and Research Lab, received a National Science Fellowship to study at UC Berkeley in 1958-1959, coordinated the Arizona Conference of Streets and Roads, was a Director of the Arizona Transportation and Traffic Institute, and was an active member of Tau Beta Pi and Theta Tau until his death. He was a current member of and former chapter president of the Southern Arizona Chapter of the American Society of Civil Engineers and founder of the Annual Engineers' Breakfast at the UofA. He was a recipient of the John C. Park Outstanding Civil Engineer Award and in 2005, he received the Centennial Professor Award from his beloved UofA. He was a generous man, volunteering at Primavera until he died. Preceded in death by his parents; his brother, William Hall; his sister, Betty Berdan; and his wife, love and partner "Mickie". He is survived by his children, Fred (Jean) of Grants Pass, OR, Emilie Sandin (Tom) of Greensboro, NC, Tom (Judy) of Plainsboro, NJ, Mary Clare Gildon (Andy) of Tucson, Phil (Anne-Marie) of Tucson and Liz Stenz (Charlie) of Tucson; along with his 17 grandchildren; and his 22 great-grandchildren.

Source: Tucson Newspapers, Inc.

### James Kriegh

James Kriegh 78, of Oro Valley, AZ passed away October 10, 2007. He was preceded in death by his wife, Marjorie Kriegh and is survived by children, Kevin Kriegh and Kathleen Buop; and grandchildren, James A., Johnathon and Amanda Kriegh and Stephanie and Sarah Buop. As a young baseball star, Jim signed a professional contract. He later served in the US Army. Jim was Professor Emeritus of Civil Engineering at the University of Arizona. He is considered the Father of the Town of Oro Valley and was a former Oro Valley Town Engineer and Councilman. Jim was influential in creation of the Town of Oro Valley and the early incorporation meetings were held in his living room. In 1995 Jim discovered a meteorite-strewn field in Northwest Arizona and worked with the UA's Lunar and Planetary lab to document and study it. Most recently, Jim founded the Oro Valley Historical Society and was instrumental in having the town of Oro Valley acquire the Steam Pump Ranch.

Source: Tucson Newspapers, Inc.