

# NEWSLETTER of the BERKELEY GEOENGINEERING ALUMNI ASSOCIATION



Issue #1, February 2007



*Saturday, September 16<sup>th</sup> 2006, Berkeley Geoengineering Picnic*

## Generous Gift Pledge from Schaefer Dixon

Schaefer Dixon, a double Berkeley alumnus (B.S. in Civil Engineering, and M.S. in Geotechnical Engineering) has long been a treasured friend of the Berkeley GeoEngineering Program. After graduation, Schaefer had an illustrious career in geotechnical practice that spanned more than four decades, including founding the prominent firms ConverseWardDavisDixon and Schaefer Dixon Associates. Active in service to the profession, he was very active within both ASCE and the GeoInstitute, and served as the president of the Consulting Engineers Association of California in 1991-92. He also helped to lead the effort to begin the funding of an endowed Professorship in the name of the late Prof. Harry Seed after Harry's death in 1989.

In keeping with his commitment to the field, and his love of Berkeley, Schaefer has pledged a tremendously generous donation of slightly more than \$800,000 which will provide sufficient funds to complete the endowment of the H. Bolton Seed Professorship in Geotechnical Engineering, and will also provide sufficient additional funds to establish the recurrent Schaefer J. Dixon Fellowship in Geotechnical Engineering. Future generations of Berkeley GeoEngineering graduate students will be supported by these generous gifts, and we are all deeply grateful. We wish to extend a heartfelt thank-you to Schaefer, from all of us!

# ***Welcome to the First Newsletter of the Berkeley Geoengineering Alumni Association***

It is an honor to welcome you to the Berkeley Geoengineering Alumni Association with this first newsletter of the organization. Berkeley alumni are among the most talented and successful geotechnical engineers in the world. There is power in keeping this special collection of engineers connected, and the Internet is the most effective way to do so. Thus, a primary purpose of this association of alumni is to provide a means for alumni to interact with each other. The program has benefited from alumni participation in the past, and we will depend upon your continued participation in the future.

The true strength of the Geoengineering program at the UC Berkeley has always been its students. Yes, we believe that the program has assembled a strong group of faculty and that the program is housed within the best Department of Civil and Environmental Engineering within one of the best Colleges of Engineering within a world class university. But it is the talented students who are currently in the program, the talented students who will be in the program, and the former students who have passed through the program and who are now leaders in the geoengineering profession that have made our program special.

We have always had a diverse, motivated, and gifted group of graduate students in the Geoengineering program at Berkeley. A broad interdisciplinary approach to engineering has been a trademark of Berkeley's Geoengineering program, which has consistently brought together students with varied backgrounds: geotechnical engineering, engineering geology, environmental science, structural mechanics, geophysics, petroleum engineering, rock mechanics, and construction engineering, among other disciplines. Students come from throughout California, from across the Nation, and from around the world. They are women and men from many different backgrounds that are united by their passion for learning and their desire to make the world a better place.

The Berkeley Geoengineering program remains one of the top programs in the world. Yet, with reduced support from the State of California and increasing competition from other fine institutions, our program faces critical challenges. University fees and tuition are now close to the level of those at competing private universities, so we no longer enjoy the advantage of placing minimal financial demands on our students. The supportive staff, outstanding laboratory facilities, and the low fees and tuition that have all allowed this program to excel over the past five decades are simply not what they used to be. Due to unprecedented budget cuts, administrative and technical staffing within the Department has been significantly reduced. For example, we no longer have a dedicated administrative person in our group office. In addition to complicating many common administrative tasks, this loss has weakened our group's connection to the public, including our alumni, by eliminating our most reliable point of contact. On the technical side, the equipment within our new laboratories is generally not new. Although we possess some

excellent research level, state-of-the-art testing equipment, much of the equipment that is used in our graduate laboratory class was developed by Clarence Chan several decades ago, and could benefit from substantial updating.

When challenged, an organization needs to rely upon its greatest strengths. At Berkeley it has always been its people - its students, its alumni, and its faculty. The faculty is dedicated to doing all it can do to continue to grow the program and provide an exceptional education in the theory and practice of geoenvironmental engineering. The program needs the support of its alumni through their energy, talent, and contributions. Energized alumni, as talented and successful as they have been since graduating from Berkeley, can play a critical role in the resurgence of the program.

In that hope, the Berkeley Geoenvironmental Engineering Alumni Association has been proposed by a group of former graduates who saw the challenges facing the program and recognized the need to mobilize their fellow alumni in order to help re-energize the program. We fully support the goals of the Berkeley Geoenvironmental Engineering Alumni Association, and we are looking forward to working with all of you to overcome the current challenges. The engine of our successful program has always been our talented students. We need to continue to attract the best students. This requires your financial support to offset the higher cost of education at Berkeley. With the best students, we can continue to train effectively the next generation of geoenvironmental engineering professionals. It is a winning formula that we embrace and support to maintain the excellence of the program.

We sincerely appreciate your support of this cause. Thank you as always for your special devotion to your program at the University of California, Berkeley.



*Jonathan D. Bray*



*Steven D. Glaser*



*Tad W. Patzek*



*H. Frank Morrison*



*James W. Rector*



*Raymond B. Seed*



*Nicholas Sitar*



*Juan M. Pestana*



*Norman Abrahamson*



*Michael Riemer*

*Note: Click on each photo to visit the Faculty's website*

# *Berkeley Geoengineering Alumni Association*

## **On behalf of the Berkeley Geoengineering Alumni Association Steering Committee**

We have the privilege of being graduates or being otherwise affiliated with the Berkeley Geoengineering Program. Those of us who have been around a little longer were educated by a group of outstanding faculty who helped establish the foundations of geoen지니어ing: Professors Harry B. Seed, James Mitchell, Mike Duncan, Dick Goodman and Torr Brekke. The more recent graduates were taught by an also outstanding and inspiring group of Professors such as Norm Abrahamson, Jon Bray, Steve Glaser, Frank Morrison, Tad Patzek, Juan Pestana, James Rector, Michael Riemer, Raymond Seed and Nick Sitar spanning the first and second faculty generations. The Berkeley Geoengineering Program, since its creation by Harry Seed, has remained the top geoen지니어ing program in the US and we all feel proud being part of the Berkeley Geoengineering legacy.

Our Berkeley experience was unique. We had the opportunity to interact with great Professors, and outstanding classmates. We loved our life at Berkeley and now we want to preserve our ties with the Berkeley program and our classmates. We also treasure the opportunity to interact with older and younger Berkeley Alumni. That's what the Berkeley Geoengineering Alumni Association is all about.

**"We loved our life at Berkeley and we want to preserve our ties with the Berkeley program and our classmates. We also treasure the opportunity to interact with older and younger Berkeley Alumni. That's what this effort is all about"**

The Berkeley Geoengineering Alumni Association wants to strengthen the ties between the program and its alumni, and provide opportunities for interaction among the alumni. Through this Association, we will all benefit. We will be reminded of the first steps of our professional career; we will have the opportunity to learn the latest of the Berkeley program news; we will be informed of the personal and professional news of our alumni members. And we will recognize how unique Berkeley Geoengineering is and its members are, spanning some 50 years from the 1960s to the 2000s.

Here's how we intend to achieve our mission:

- Website: The Association has already established an interactive website (<http://berkeley.geoengineer.org>). Members will sign in and will have the opportunity to keep their contact information updated. The website is regularly updated and includes news of the program and also hosts forums where the members can submit postings. In the near future, the website will

also include unique resources (videos of lectures, papers, Berkeley reports, photos etc.)

- **Newsletter:** Through the Newsletter, alumni will be informed of the latest program and alumni news, research at Berkeley and anything else that would be of interest to our alumni.
- **Annual Reunion:** Through the Berkeley Geoengineering Banquet and an Annual Alumni reunion. Our intent is to combine the successful annual Berkeley Geoengineering Graduation banquet with an Alumni dinner and social event that will provide the opportunity for more than 50 years of Alumni to meet.

This effort is the result of many discussions among different generations of alumni. To succeed in our goals, we count on your continuing involvement. We know that you will take advantage of this opportunity, and will help us establish ties with long-lost alumni that are spread around the world. More importantly we know you will support the Berkeley Geoengineering program, as it supported you in the early stages of your career.

## HAVE YOU CONSIDERED MAKING A DONATION OR SPONSORING BERKELEY?

The Berkeley Geoengineering Program needs our financial support and there are many ways to help. Your contributions are greatly appreciated and assist the Berkeley Geoengineering program remain the best in the US and worldwide.

**Corporate Sponsorship:** Have your company become a Corporate Sponsor of the Berkeley Geoengineering Alumni. The company's banner will be listed in our website, newsletter and annual banquet. A great way to promote the company through Berkeley and support the program.

**Berkeley Alumni Fellowship Fund:** Make a yearly recurring donation as a company or an individual to this fund and help establish a support fund for student(s) of the program.

**Individual Donations:** Individuals may make any donation to the program. Your contribution will be acknowledged in the Newsletter, on the website (for a year) and at the Annual Banquet.

**Sponsor the Berkeley Geoengineering Laboratory:** Sponsors of the laboratory will help cover the expenses for our laboratory. Sponsorships are bi-annual. There can be a maximum of 3 sponsors. Sponsors, in addition to being promoted through the newsletter and the website will also be acknowledged as sponsors in all technical publications that involved laboratory equipment in any way.

**Sponsor Research:** Collaborate with Berkeley in performing research on topics that your company would be interested in funding.

**Advertise Job Opportunities:** Send us job opportunities for posting in our website and in the newsletter for a small fee.

Contact us at: [BGAA@geoengineer.org](mailto:BGAA@geoengineer.org)

## *Current Research – Meet the students*

### **Assessment of Capacity and Seismic Demand on Axially Loaded Piles in Soft Clayey Deposits**



**Advisor:**

Juan M. Pestana & Bob Bea

**Research Student:**

**Juan Francisco Perri**

(e-mail: [jfperri@berkeley.edu](mailto:jfperri@berkeley.edu) )

The performance of engineered systems, and deep foundations in particular, is controlled by the relation between the capacity and the demands imposed on them. A rational design would require the assessment of the uncertainties associated with the estimated capacity as well as detailed analyses and understanding of the uncertainty in the loads that the system must withstand during its service life. This dissertation focuses on the estimation of the uncertainty in the capacity of axially loaded piles driven into soft clayey deposits and the selection of input ground motions, which have been found to represent the largest contributor to the uncertainty in the seismic structural demand.

The research work focuses first on the assessment of the effects that the pile installation process has on the axial capacity of long flexible piles driven into soft clays. The Strain Path Method was used to simulate the steady undrained pile penetration into normally and overconsolidated clays. In this research, a closed-ended 'simple pile' is modeled to estimate the soil disturbance due to the installation process. A generalized stress soil model (MIT-S1), capable of modeling the anisotropic stress-strain-strength behavior of soils was used to estimate the stresses and pore pressures caused by the quasi-static penetration of the pile into a homogeneous clay profile of Boston Blue Clay (BBC) with different previous stress histories (OCR). The effects of the important changes in the conditions of the soil surrounding the pile were evaluated and compared with predictions from different constitutive soil models (Modified Cam-Clay and MIT-E3). Parametric studies were carried out through Monte Carlo simulations to evaluate the sensitivity of the solution to the different material parameters for each model and recommendations for the prediction of pile capacity are presented.

The work then focuses on...

[Read More...](#)

# Modeling Strain-rate Dependent Multidirectional Cyclic Behavior of Soft Clay



**Advisor:**  
Juan M. Pestana

**Research Student:**  
**Tawat Anantanavanich**

(e-mail: [tawat@berkeley.edu](mailto:tawat@berkeley.edu) )

In recent years, the continuing development of natural resources beneath the continental shelf and slope, the pressure on coastal development, and the protection of the submarine environment have contributed to the emerged effort in better understanding the phenomena of seismic triggering submarine mass movements and their potential consequences such as tsunamis.

This work examines the response of normally consolidated to lightly overconsolidated soft clay in submerged slopes subjected to multidirectional seismic excitation under simple shear stress condition. Evidences from laboratory tests on cohesionless soil have indicated that the multidirectional effects are very important on the response of sand associated with larger deformation and higher amount of pore pressure. For the first time, the experimental studies from element level tests of the multidirectional effects on both monotonic and cyclic behavior of soft clay were performed. A simple effective stress constitutive relation to describe the response of soft clay under anisotropic multidirectional simple shear conditions was developed. The model is able to describe changes in undrained shear strength due to different initial conditions and directions of loading. In particular, the model has capabilities in predicting the rate-dependent behavior of soft clay by simple adjustments of some material parameters.

The proposed constitutive laws were implemented in a finite element program to evaluate the performance of submerge slope under multidirectional seismic excitation and assess their post-earthquake slope instability. [Read More...](#)

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***In the next issue: More PhD students and research at Berkeley***

Have  
**YOUR BUSINESS CARD HERE!**  
and support the Berkeley Geo-Program  
Contact us for more information

We welcome your  
comments, texts,  
columns, ideas, and  
support. Send us an  
e-mail at:  
[BGAA@geoengineer.org](mailto:BGAA@geoengineer.org)

# NEWS OF OUR ALUMNI

This section will host news, professional or personal, of our alumni. This is a great way to learn the latest news of our alumni and share our major changes and successes in life and career. Please send us your news for inclusion to Claire Gibson (Roggero) (MSc, 2002) at [clg@shanwil.com](mailto:clg@shanwil.com). We want to hear about it!

- **Ellen Rothman (MSc, 2003)** has moved to Dallas, Texas and will be getting married in May 2007. After working at GeoSyntec Consultants, she now works as a Civil Engineer for Schrickel, Rollins, and Associates, Inc. a well-established civil engineering firm in Arlington, TX. SRA is a civil engineering, landscape architecture, and planning firm. Ellen's tasks include designing residential and thoroughfare roadway improvements including related surface water and sewer systems, retaining wall design for expansion of Interstate Highway-30 through Arlington, and providing additional support for related highway and road projects. She can be reached at [erothman@sradesign.com](mailto:erothman@sradesign.com) and you can hear all her fun stories as a Californian in Texas.
- **Claire Roggero (MSc, 2002)** and **Matt Gibson (MSc, 2002)** were married on September 30<sup>th</sup>, 2006 in Seattle. Claire and Matt met in Berkeley during the Master's program in 2001-2002 and have been together since. Claire works at Shannon and Wilson and Matt works at Hart Crowser. They can be reached at: [CLR@shanwil.com](mailto:CLR@shanwil.com) and [Matt.Gibson@hartcrowser.com](mailto:Matt.Gibson@hartcrowser.com)
- **Apostolos Kozompolis (M.Eng. 1998)** joined ENGEO in May 2005 as Senior Engineer. His current job duties involve managing geotechnical explorations and analyses, developing engineering recommendations, supervising construction observations and maintaining client communication for a variety of projects including residential, commercial and infrastructure in Northern and Central California. Apostolos, obviously a Greek in origin, has been enjoying the California weather since his graduation. Apostolos is among the first Greeks to attend the Berkeley Geoen지니어ing Program. He can be reached at: [akozompolis@gmail.com](mailto:akozompolis@gmail.com)
- **Lorenzo Paoletti (MSc, 2003)** has been promoted to business manager of the offshore group at D' Appolonia and is doing a lot of work in the Mediterranean, West Africa, and Kazakhstan. Lorenzo was also the Harry Bolton Seed Award Recipient in 2003. He is now based in Italy, with his wife, Gaia, and sons Alberto (4 yrs old) and Alessandro (2.5 yrs old). He can be reached at: [lorenzo.paoletti@dappolonia.it](mailto:lorenzo.paoletti@dappolonia.it)
- **Rudy Bonaparte (M.S. 1978, Ph.D. 1981)** was invited by Professor Greg Fenves, Chair of the Civil and Environmental Engineering Department of UC Berkeley, to become an inaugural member of the Berkeley CEE Department Advisory Council. The council is initially made up of eight members and its mission is to provide insight, advice, and guidance to the Department in the areas of: (1) future directions in research, education, and the profession; (2) strategic planning; (3) curriculum; (4) needs for CEE; (5) entrepreneurship; (6) alumni relations and communications; and (7) development of private sources of support. He can be reached at: [RBonaparte@GeoSyntec.com](mailto:RBonaparte@GeoSyntec.com)
- **Robb Eric Moss (Phd 2003)** has joined the faculty of the Department of Civil and Environmental Engineering at California Polytechnic State University (CalPoly). He can be reached at: [rmoss@calpoly.edu](mailto:rmoss@calpoly.edu) .

# BERKELEY GEOENGINEERING ALUMNI ASSOCIATION WEBSITE

<http://berkeley.geoengineer.org>

The Berkeley Geoengineering Alumni Association has create a website available at: <http://berkeley.geoengineer.org> . All Berkeley alumni, past and present faculty and honorary members of the association are invited to join the website. The website has information that is available to the public, but also will include resources that will be available only to the members of the association.

Currently the website includes the following resources:

- **Members list:** A list of members available only to registered members, which includes all relevant contact information. We expect our members to keep their contact information up to date so that we can contact them.
- Categorized **News:** The website includes news of the program, news of the Association, and Professional news.
- **Forums:** All members can post news, messages, announcements etc. to the forums. Current forums include: **Job openings and requests, publications, alumni news**, as well as a forum for informal **chatting**.
- **Banners** of the Association's sponsors

In the near future, the website will include:

- **Berkeley Geoengineering Reports:** Our intention is to make pdf copies of all past and new Berkeley Geoengineering Reports available to our members.
- **Papers and publications** of the Faculty, but eventually also of our Alumni.
- **Photos, videos and material of historical value** to our association.
- **Additional detailed information on our graduate students**, and on the research of the PhD students
- **Videos of the Wednesday seminars** will be uploaded on a weekly basis for our alumni to download and view.
- **Many more resources** that will become available as our activities grow.

**So do not delay, visit the website, sign in, update your contact information and join us! We will all benefit from it.**

## Overview of the Investigation of the Performance of the New Orleans Flood Protection Systems in Hurricane Katrina on August 29, 2005

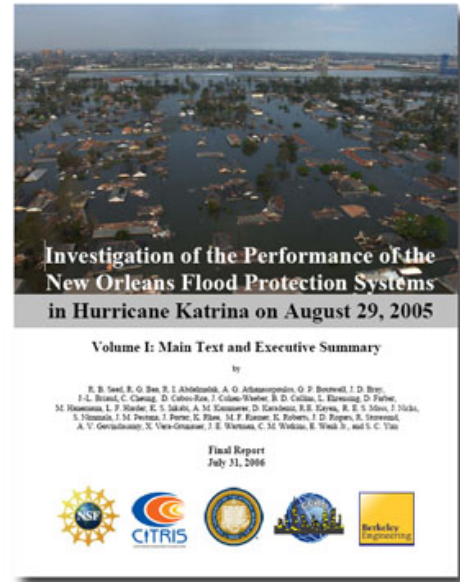
Hurricane Katrina, which struck the New Orleans region on August 29, 2005, resulted in the single most costly catastrophic failure of an engineered system in history. Current damage estimates at the time of this writing are on the order of \$100 to \$200 billion in the greater New Orleans area. The official death count in New Orleans and southern Louisiana at the time of this writing stands at 1,293, with an additional 306 deaths in nearby southern Mississippi. An Independent Levee Investigation Team (ILIT) was formed to investigate the performance of the New Orleans regional flood protection systems during and after Hurricane Katrina.

The scope of this investigation was to answer three main questions: (1) What happened? (2) Why? and (3) What types of changes are necessary to prevent recurrence of a disaster of this scale again in the future?

To address these questions, the investigation involved: (1) an initial field reconnaissance, forensic study and data gathering effort performed quickly after the arrival of Hurricanes Katrina (August 29, 2005) and Rita (September 24, 2005), (2) a review of the history of the regional flood protection system and its development, (3) a review of the challenging regional geology, (4) detailed studies of the events during Hurricanes Katrina and Rita, as well as the causes and mechanisms of the principal failures, (4) studies of the organizational and institutional issues affecting the performance of the flood protection system, (5) observations regarding the emergency repair and ongoing interim levee reconstruction efforts, and (6) development of findings and preliminary recommendations regarding changes that appear warranted in order to prevent recurrence of this type of catastrophe in the future.

In the end, it was concluded that many things went wrong with the New Orleans flood protection system during Hurricane Katrina, and that the resulting catastrophe had its roots in three main causes: (1) a major natural disaster (the Hurricane itself), (2) the poor performance of the flood protection system, due to localized engineering failures, questionable judgments, errors, etc. involved in the detailed design, construction, operation and maintenance of the system, and (3) more global "organizational" and institutional problems associated with the governmental and local organizations responsible for the design, construction, operation, maintenance and funding of the overall flood protection system.

*\*The final report on the investigation of the performance of the New Orleans flood protection systems in Hurricane Katrina on August 29, 2005 is available online at: [http://www.ce.berkeley.edu/~new\\_orleans/](http://www.ce.berkeley.edu/~new_orleans/)*



# Berkeley Times

We invite you to send us photos of you, classmates and Professors during your years at Berkeley. They can be photos taken as part of any activity: class, lectures, laboratory, picnic, bbq, parties... We will include them in the newsletter and create a gallery in our website for our visitors. This is going to be a trip to the past for some of you and a history lesson for the rest. Please send us your photos!

## CONTEST: CAN YOU NAME THE PEOPLE IN THE PHOTO?

**Photo #1: Berkeley Seminar, 1974, Davis Hall 440. Photo taken and sent by Rudy Bonaparte (Msc 1978, PhD 1981).**



To the front-left is James Mitchell and to the front-right Harry Bolton Seed. Can you identify the rest? Send us your ideas at [BGAA@geoengineer.org](mailto:BGAA@geoengineer.org) The winner and the names will be announced in the next issue. [See More...](#)

# Information

## Professors

Jonathan D. Bray

Steven D. Glaser

Tadeusz Patzek

James Rector III

Raymond B. Seed

Nicholas Sitar

## Associate Professors

Juan M. Pestana – Nascimento

## Professor of the Graduate School

Frank Morrison

## Adjunct Professors

Norman Abrahamson

## Associate Adjunct Professors

Michael Riemer

## Steering Committee

Dimitrios Zekkos (Chair) (MSc 2002,  
PhD 2005)

Adda Athanasopoulos (MSc 2004)

Claire Gibson (Roggero) (MSc 2002)

Matt Gibson (MSc 2002)

Ed Medley (MSc 1991, PhD 1994)

Phillip Meymand (MSc 1994, PhD 1998)

Rodolfo Sancio (MSc 1998, PhD 2003)

## Administrative Assistant

Mima Malakou, Geoengineer.org

*To support the BGAA in any way please contact us.*

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<http://berkeley.geoengineer.org>

The Berkeley Geoengineering Alumni Association website is hosted by the Geoengineer.org website

(<http://www.geoengineer.org>)

**The Berkeley Geoengineering Alumni Association Newsletter is a publication of the Berkeley Geoengineering Alumni Association.**

**THE BGAA IS  
LOOKING FOR  
A  
LOGO!!!**

**WE INVITE EVERYONE  
TO OFFER IDEAS AND  
SKETCHES  
Contact us for more  
information**

**YOUR COMPANY'S LOGO HERE !  
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SPONSORSHIP OPPORTUNITIES**