



UNIVERSITY OF MARYLAND, DEPARTMENT OF  
**CIVIL & ENVIRONMENTAL ENGINEERING**



# ANNUAL REPORT

## 1999-2000

### CONTENTS

Chairman's Report	2
New Faculty	3
Programs	3
Research Facilities	4
Student Awards	5
Degrees Granted	6
Faculty Profiles	8
Departmental Statistics	13



UNIVERSITY OF  
**MARYLAND**

# Chairman's Report



Academic year 1999-2000 represents the culmination of one phase of the Department's history and the start of another. In November 1999, the Department along with the rest of the College of Engineering successfully completed its six-year accreditation under the new ABET 2000 guidelines. For those familiar with the ABET process, the new outcomes-based standards are a departure from earlier prescriptive standards, and a learning experience for both the accrediting board and the engineering schools. In fact, this process has been beneficial for the Department and the School—as it should be—causing everyone to take time out from the normal flow of business as usual to reflect on how we educate and mentor our young engineers. The Department fared well in this evaluation, coming away with a strong endorsement from the accreditation visitors.

During 1999-2000 the Department also completed its five-year internal review, and the subsequent external review by a board of distinguished academics and practitioners appointed by the Dean. The Department has come through these with high marks, and is now poised at the start of its next five year plan, 2001-2005. These periodic reviews highlighted the dramatic expansion of the Department's sponsored research program over the past five years (a three and one-third fold increase) and the talented and energized cohort of new assistant professors the Department has recruited (now comprising one-quarter of our number). A problem both reviews point out is declining undergraduate enrollment, a problem across the country and one demanding a strong response.

In less dramatic but nonetheless important developments, the Department continues its systematic program of facility enhancement. For those who have not visited us in the past year or two, a surprise awaits. The main office complex renovation is now complete, and we dedicated the new Keimig Conference Center this past year, named for Margaret Keimig, business manager *emerita* for CEE and force behind much of our facility renewal. This suite of conference rooms and library provides a central space for the Department, and is in strong demand. We have also dedicated new graduate student offices and computer design studios, although more work is on the boards for student offices. The Department's current focus is renovation of the geotechnical and materials research laboratories, a much needed, long overdue, and expensive undertaking.

As with the rest of the Clark School, although enrollments in CEE are a challenge, the quality of both our undergraduate and graduate students continues to improve. Average SATs, GREs, and grade points of our entering undergraduates and graduate students are rising quickly, as is selectivity (the ratio of acceptances to admissions). We expect this trend to continue. At the graduate level this trend is being fueled in part by the rapidly expanding research program, especially in the transportation and geotechnical programs.

Strategic planning for 2001-2005 is underway with a goal of publishing a new operating plan by summer. With research development and faculty recruiting well in hand, the planning effort is focusing on issues that affect Maryland's civil and environmental engineering department as they do every parallel department in the country: what to do about declining enrollments in traditional areas of engineering; how to rejuvenate the curriculum to reflect the profound impact of information technology, sensor systems, remote sensing, and new materials; and how to form a closer bond with our alumni and the broader practicing profession.

With the close of yet another phase in the Department's history, we are indebted to our many sponsors, collaborators, alumni, and friends who have helped build the successes of the past five years. Thank you.

*Gregory B. Baecher, Chairman*

## New Faculty



Dr. Steven Gabriel joins the Department of Civil and Environmental Engineering this Fall as an Assistant Professor in the Project Management Engineering program. For the past five years Dr. Gabriel served as a Project Manager for IFC Consulting in Fairfax, VA, where he directed and implemented Systems Engineering, Operations Research, Operations Management, and Econometric modeling projects for public and private sector clients. His projects there included modeling production-storage-demand networks and developing decision support systems for the North

American natural gas system for the U. S. Department of Energy, as well as other consulting and modeling projects for natural gas and electrical power.

Dr. Gabriel was a postdoctoral appointee in the Mathematics & Computer Science Division of the Argonne National Lab. in Argonne, IL, and, most recently, a Professional Lecturer at the George Washington University in Washington, DC. He was also an Invited Instructor for the Department of Energy where he developed and presented a series of seminars on modern approaches to solving optimization and nonlinear complementarity/equilibrium problems with an emphasis on the energy sector.

Dr. Gabriel's research interests include mathematical modeling in business and policy settings, specializing in transportation systems planning, operations management, service performance, reliability planning, and econometric modeling; algorithm development for system optimization/equilibrium problems; and development of decision support systems to answer strategic and operational questions in industry.

Dr. Gabriel received his Ph.D. from The Johns Hopkins University in 1992. He also holds an M.A. from Johns Hopkins and an MS from Stanford University.

## Undergraduate Program

Enrollment in the undergraduate Civil Engineering program has remained stable for a number of years at 250 to 300 students. The Department uses a relatively new undergraduate curriculum that does away with designated undergraduate majors within the field. Students typically elect a concentration in one of the three major areas of the Department, but are not required to do so and are not identified by specialty areas.

Design has taken on an ever increasing importance in the undergraduate program, bracketing the Freshman and Senior years with major design experiences. In the lower division years each student is required to participate in a hands-on Introduction to Engineering Design class where students from across all the engineering disciplines are enrolled to design, build, and test devices. In the final semester of the senior year each student participates in our highly successful Capstone design course. In this course, students working in teams take on actual civil engineering projects and their solutions are presented to a panel of industry judges and professors.

## Graduate Program

The graduate program has been growing in numbers for the past five years, reaching about 300 students. This past year the Department granted 56 MS degrees and 4 PhD degrees. 92 students were financially supported as research assistants, teaching assistants, or fellows.

The Department graduate program continues to be a diverse group, about 25% of our graduates are women, and 20% are from minority groups. Our graduate students are about divided among the six disciplinary groups: structural engineering, geotechnical engineering, water resources engineering, environmental engineering, transportation, and project engineering and management.

## Research Facilities

**The Bridge Engineering Software & Technology (BEST) Center** was established in 1986 to provide a mechanism whereby the bridge oriented software which was developed for the MDSHA could be commercialized and made available to other state design agencies and private consultants. MERLIN-DASH (Design and Analysis of Straight Steel and Reinforced Concrete Girder Bridge Systems) is the principal product among seven computer systems marketed by the BEST Center. MERLIN-DASH clients number approximately 55 state/public agencies and several hundred private consultants.

**The Center for Advanced Transportation Technology (CATT)** has now completed its second year of existence, and continues to play a key role in the advancement of ITS within Maryland. During the past year, the CATT and its affiliated faculty have played a lead role in the development of the CHART II advanced transportation management system through the development of innovative IT acquisition techniques intended to overcome the delays and cost overruns that are often experienced with ITS procurements, participation in the development of new technology for the CHART system including new graphical user interfaces, new forms of traffic surveillance, the use of simulation for decision support, and participation in the long term planning for the development of a statewide intelligent transportation system that integrates CHART with other systems operated by counties and cities throughout the State of Maryland. A second key activity of the CATT is the development of distance learning techniques for ITS education and training programs using the Internet. This activity includes the leadership of a consortium (designated CITE – Consortium for ITS Training and Education) of approximately 30 universities throughout the world

interested in participating in the use of the distance learning material. The CITE website is [www.citeconsortium.org](http://www.citeconsortium.org).

**The Center for Geotechnical Centrifuge Modeling** resides in the Civil Engineering Geotechnical/Pavements/Materials Laboratory. The centerpiece of the lab is the 30,000-g-lb, 3m diameter geotechnical centrifuge. It is fully equipped with a new data acquisition system, and in-flight visual monitoring system. Ongoing projects include: soil freezing; compaction grouting; explosive cratering in submerged soil; and contaminant movement through organic soil. A fuller description is provided at [www.cee.umd.edu/centrifuge](http://www.cee.umd.edu/centrifuge).

**The Center for Technology and Systems Management (CTSM)** was established in 1996 in a strategic alliance with the U.S. Navy, U.S. Coast Guard, and Department of Civil Engineering. The goal is to advance the state of the art of utilizing various technologies in engineering systems to make them efficient, safe, and beneficial to mankind and the environment throughout their lives. The technologies of interest include systems engineering, information technology, risk, safety and decision, and sensors and control. Ongoing projects include the assessment of the construction feasibility of the mobile offshore base for the Office of Naval Research, web-based reliability assessment of civil works systems, and risk analysis of marine systems.

**The Environmental Engineering Laboratory** addresses various environmental concerns through teaching and research. Comprehensive research investigations into pollution control and waste minimization technologies are underway, focusing primarily on water, wastewater, hazardous waste, and pollutant fate issues. The laboratory employs modern advanced instrumentation for analysis of water and wastewater samples. Capabilities exist for research in various aspects of water chemistry and environmental microbiology; water, wastewater, and

hazardous waste treatment; and the fate and interactions of various pollutants in the environment. The Laboratory has conducted investigations sponsored by and in collaboration with several industries, local and state governments, and various Federal agencies. Advanced instrumentation includes: 1) A Perkin Elmer 5100ZL atomic absorption spectrophotometer with graphite furnace. 2) A Hewlett Packard 6890 Series Gas Chromatograph (FID) with ChemStation. 3) A Waters 510/717 HPLC with autosampler. 4) A Dionex DX-100 ion chromatograph. Other instrumentation includes a Challenge Environmental Systems 8-station AER-200A aerobic/anaerobic respirometer system and various standard laboratory equipment for analysis of pH, BOD, COD, TSS, FOG, and turbidity.

**The GIS/Remote Sensing Laboratory** occupies about 600 ft<sup>2</sup>. Dedicated hardware within the lab includes four pentium-processor workstations, four desktop digitizers, one oversized digitizing table, one HP DesignJet 650c color plotter, four HP DeskJet 672c color printers, and one HP ScanJet IIcx scanner. The lab works with numerous software packages including ArcView (w/ Spatial Analyst), ArcInfo, VisualBASIC, VisualFortran, C, and MATLAB.

**The Maryland Transportation Technology Transfer (T<sup>2</sup>) Center**, organized in 1984, facilitates the Local Technical Assistance Program (LTAP), which provides technology to local transportation agencies in counties and municipalities. T<sup>2</sup> activities include publishing a quarterly newsletter, conducting training, disseminating information, and providing advice. Most recently T<sup>2</sup> has emphasized Work Zone Traffic Control including Flagging, and has worked very closely with the Maryland State Highway Administration and Maryland State Police in a series of Incident Management Conferences and Workshops. The emerging effort is to provide training in the use of Pavement Management Systems.

# Student Awards and Scholarships

## American Society of Civil Engineers' Outstanding Senior Award

Mark Christopher Barone

## The Civil Engineering Department Outstanding Senior Award

Terry Tyler Hall

## The Woodward Clyde Consultant's Award

Kristy Michelle Forish

## The Bechtel Award

Gregor Fahrendorf

## Chairman of Civil Engineering Outstanding Senior Award

Brian Ulrich

## Chi Epsilon Outstanding Senior Award

Shuxian Huang

## The Robert L. Morris Award for Environmental Leadership

Kimberly Anne Whitt

## Undergraduate Scholarship Awards

### Seniors

James S. Long Scholarship  
John F. Miller, III Scholarship

Leonard DiGuilian Scholarship

Clark Construction Group, Inc./The George Hyman Construction Company/Omni Construction, Inc. Scholarship

Miller & Long Company of Maryland Scholarship

Robert L. Anderson Scholarship  
J. Slater Davidson Scholarship

Federline, Inc. Scholarship  
Dellburt A. Kidwell, Sr. Memorial Scholarship

Dan Waldo Scholarship

Whiting Turner Scholarship

Alvin L. Aulbinoe Scholarship

Frank P. Scrivener Memorial Scholarship

### Juniors

Roger H. Willard Scholarship  
J. Slater Davidson, Jr. and Louise Cross Davidson Scholarship

Dellburt A. Kidwell, Sr. Memorial Scholarship



Roger H. Willard Scholarship  
J. Slater Davidson, Jr. and Louise Cross Davidson Scholarship

Roger H. Willard Scholarship

George M. King Memorial Scholarship

Russell B. Allen Scholarship

Russell B. Allen Scholarship

### Sophomores

Dellburt A. Kidwell, Sr. Memorial Scholarship

### Freshmen

Dellburt A. Kidwell, Sr. Memorial Scholarships

College of Engineering Scholarships

## Ph.D. Degrees Granted

**December 1999**

**Andrew M. Nyakaana Blair**

*Risk Analysis of Cost and Schedule of Complex Engineering Systems*

Directed By: Bilal Ayyub  
Professor

**Kuo-Yng Chang**

*A Simulation Model of Analyzing Airport Terminal Roadway Traffic and Curbside Parking*

Directed By: Ali Haghani  
Professor

**Rabih M. Haj-Najib**

*Jointless Bridges with Integral Abutments*

Directed By: Amde M. Amde  
Professor

**Soojung Jung**

*A Genetic Algorithm for the Vehicle Routing Problem with Time Dependent Traveling Times*

Directed By: Ali Haghani  
Professor

**Benjamin S. Levy**

*Multivariate Trend Detection in Hydrologic Time Series*

Directed By: Richard H. McCuen  
Professor

**Jingsong Liu**

*Analysis of Adhesive-Bonded Double-Strap Joint*

Directed By:

**Anthony C. Pierpont**

*Ozonation of Waste and Soil Contaminated with Anilines and Aniline-Based Pesticides*

Directed By: Alba Torrents  
Professor

**May 2000**

**Manoj K. Jha**

*A GIS-Based Model For Highway Design Optimization*

Directed by: Ali Haghani  
Professor

**Hyunook Kim**

*Process Control of AAA and SBR Systems*

Directed By: Oliver Hao  
Professor

**Elsaid O. Ramadan**

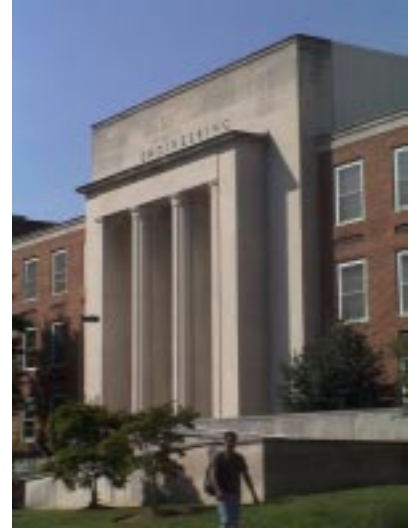
*Experimental and Theoretical Study of Delayed Ettringite Damage in Concrete*

Directed By: Amde M. Amde  
Professor

**Jae K. Yang**

*Competitive Adsorption and Photocatalytic Oxidation of Cu(I) and Cd(II)-EDTA in TiO<sub>2</sub> Suspension*

Directed by: Deborah Goodings  
Professor



## Masters Degree with Thesis

### August 1999

Dragos Andrei  
Tewfik Boutaleb  
Seth Paul Brown  
Neftali Steven Cajina  
Sriram Chellappan  
Kathryn Maria Freiberger  
Evangelos I. Kaisar  
Kunnawee Kanitpong  
Lisa D. Lugo  
Dong Chul Park  
Haiying Qiao  
Nancy Alison straub  
Sompon Swanchit  
Cynthia-Claire Tagoe  
Hsin-Chung Tseng

### May 2000

Elizabeth Alcandri  
Donald Joseph Balcer  
Abdourahamane Barry  
Harsha Challa  
Kun-Hung Chiang  
Shirlene marie Cleveland  
Elias L. Demetriou  
Fred Ofori Dickson  
Yazdan Tabarestani Emrani  
Nichol Terese Galloway  
Timothy Michael Gary  
Sunita P. Gupta  
Andrew Kenneth Hamann  
Ginger Lynn Hartman  
Thomas joseph Hromada  
Thomas Hans Jacobs  
Rajeev Kumar karamchedu  
Ghassan Sylla Khouri  
Mary P. Malihiot  
Julien Vernon martin  
Temple Lasee McCoy  
Shawn Paul McKee  
james Conway Michael  
Robert Wendell Michaelson  
Geoffrey Benedict Miller  
Ravishankar Natarajan  
Somnuk Ngamchai  
Daniel Alan Petno  
Adam A. Pinkard  
Allen T. Proper  
Antonio Bruno Rigato  
Mohammed Adil Rizvi  
Nicole Maria Schindler

Clayton John Gordon Schwab  
Bastien Simeon  
Eileen Marla Glass Singleton  
Charles Christopher Smith  
kevin Jay Stroud  
Michael Lee Swanson  
Brigida Fatima Van Doornik  
Liang Zhu

## Bachelor of Science

### August 1999

William Noigagaard Brandt  
Micah Shalom Ceary  
Alfonso Ignacio Mejia  
Carlton Douglas Nave

### May 2000

Chokri Abdelkader  
Brian Theodore Berkowicz  
Peter Michael Chaput  
Gilbert marc Chlewicki  
Waseem Ahmad Chughtai  
Glenn Philip Conklin  
Joshua Brown Engel  
Gregor Fahrendorf  
Terry Tyler hall, Jr.  
Dennis Joseph Hogan  
Shu Xian Huang  
Terrence Jones  
Aaron Benjamin Krueger  
Jose I. Lazo  
hien Trung Le  
Thuan Tu Luu  
Malinda E. Mehrtens  
Saeyin Francis Oh  
Nadia Eloisa Pimentel  
David Vincent Pizzi  
Susan maxine Salan  
Yoon-Bong Shin  
William Andros Siegel  
alvaro Sifuentes  
John Thomas Strawbridge III  
Jordan Ryan Van petten  
Jeffrey Scott Witte  
Sze-Shun Krystal Wong



## Faculty

### M. Sherif Aggour

Professor of Geotechnical Engineering  
Ph.D. University of Washington Seattle

Certificate of Appreciation, Maryland  
State Highway Administration, 1997  
and 1999

Distinguished Senior Engineer,  
Maryland Society of Professional  
Engineers, Potomac Chapter, 1996  
University of Maryland Presidential  
Award, Outstanding Service to  
Schools, 1996

Teacher of the Year Award, Department  
of Civil Engineering, University of  
Maryland, 1985

Geotechnical engineering,  
nondestructive testing and earthquake  
engineering

### Pedro A. Albrecht

Professor of Structural Engineering  
Ph.D. Lehigh

Distinguished U. S. Scientist Award,  
Alexander von Humboldt Foundation,  
Germany, 1996-97

Outstanding Service to Returning  
Students Award, Counseling Center,  
University of Maryland, 1995

Good Teacher Award, Center of  
Teaching Excellence, University of  
Maryland, 1994

Fullbright Lectureship Award, 1987  
Commendation for Outstanding  
Achievement in Engineering

Education, James F. Lincoln Arc  
Welding Foundation, 1986

Honorary Professor, Nanjing Institute  
of Chemical Technology, since 1986  
Fellowship for Research, Japan Society  
for Promotion of Science, 1985

ASCE State-of-the-Art Civil  
Engineering Award 1983

Fullbright Lectureship Award, 1982

Performance of steel structures,  
including fatigue, corrosion, and  
adhesive bonding. Highway bridges  
including prestressed trusses and  
composite girders, fracture control,  
wheel load distribution, effect of truck  
loads, and elastic and limit load  
analyses

### Amde M. Amde

Professor of Structural Engineering  
Ph.D. SUNY at Buffalo

Service Award, Ethiopian Scientific  
Society in North America, 1996  
ASCE Fellow, 1994  
Innovation in Civil Engineering Award  
of Merit, ASCE, 1991

Structural engineering, bridge  
structures, masonry structures, stability  
of domes

### Mark Austin

Associate Professor of Structural  
Engineering  
Ph.D. University of California

NSF Research Initiation Award, 1989-  
91

Winiata Memorial Bursary, 1985-86  
W.W. Van Arnesdale Fellowship, U.C.  
Berkeley, 1982

Earle C. Anthony Fellowship, U.C.  
Berkeley, 1981

Computer-Aided Design of bridge and  
building structures, earthquake  
engineering and structural dynamics,  
systems engineering and integration

### Bilal Ayyub

Professor of Structural Engineering  
Ph.D. Georgia Institute of Technology

The Walter L. Huber Civil Engineering  
Research Prize, ASCE, 1997

The K. S. Fu Award for Professional  
Service, the North American Fuzzy  
Information Processing Society, 1995

U.S. Army Corps of Engineers Award  
for contributions to the success of the  
1995 Corps of Engineers Structural  
Engineering Conference

The "Jimmie" Hamilton Award for the  
Best Paper in the *Naval Engineers  
Journal*, 1985 and 1992, American  
Society of Naval Engineers

The Edmund Friedman Young  
Engineer Award for Professional  
Achievement, ASCE, 1989

"The Outstanding Research Oriented

Paper" published in the *Journal of  
Water Resources Planning and  
Management*, 1987, ASCE

Risk assessment and analysis,  
uncertainty modeling and analysis,  
applications of probabilistic methods in  
engineering, reliability-based design,  
reliability modeling and analysis,  
systems analysis, and reliability  
analysis of marine and offshore  
systems

### Gregory B. Baecher

Department Chairman  
Professor of Geotechnical Engineering

Ph.D. Massachusetts Institute of  
Technology  
State-of-the-Art Award, ASCE, 1991  
Thomas A. Middlebrooks Award,  
ASCE, 1995

Rockefeller Foundation Conflict in  
International Relations Post Doctoral  
Fellowship, 1975

Geotechnical risk and reliability, data  
visualization, environmental history.

### Francis B. Birkner

Professor Emeritus of Environmental  
Engineering  
Ph.D. University of Florida

Alexander von Humboldt Award, 1973  
Amsbary Award, 1965

Trace metals in water, behavior of  
particulates in water

### Kaye Brubaker

Assistant Professor of Water Resources  
Ph.D. Massachusetts Institute of  
Technology

NSF Career Award, 1998  
National Science Foundation Graduate  
Fellowship 1989-92  
Outstanding Student Paper, American  
Geophysical Union Atmospheric  
Sciences Section, May 1991

Hydroclimatology, remote sensing in  
hydrologic monitoring and modeling,



land-atmosphere interactions, water-energy linkages, persistence characteristics of drought and flood regimes, snow hydrology, probabilistic forecasting

#### Everett C. Carter

Professor Emeritus of Transportation Engineering  
Ph.D. Northwestern University

Life Membership, ASCE, 1997  
Outstanding Educator Award, American Road and Transportation Builders Association, 1995  
Life Membership, American Public Works Association, 1995

Transportation systems, airport planning, traffic management, ITS and highway safety

#### Gang-Len Chang

Professor of Transportation Engineering  
Ph.D. University of Texas at Austin

Multi-Ethnic Student Education Certificate of Appreciation, 1995-96  
Outstanding Research Award, 1987

Traffic network control and management, dynamic travel demand forecasting, intelligent transportation system design and control

#### Peter C. Chang

Associate Professor of Structural Engineering  
Ph.D. University of Illinois

Structural dynamics, structural mechanics, nonlinear finite element modeling, computer integrated construction

#### James Colville

Professor Emeritus of Structural Engineering  
Ph.D. University of Texas at Austin

Elected President, The Masonry Society, 1997-99  
Distinguished Senior Engineer Award,

Potomac Chapter of the Maryland Society of Professional Engineers, 1997-98  
Certificate of Appreciation and Recognition of Distinguished Achievement: ASCE, 1995; American Concrete Institute, 1995; The Masonry Society, 1996  
Outstanding Engineering Educator, Maryland Section of ASCE, 1995  
Outstanding Paper Award published in the Masonry Society Journal, 1992  
Engineer of the Year Award, Maryland Society of Civil Engineers, 1989-90  
Elected Fellow, ASCE, 1988  
Elected Fellow, American Concrete Institute, 1992

Structural analysis of bridge design, finite element analysis, structural masonry, reinforced and prestressed concrete

#### Allen P. Davis

Professor of Environmental Engineering  
Ph.D. University of Delaware

Technology Extension Service Award for Environmental Achievement, 1996  
NSF Young Investigator Award, 1993  
E. Robert Kent College of Engineering Outstanding Teaching Award, 1992

Chemical and physical treatment processes for waters and wastewaters, interactions and fates of heavy metals in natural and engineered aquatic systems: adsorption/desorption, photocatalysis, precipitation/dissolution, and plating/corrosion

#### Bruce K. Donaldson

Professor of Structural Analysis and Design Engineering  
Ph.D. University of Illinois, Urbana

Various student-initiated teaching awards  
NASA/ASEE and U.S. Navy summer faculty fellowships

Structural dynamics and structural analysis

#### Chung C. Fu

Director/Affiliate Associate Professor, Bridge/Building Engineering Software & Technology Center  
Ph.D. University of Maryland, College Park

Bechtel's Achievement Award, 1984, 1985, 1986

Computer analysis and design, prestressed concrete and steel structural design, bridge engineering, seismic engineering

#### Steven A. Gabriel

Assistant Professor of Project Management Engineering  
Ph.D. Johns Hopkins University

Mathematical modeling in business and policy settings, algorithm development for system optimization/equilibrium problems, development of decision support systems in industry and government

#### Deborah J. Goodings

Associate Professor of Geotechnical Engineering  
Ph.D. Cambridge University

TRB Fred Burgraff Award for Research, 1982  
U.S. Army Outstanding Civilian Service Medal, 1979

Centrifuge modeling, scale effects, slope stability, reinforced soil, cratering, sinkholes, grouting, cold regions geotechnique, soil strength characterization

#### Dimitrios Goulias

Associate Professor of Geotechnical Engineering  
Ph.D. University of Texas, Austin

Sterling Who's Who directory, EPRI Innovators Award nominee

Design, testing and behavior of advanced/modified pavement

materials and composites, smart and self healing materials, pavement condition and roughness evaluation

**Ali Haghani**

Associate Professor of Transportation Engineering

Ph.D. Northwestern University

College of Engineering Outstanding Service Award Nominee, 1996 and 1997

E. Robert Kent Outstanding Teaching Award for Junior Faculty nominee, 1993 and 1995

Lilly Endowment Teaching Fellowship, University of Pittsburgh, 1988-89

Transportation systems analysis, network analysis and optimization, logistics and carrier operations

**Oliver J. Hao**

Professor of Environmental Engineering

Ph.D. U. C. Berkeley

Fellow, ASCE

Diplomate, AAEE

Nutrient removal, hybrid modeling of AS processes

**David J. Lovell**

Assistant Professor of Transportation Engineering

Ph.D. U. C. Berkeley

Traffic engineering, operations and control

**Richard H. McCuen**

Professor of Water Resources

Ph.D. Georgia Institute of Technology

Icko Iben Award, American Water Resources Association, 1988

James M. Robbins Award for Excellence in Teaching, Cumberland District, Chi Epsilon

Stormwater management, statistical hydrology, engineering ethics, K-12

engineering education

**Glenn Moglen**

Assistant Professor of Water Resources  
Ph.D. Massachusetts Institute of Technology

Center for Teaching Excellence/Lilly Fellow, 1997-98

Watershed modeling, river mechanics, geomorphology, channel stability restoration, assimilation of spatially distributed hydrologic data

**Robert Ragan**

Professor Emeritus

Ph.D. Cornell University

Use of remote sensing and geographic information systems to support environmental and water resource modeling

**Paul M. Schonfeld**

Professor of Transportation Engineering

Ph.D. U. C. Berkeley

Fellow, ASCE; Chi Epsilon; Tau Beta Phi; Sigma Xi

Transportation systems analysis, public transit operations, air transportation, waterways, highway design optimization simulation and optimization methods

**Charles W. Schwartz**

Associate Professor of Geotechnical Engineering

Ph.D. Massachusetts Institute of Technology

Pavement engineering, infrastructure management, geomechanics, fracture mechanics, software design and development for civil engineering applications

**David R. Schelling**

Professor of Structural Engineering

Ph.D. University of Maryland, College

Park

Bridge engineering and structural design

**Eric A. Seagren**

Assistant Professor of Environmental Engineering

Ph.D. University of Illinois at Urbana-Champaign

Outstanding Doctoral Dissertation Award, Association of Environmental Engineering Professors/CH2M Hill, 1995

Biological waste treatment processes; bioremediation of contaminated surface and subsurface environments, especially nonaqueous phase liquid contaminants; monitoring and evaluation of the performance of bioremediation projects

**Jayanta K. Sircar**

Affiliate Associate Professor

Director of Information Technologies, A. James Clark School of Engineering  
Ph.D. University of Maryland, College Park

Award for Best Product Development, Technology Extension Service, Engineering Research Center, University of Maryland

Spatial information systems, 4-D modeling, visualization, intranet based project management; computing in education

**Yaron M. Sternberg**

Professor of Water Resources

Ph.D. University of California

Hazardous waste management, environmental remediation and cost analysis, fate and transport of contaminants in the subsurface environment, ground water flow modeling

**Chung-Li Tseng**

Assistant Professor

Ph.D. U. C. Berkeley

Financial engineering, project management, scheduling and optimization

#### Alba Torrents

Associate Professor in Environmental Engineering  
Ph.D. Johns Hopkins University

NSF Career Award, 1996  
E. Robert Kent Outstanding Teaching Award for Junior Faculty nominee, 1996

Fate and transport of pollutants in the environment with emphasis on sorption/desorption and mechanisms of abiotic transformations, treatment of toxic organic waste

#### Donald W. Vannoy

Professor of Structural Engineering  
Ph.D. University of Virginia

Civil Engineer of the Year, NSPE, 1991  
Outstanding Service Award, ASCE, 1988  
Outstanding Service Award, Tau Beta Pi, 1986  
Engineering News Record, 1984  
State-of-the-Art Award, ASCE, 1983

Forensic engineering, bridge engineering, building design, masonry design, structural analysis, modeling, finite element analysis, concrete, steel, mechanics

#### Matthew W. Witzak

Professor Emeritus of Pavements and Geotechnical Engineering  
Ph.D. Purdue University

Advanced dynamic material characterization, pavement design and performance module, evaluation and rehabilitation of pavement systems, statistical applications in pavement engineering, pavement management systems

## Faculty Research

#### Mr. John Cable

Associate Director of Project Management Engineering  
M.Arch, Urban Planning, Catholic University of America

Remodeling Magazine's 50 Best Remodeling Contractors, 1992

Analyzing facility design and construction practices, benchmarking and business process reengineering studies, assessing the use of information technology in design and construction management

#### Visiting Lecturers

##### Thomas W. A. Barham

Construction Engineering and Management  
J. D. George Washington University  
National Law  
Bar Admissions: Virginia, District of Columbia  
Scholarship from Associated General Contractors of America  
Associate Attorney with Arent, Fox, Kinter, Plotkin, & Kahn

##### James G. Collin

Geotechnical Engineering  
Ph.D. U.C. Berkeley  
Licensed Professional Engineer: AK, DC, FL, ID, MD, MI, MS, MT, NC, NJ, NY, OK, OR, PA, TN, VA, WA  
Vice President of Engineering and Technology Development for Tensar Earth Technologies  
Analysis for Landfill Liner Support design and Tensar geogrid reinforced modular block retaining wall design and steepened slope, reinforced soil structures, geosynthetics, deep and shallow foundations, retaining walls, tiebacks, slurry walls, decking, building facade support

##### Kenneth J. O'Connell

Construction Engineering and Management  
Ph.D. University of Maryland

Faculty Appreciation Award, ASCE Student Chapter, University of Maryland, 1987  
Harkins Group Fellowship, Construction Engineering and Management Program, University of Maryland  
Saul Horowitz, Jr. Memorial Graduate Award, 1987  
Founder of and principal-in-charge for O'Connell & Lawrence, concentrating on commercial and highway construction

#### Thomas R. Rogers

Construction Engineering and Management  
Ph.D. University of Maryland  
Registered Professional Engineer: MI, CO  
Senior Project Administrator, Barton Marlow Company  
Project Director, National Aquarium in Baltimore, Ring Tank Renovations  
Project Director, Christopher Columbus Center of Marine Research and Exploration, Baltimore  
Project Manager, Oriole Park at Camden Yards in Baltimore  
Senior Project Director, Fujitsu Microelectronics Facility, Gresham, OR

#### Neil R. Schulman

Construction Engineering and Management  
M. S. Long Island University, Brookville, NY  
Division Construction Manager, Marshall Erdman and Associates, Inc.  
Construction Manager, Harkins Builders, Inc.

#### Philip J. Tarnoff

Director, Center for Advanced Transportation Technology  
M. S. New York University  
Intelligent transportation systems, information technology, real-time database management, data visualization, systems acquisition, simulation

**Civil and Environmental Engineering Staff**

Maggi Gray, Accounting Associate

LaShaunda Haynes, Account Clerk

Nancy Lapanne, Director

Theresa Mullen, Executive Administrative Assistant

Alan Santos, Academic Coordinator

Sandra Stark, Accounting Associate

Dominic Yeh, Scientific Word Processing Supervisor

**BEST Center**

Dr. Chung C. Fu, Director

Chauling Fu, Faculty Research Assistant

Pat Johnson, Program Management Specialist

Dr. I.C. Lin, Research Associate

**T2 Center**

Elmer Biggs, Faculty Research Assistant

Ben Gribbon, Faculty Research Assistant

Dr. Donna Nelson, Director

Jeanette Prince

April Walker, Faculty Research Assistant

**CATT Center**

George Ake, Assistant Research Scientist

Rickey deLeyos, Faculty Research Assistant

Catherine Dolan, Coordinator

Rick Dye, Assistant Research Scholar

Kathleen Frankle, Faculty Research Assistant

Thomas Jacobs, Research Associate

Jeannie Prevots, Program Management Specialist

Bobbie Sharma, Faculty Research Assistant

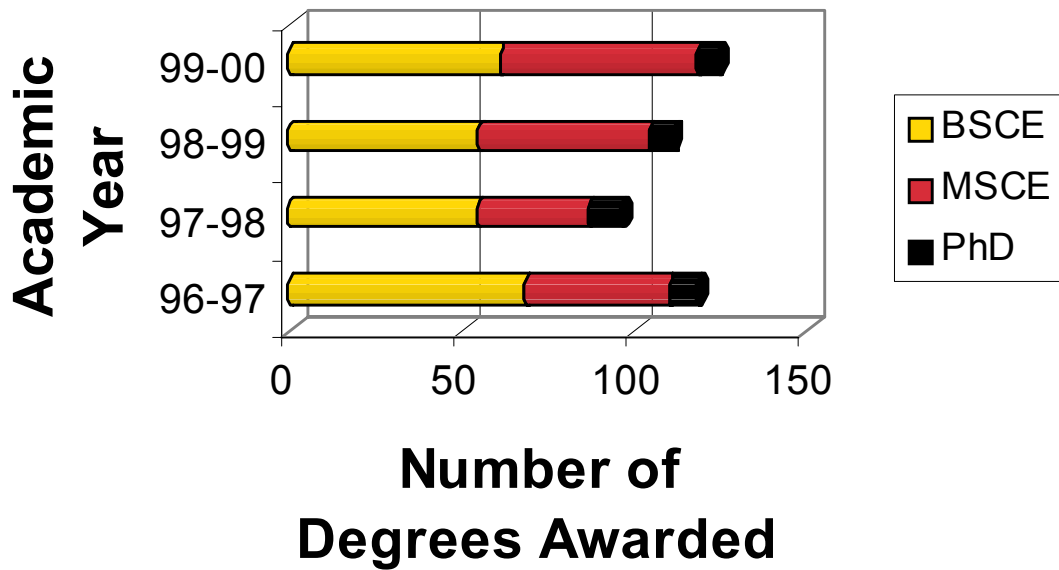
Tom Steele, Faculty Research Assistant

Dr. Phillip Tarnoff, Director

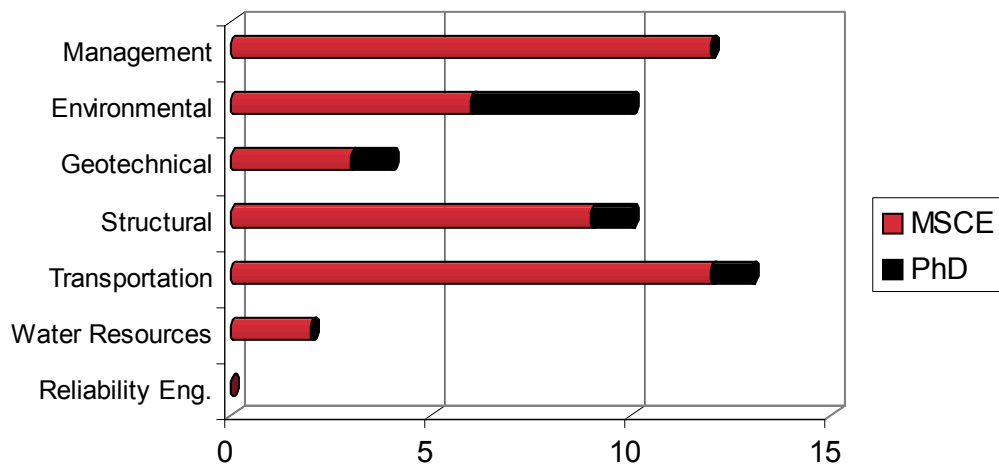


# Departmental Statistics

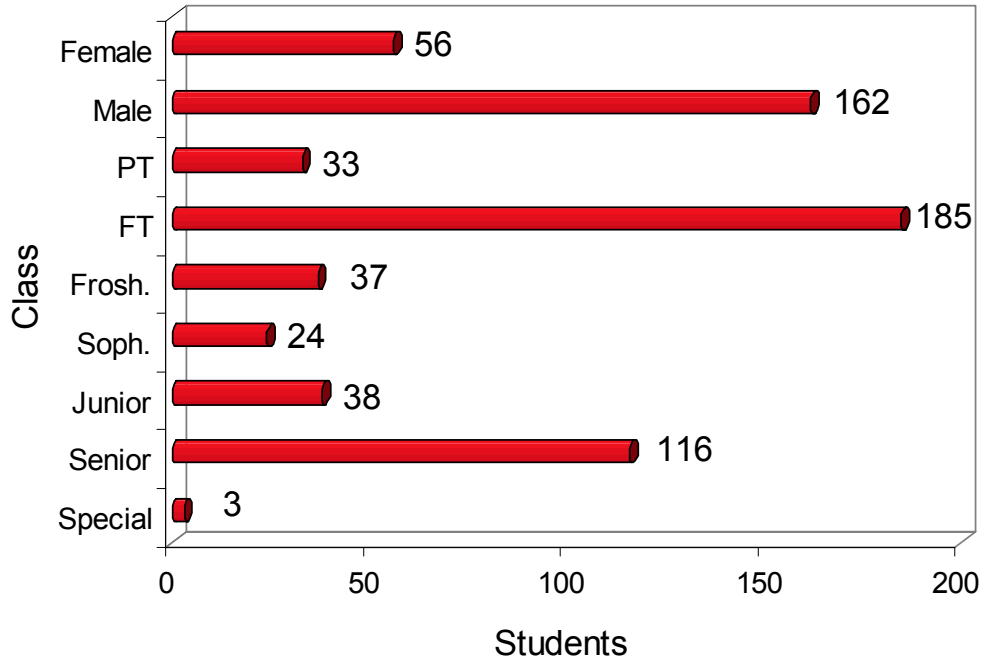
## Undergraduate and Graduate Degrees Awarded



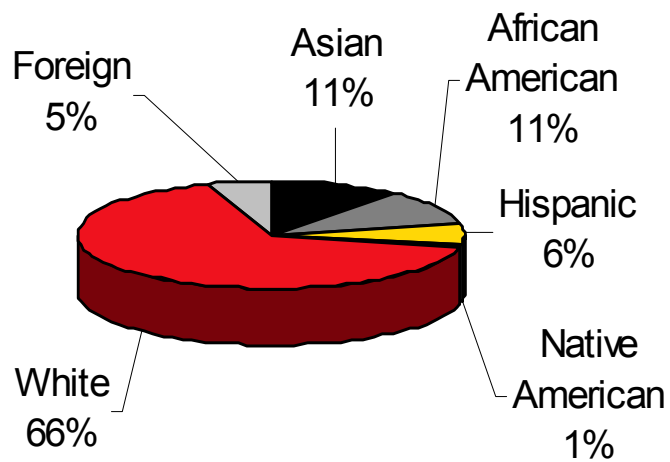
## Distribution of Graduate Degrees Awarded 99-00



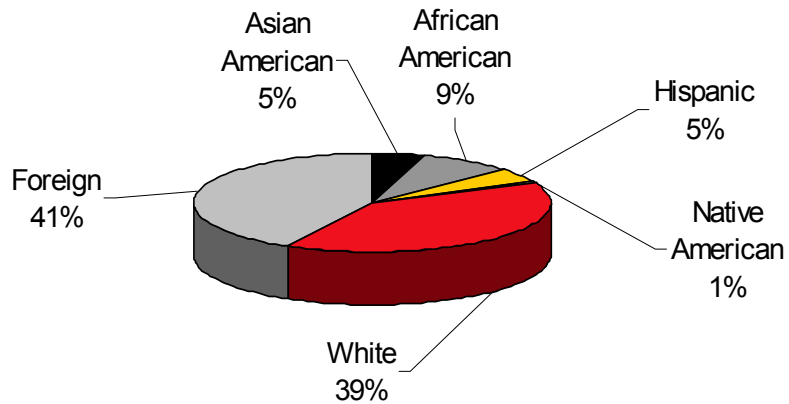
## Undergraduate Student Class Profile



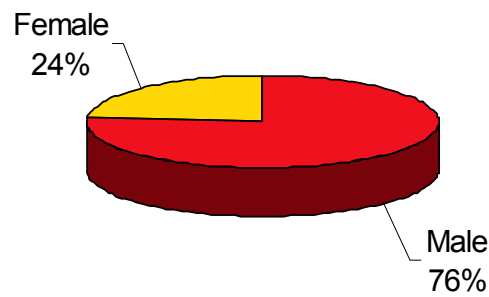
## Undergraduate Ethnic Profile



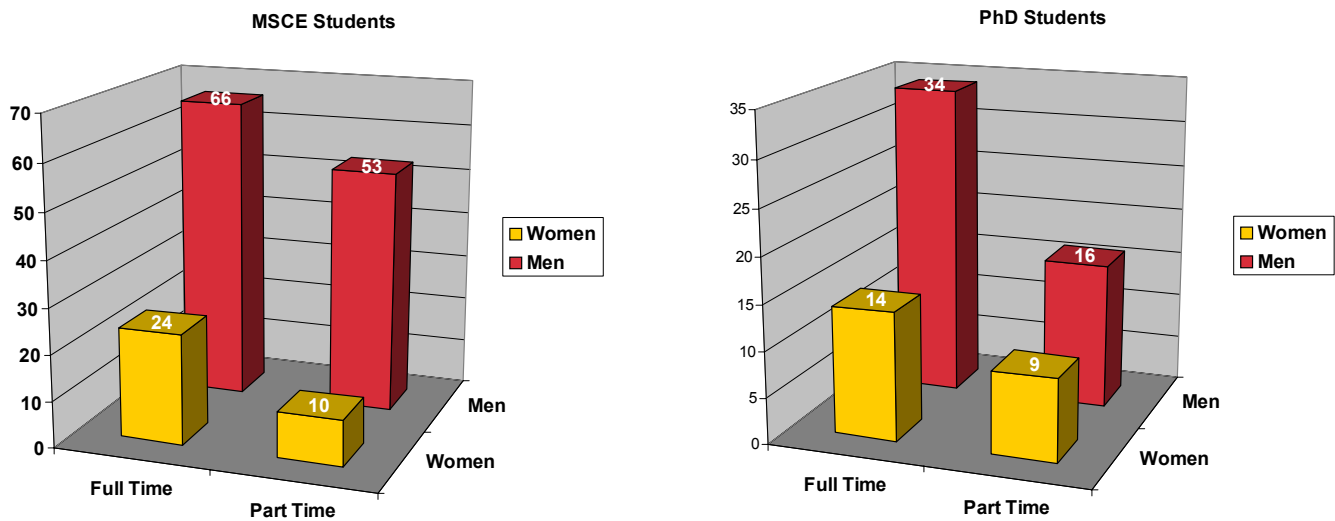
## Graduate Student Ethnic Profile



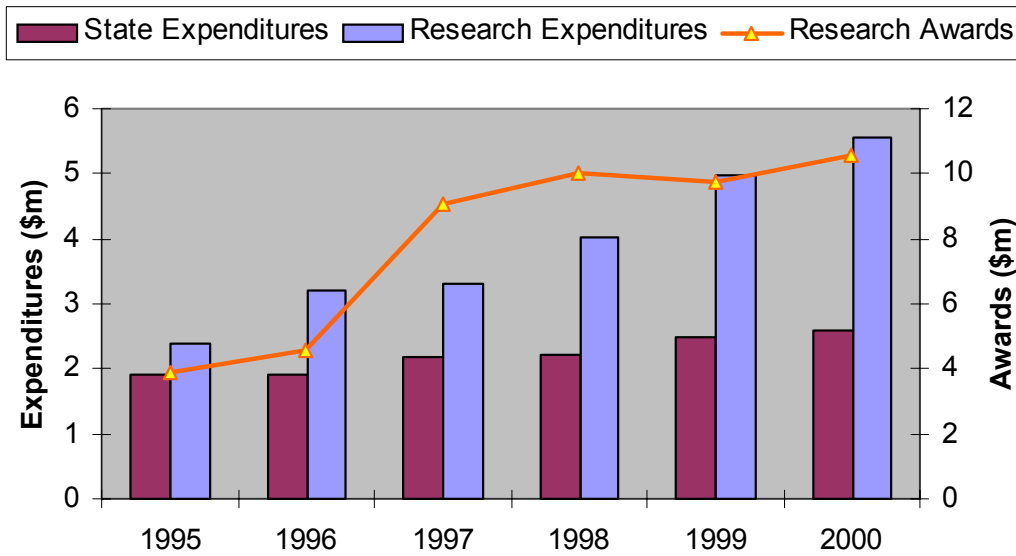
## Graduate Student Gender Profile



## Graduate Students in Degree Programs



## Research Expenditures



## Breakdown of Sponsored Research Dollars

