

Ali Haghani
 Department Chair
 301.405.1963
 ahaghani@eng.umd.edu

Nancy Lapanne
 Director, Administrative Services
 301-405-1876
 nlapanne@umd.edu

Jana Zach
 Assistant Director, Administration
 301.405.5193
 jzach@umd.edu

Al Santos
 Assistant Director, Student Services
 301.405.1977
 asantos@umd.edu

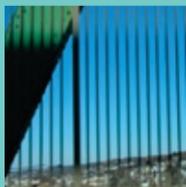
Maggi Gray
 Business Manager
 301.405.1971
 msgray@umd.edu

Janet Alessandrini
 Administrative Assistant
 301.405.1974
 jalessan@umd.edu

Fabiola Oscar
 Financial Coordinator
 301.405.1973
 fo@umd.edu

Wan Chan
 IT Coordinator
 301.405.1148
 wanchan@umd.edu

Sangeeta Kaul
 Graphic Artist
 301.405.4195
 skaul@umd.edu



Civil Remarks is published twice yearly for alumni and friends of the Department of Civil & Environmental Engineering at the A. James Clark School of Engineering.

Your alumni news and comments are welcome. Please send them to:

Sangeeta Kaul,
 Department of Civil & Environmental Engineering,
 1173 Glenn L. Martin Hall,
 College Park, MD, 20742-3021.

Phone: 301.405.7768
 Fax: 301.405.2585

Visit our web site at www.cee.umd.edu

Civil Remarks Production Team:

Dr. Ali Haghani
 Department Chair

Elisabeth Fernández-Kimmel
 Editor

Al Santos
 Photographer

Sangeeta Kaul
 Graphic Artist



CIVILREMARKS

CIVIL AND ENVIRONMENTAL ENGINEERING

THE CLARK SCHOOL SOLAR DECATHLON TEAM ENTERS NATIONAL COMPETITION



The University of Maryland was selected in a competitive process to be one of 19 university contestants in the Decathlon, to be held October 2005 on the National Mall, Washington, DC. An interdisciplinary team of undergraduate and graduate students has designed and is now building a small house that runs completely on energy from the sun.



The students also take responsibility to manage the project, including raising and administering money and arranging the transportation of the house to the National Mall. The design scheme was selected in spring semester 2004 and developed in the fall semester of 2004. Construction began this past spring semester.



"These future engineers and architects are some of the brightest in the world," said U.S. Secretary of Energy Samuel W. Bodman of the 18 teams. "The innovative technologies the students will present demonstrate that the widespread use of renewable energy to power our homes may be closer than we may think."

The university's team is made up of more than 60 graduate and undergraduate students

All photos courtesy of www.solarhouse.umd.edu

A newsletter for alumni and friends of the Department of Civil & Environmental Engineering

FALL 2005
 Vol. 4, No. 2

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 SCHOOL OF ENGINEERING

Department of Civil & Environmental Engineering
 University of Maryland
 1173 Glenn L. Martin Hall
 College Park, MD 20742-3021

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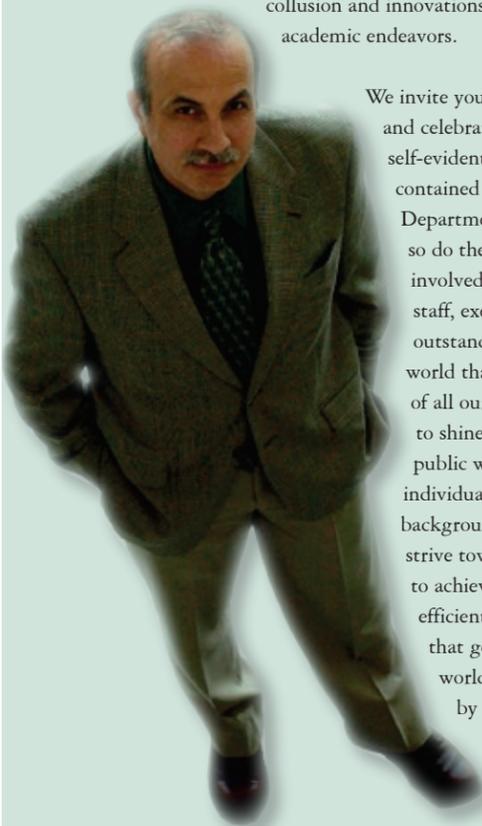
CHAIR'S MESSAGE

The Fall season is upon us, bringing with it a new semester and many exciting developments. The University of Maryland's A. James Clark School of Engineering continues to raise the bar in its expectations and offerings to the field of Engineering, and the Civil & Environmental Engineering Department is at the forefront of this mission: to change the engineering field's norm of isolation and technology for its own sake by offering programs that include broad social interests and technological innovations as essential tools in order to nurture an exemplary stripe of entrepreneurship among our graduates.

In the creation of this newsletter, we were pressed in choosing among the consummate individuals and projects that comprise our Department and its activities. We can say with certainty that our direction has gained momentum, and we hope to do justice to the fruits of our efforts by summarizing them for you, our friends, and family.

We commence the Fall semester by welcoming the A. James Clark Endowed Chair in Engineering Project Management. Supplementing this, the research productivity of the department has continued to grow; UM's entry into the Department of Energy's Solar Decathlon is deftly coming to a finished state; we welcome new staff and say "until we meet again" to beloved former staff; and we summarize the many awards, gatherings, and accomplishments we have undergone as an entity. All these developments mirror the goals of the CEE Department: to bring collusion and innovations to our Department's academic endeavors.

We invite you to peruse these pages and celebrate with us the many self-evident accomplishments contained herein. As the Department grows and evolves, so do the many people that are involved: from our wonderful staff, exemplary faculty, and outstanding students, to the world that reaps the benefits of all our efforts. We continue to shine as a microcosm of the public we serve, composed of individuals coming from many backgrounds coming together to strive toward a common goal: to achieve a well-rounded, efficient, pleasant existence that goes beyond livable, a world that is sustainable by design.



ENCE 301: Geo-Metrics and Geographic Information Systems in Civil Engineering

In response to a growing interest in using Geographic Information Systems (GIS) as an engineering tool, the Civil Engineering department has included ENCE 301 as a junior-level requirement. Professor Glenn Moglen and Dr. Elise Miller-Hooks, who respectively bring in their expertise in Hydrology and Transportation, are joining forces with the goal to provide students with the skill of using GIS to analyze and solve engineering problems, a skill that is quickly becoming indispensable in the field.



The last in a series of three required computer courses, ENCE 301 immerses students in taking advantage of GIS's aspect of providing a visual representation of layers of data that coincide spatially. In doing so, the students will be exposed to many learning experiences that will prepare them for their professional careers, addressing an errant notion that occasionally presents itself in the engineering field: if engineers comply with just having the ideas and correct analyses, their work is done.



The students are encouraged to use GIS beyond the boundaries of the course by receiving rewards for seeking and obtaining GIS data from the many alternate potential sources, particularly the Internet. To encourage this, Professor Glenn Moglen states that "throughout this class, I will reward students who get wrong GIS answers to homework sets but have the wherewithal to state how they know their answer is wrong."

As an example of the critical thinking required for success in the course, Prof. Moglen provides his students with this illustration: "How many miles of highway are there in Maryland? 10? 100? 1,000? 10,000? 100,000? 1,000,000?! Before sitting down at the GIS you should already have a sense of what number you expect. That way, when you calculate a value by GIS you can critically evaluate whether the number makes sense. What if your original estimate of highway miles in Maryland differs considerably from the GIS estimate? Do you believe the GIS or your original estimate? How could you test what the source of the difference is?"

To round out the course's offerings in experiential learning, the students will have the opportunity to present GIS-related topics and work both individually and in teams. For the latter part of the course, groups will choose one of several diverse GIS projects, prepare a GIS solution to an open-ended problem, and then prepare written, oral, and web presentations about their project. After all, working with others isn't just an important workplace skill; it's also an effective way to learn.

To include this course as a requirement is to take a step beyond preparing students' technical know-how. For all its power as an engineering tool, the demand for GIS-savvy engineers is greater than the number of engineers who can apply it in the workplace. The University of Maryland's CEE graduates will find themselves equipped with a highly sought-after skill.

In the words of Rachel Klein, a CEE Transportation undergraduate who successfully completed the course this past Spring under the tutelage of Dr. Miller-Hooks, "GIS is useful to my academic career right now because some of the research projects I'm involved in use the GIS software we learned in ENCE 301. Also, transportation is an up-and-coming field where tools like GIS are necessary; when I graduate, I'll have an upper hand, career-wise."

cont. from page 1



The winner of the Solar Decathlon will be the team that best blends aesthetics and modern conveniences with maximum energy production and optimal efficiency.

from the Clark School and the schools of architecture, business, landscape architecture, art, and journalism. The team is led by recent Clark School graduate Rob Murray (Civil Engineering '05) and faculty advisor Prof. Kaye Brubaker, Civil and Environmental Engineering.

The Solar Decathlon presents cutting-edge architecture, engineering, and technology, all of which can be applied in building homes to generate their own energy, not

simply consume it. The teams will compete to see who can build and operate the best designed and most energy-efficient solar-powered home. For two years, the teams have worked on the design, research, and testing necessary to construct and power these homes. Now, they must build and transport the homes to the Mall, where they will comprise a "solar village." The public can tour the homes and take away valuable information about where to find these resources and how to apply them to their existing homes, or ones they will build.

The teams will compete in 10 contests that will judge architecture, livability, comfort, and power generation for heating and cooling, water heating, and powering lights & appliances. Each solar house must also power an electric car.

The Maryland Solar Decathlon Team appreciates the generous support of the following organizations:

Monetary Donations

- Clark Construction Group, LLC
- ezStorage Corporation
- Gutshick, Little, & Weber, P.A.
- Institute of Electrical and Electronics Engineers, Inc., Washington Section
- Lockheed Martin
- Maryland Energy Administration
- Maryland-National Capital Building Industry Association
- Miller & Long Co., Inc.
- National Association of Home Builders Research Center
- Pepsi
- Shapiro & Duncan
- The Lessard Group
- The Whiting-Turner Contracting Company
- WDG Architecture

Apparel and Promotional Materials

- ExpresSign, Inc.
- Patagonia, Inc.
- Trippe Sports and Promotion

Appliances

- Creative Laundry
- Discount Appliance Distributors
- LG Electronics
- Viking Range Corporation

Building Materials

- A.C.&R. Insulation Co., Inc.
- Loewen Windows
- Rockville Fuel & Feed Company
- Pactiv Corporation
- Peoples Supply
- Simpson Strong-Tie Company
- Tendura
- The Home Depot
- The Sanders Company
- Western Red Cedar Lumber Association
- Construction Site Logistics
- Hercules Fence
- The Whiting-Turner Contracting Company
- Vallerie Storage
- United Rentals

Consulting and Professional Services

- American Power & Light, LLC
- Atlas Plumbing
- Aurora Energy
- Dvorak Enterprises, Inc.
- Earth Sun Energy Systems
- Shapiro & Duncan
- The Sanders Company
- The Whiting-Turner Contracting Company
- Whitney, Bailey, Cox & Magnani, LLC

Electrical Systems

- American Power & Light, LLC
- BP Solar
- Dvorak Enterprises, Inc.
- Dynalectric - Washington, D.C.
- East Penn Manufacturing Company, Inc.
- J.E. Richards, Inc.
- OutBack Power Systems
- PerLectric, Inc.

Finish Materials

- Chesapeake Lighting Associates
- Degussa Building Systems
- Expanko, Inc.
- Forecast Lighting
- Häfele GmbH & Co KG
- Holland Tile
- Karona, Inc.
- Kohler Co.
- Oceanside Glasstile
- P & P Contracting
- Pittsburgh Paints
- Sony Corporation of America

Heating, Ventilation, and Air Conditioning

- Atlas Plumbing
- Earth Sun Energy Systems
- Carrier Corporation
- Shapiro & Duncan
- Stirling Technology, Inc.

Plumbing

- Atlas Plumbing
- Aquatherm GmbH
- Earth Sun Energy Systems

Software and Literature

- AEC Infosystems, Inc
- International Code Council
- National Fire Protection Association
- Sustainable Buildings Industry Council

Tools and Safety Equipment

- Brand Scaffold Builders, Inc.
- DeWalt
- DrinkMore Water
- Ironclad
- McDonald Safety Equipment, Inc.
- Mine Safety Appliances
- Rexel
- Trippe Supply Company

STUDENT NEWS



Andrew Frank Parker has won the prestigious Churchill Scholarship

Graduating Senior **Andrew Frank Parker** has won the prestigious Churchill Scholarship.

Churchill Scholarships offer American students of exceptional ability who enrolled at one of the institutions participating in the program, the opportunity to pursue graduate studies in engineering, mathematics, and the sciences at Cambridge, one of the world's great universities. The Scholarships also provide the opportunity to experience life in Britain, to forge friendships with British students and those from many other lands who are enrolled at Cambridge, to see something of Britain and lands beyond, to see the United States from a new perspective and to gain personal insights about oneself that come from living abroad and adjusting to new challenges.

The criteria for the selection of Churchill Scholars include the following:

Achievement in academic work as indicated by course grades; scores on the Graduate Record Examination; capacity for original, creative work as shown by special recognition and letters of reference; character; adaptability; demonstrated leadership; and concern for the critical problems of society; and good health.

Andrew is pursuing a Master of Philosophy degree in Engineering for Sustainable Development. This is a 12-month program with 6 months of coursework followed by a 6-month dissertation period.

Andrew is the first UMCP student to win this award.



Hiruy Dafila won Outstanding ASPIRE Student Research Award

Hiruy Dafila is the recipient of the 2005 Clark School of Engineering Outstanding ASPIRE Student Research Award for his research conducted under Dr. Aydilek's supervision. As an undergraduate research assistant, Hiruy was involved in a research project on image-based evaluation of uniaxial strains in geosynthetics, polymeric materials commonly used in civil engineering projects. The award was presented on April 20, 2005 at the Clark School of Engineering Honors and Awards Ceremony.



congratulations to the class of 2005



CEE Undergraduates Awards

We congratulate all of the following CEE undergraduate students for their achievements:

The American Society of Civil Engineers' Outstanding Senior Award

Dorianne Shivers — Spring 2005
Jack Wilson Kwai-Blank — Spring 2004

(This award is presented to a senior member for outstanding scholastic achievement and for significant service to the chapter).

The Department of Civil & Environmental Engineering's Outstanding Senior Award

Angela Buford — Spring 2005
Nathaniel Edward Panther — Spring 2004

(This award is presented for scholastic achievement).

The Woodward-Clyde Consultants Award

Michael Eskinazi — Spring 2005
Dorianne Elizabeth Shivers — Spring 2004

(This award is presented to a junior in Civil Engineering who has demonstrated outstanding academic achievement).

The Chi Epsilon Outstanding Senior Award

Douglas Tilley — Spring 2005
Andrew Frank Parker — Spring 2004

(This award is presented to a senior in Civil Engineering for scholarship, character, and congeniality with practical engineering adaptability).

The Bechtel Award

Michelle Neukirchen — Spring 2005
Robert-Bruce Cunningham Murray — Spring 2004

(This award is presented to a Civil Engineering student for demonstrated leadership and service to the student engineering community).

The Robert L. Morris Award for Environmental Leadership

Michelle Neukirchen — Spring 2005
James Howard Stagge — Spring 2004

(This award is given to a junior, senior, or graduate student in Civil Engineering who has demonstrated, through extracurricular activities, a commitment to environmental stewardship, ethical engineering practice, or sustainable technology).

The Department of Civil & Environmental Engineering's Chair's Award

Alvy Hoksbergen and Scott Mucci — Spring 2005
Brian Gerald Domonkos — Spring 2004

(This award is presented to students for the most significant contributions to the department).



STUDENT PROFILE: ROB MURRAY (BSCE 2005), TEAM LEADER OF THE UM SOLAR DECATHLON PROJECT

The Solar Decathlon is an international student design competition sponsored by the U.S. Department of Energy. The University of Maryland team placed 4th in the first Solar Decathlon, held in 2002.

The Solar House competition takes place every three years. Rob's first decathlon was during his sophomore year; this first experience impacted him so that he felt the need to pull the University back into it for the next competition this Fall. He also felt it prudent to keep the project student-run, as in the 2002 competition, but to start from scratch rather than build on UM's 2002 submission to the Project.

Rob revels in these problem-solving challenges; his love of the engineering trade is reflected in the fact that he doesn't mind staying up late dedicating himself to his work; that he took an extra year to finish his BSCE, and that he's committed himself to this labor-intensive, time-consuming project, which will keep him busy for six months after graduating.



As an engineer, what are your impressions of the DC Metro Area?

I grew up an only child, close to the UM campus in Prince George's County. I have seen the area change a lot over the past twenty or so years. It has definitely experienced tremendous growth, not always for the best, and I feel there are ways we can apply civil engineering to help ease some of the problems of the new growth and improve the quality of life for us here.

Two examples of this are: transportation engineering to help tackle the Beltway congestion and gridlock, and structural and environmental engineering to help find ways to protect nature as we continue to expand the built environment.

How did you become interested in civil engineering?

Civil engineering just seemed to be the best fit from the beginning. Looking back it all makes sense, but it took a while to come to that realization. I can remember back to being a kid and running around the construction sites for new home developments in

my neighborhood. I'd search through the homes, check out the building materials, and climb on the bulldozers, tractors, and backhoes. Civil Engineering involves many of those things I was interested in then, and still interested in today.

"It was a thrill for the UM team to be accepted to the competition this year," explains Rob. "it's an interdisciplinary project with a big learning curve, and a lot of it is done by trial and error." Challenging specifications are thrown into the competition's guidelines, such as the 2002 competition's requirement to run a shower at 110-degree Celsius twice a day for 10 minutes during 10 consecutive days.

What has been your experience as a CEE student?

I've gained a lot from the program here at Maryland. I've been exposed to many potential career paths beyond the B.S. degree. It's humbling to know this is only the beginning and there's a lot more to learn; it's only the foundation.

Obviously, the coursework wasn't the easiest, but it's given me the patience to help tackle a problem of any size. I've learned where to go when I have questions and resources available when working on a project.

I've enjoyed the opportunity to get involved with projects and the administration that is supportive of new extracurricular activities like the solar house. I've been able to learn even more outside of the classroom and make lasting contacts to help me in my professional career.

Civil Remarks thanks Rob for his time in sharing his experiences, and the Civil Engineering department wish him the best of luck in the Solar House project and his future endeavors after a well-deserved vacation. Go Rob!



Liz Gilchrest presented with a Terp Award and the Women's Basketball Academic Award

Liz Gilchrest, a Civil Engineering student, was presented with a Terp Award and the women's basketball Academic Award.

Gilchrest joined the team for just one season after transferring from Washington College (Md.). While seeing limited playing time in College Park, Md., she was a leader

on the squad and a workhorse. She came to Maryland to finish a five-year dual-degree program in physics and civil engineering, posting a 3.86 grade point average to earn the team's Academic Award. She was also the recipient of the Terp Award, given to the player who embodies the spirit of what it means to be a Terp in the classroom and on the court. Maryland reached the second round of the NCAA Tournament for the second-straight year and posted 22 wins on the season, the most since the 1992-93 campaign.

TERP AWARD: embodies the spirit of what it means to be a Terp, academically and on the court

ACADEMIC AWARD: given for maintaining above a 3.0 GPA

SOLAR DECATHLON



The University of Maryland was selected in a competitive process to be one of 19 university contestants in the Decathlon, being held in October 2005 on the National Mall, Washington, DC.

Here are some pictures of the amazing work done by the University of Maryland team members.



MARYLAND DAY

The Civil and Environmental Engineering Department's main event was titled, **Mission CEE: Take the GPS Challenge!** It was held in the Front Lawn of the Glenn L. Martin Building. This event showcased how civil and environmental engineers use digital maps and global positioning systems (GPS) to build infrastructure and protect the environment. Participants

searched for hidden treasures using handheld GPS devices. It was a fun filled event for everyone who attended.



ASCE SOFTBALL PICNIC '05

Students, faculty, and staff face off in a friendly competition.



MEPP - A New Kind Of Leader Producing Engineers With Public Policy Expertise

In the halls of congress, in federal, state and municipal agencies, in corporate boardrooms and town hall meetings, americans gather to discuss the issues that affect their lives, their communities, the nation and the world. But as never before, the availability of powerful and complex technologies makes it increasingly difficult for leaders to come to informed decisions concerning energy, infrastructure, biotechnology, national security and a host of high-stakes issues. Engineers can change this situation, and the A. James Clark School of Engineering makes it more likely they will.

The Clark School has long offered its undergraduate students programs that explore the effects of technology in all aspects of life and the engineer's role in society. Now, through an innovative program offered jointly by the Clark School and the university's School of Public Policy, engineers can obtain specialized post-graduate training to become a new kind of leader: an engineer prepared to initiate and direct public policy discussions, build consensus and help make more informed policy decisions.

Two Disciplines, One Vision

"Clearly, there is a pent-up demand for studies in this area," affirms Matthias Ruth, Roy F. Weston Chair in Natural Economics at the School of Public Policy and MEPP co-director. "Already we have received letters and calls from individuals in all branches of engineering from across the United States and from Europe and Latin America as well." Ruth and Deborah Goodings, professor of geotechnical engineering in the Department of Civil and Environmental Engineering at the Clark School and MEPP co-director, have talked for years about the urgent need for engineers to understand the social implications of their work and to participate in the political processes that affect it. Prof. Goodings explains, "Students are immersed in engineering theory and design, but typically at the expense of understanding the larger influences of, and on, their work. On the other hand, those who lead in public policy typically have very limited technical or engineering backgrounds." Goodings acknowledges that virtually every day policy decisions are made that both require and affect engineering. "Engineers face long-term questions about smart growth and difficult choices regarding our environment, our infrastructure and our transportation needs," she notes. "Internationally, there are especially daunting questions that need to be answered—and soon—concerning how we will develop infrastructure and how we will deal responsibly with finite natural resources." Yet, Prof. Goodings attests, "In areas in which their expertise is essential, engineers have not been involved to anywhere near the

extent they should." Particularly, engineers must consider the needs and aspirations of the world's five billion "have-nots" as they develop solutions that could have significant ramifications for political stability, according to Goodings.

Engineers On Capitol Hill

MEPP students, with guidance from advisors and the program co-directors, will gain practical experience in their areas of special interest, working directly with government policymakers as well as researchers and professionals at think tanks, nonprofit organizations and engineering and technology firms. Students will also benefit from seminars and activities that engage leaders in public dialogue. This spring the program hosted a panel on engineering and energy policy, attracting some of the nation's foremost experts: William Wulf, president of the National Academy of Engineering; Katherine Sierra, vice president for infrastructure at the World Bank; Curtis Bolton of the Department of Energy's Fusion Energy Sciences; and Michael Ramage, chair of the National Research Council report on "The Hydrogen Economy" and a former executive 8 vice president with ExxonMobil Research and Engineering Company. Goodings is optimistic that the new program will give Clark School students a competitive edge. "Our program will be far more applied than many others. We are 15 minutes from Capitol Hill, where so much that determines our world's future takes place. Our students will learn in that environment and bring their influence to bear far beyond it," she predicts.

The Clark School Leads The Way

Producing engineers aware of their responsibilities to society is a defining attribute of the Clark School, with its long history of multidisciplinary and applied programs promoting student research, team projects, internships and entrepreneurship. James Duncan, who heads the College Park Scholars program, is unequivocally enthusiastic about MEPP as a graduate-level complement to his own. "Today, you get a degree in engineering and you are very excited about the science of it, about doing things," he notes. "You don't think a lot about the big picture. This program fills that void in forcing you to look at the big picture." His comments reflect the thinking of the American Society of Civil Engineers. Concerned that tomorrow's engineers will need far greater preparation and study, the society examined the body of knowledge engineers will need for the 21st century. It identified 15 areas essential to an engineer's background, including what the MEPP program seeks to provide: "the broad education necessary to understand the impact of engineering solutions in a global and societal context, as well as an understanding of business and public policy, and administration fundamentals."



Collaborating Writer - John Stack. John is a Baltimore-based writer who has written extensively for the American Society of Civil Engineers, headquartered in Reston, VA. In addition, his work has appeared in The Baltimore Sun, The Richmond Times-Dispatch, Baltimoremagazine and other publications and competition sponsored primarily by the U.S. Department of Energy.



Dr. Bilal Ayyub received the American Society of Naval Engineers President's Award and Certificate of Recognition

Dr. Bilal M. Ayyub, Professor and Director of the Center for Technology and Systems Management, received the American Society of Naval Engineers President's Award for his service as the Naval Engineers Journal Committee Chairman from 2000 to 2005. He also received a certificate of recognition for outstanding service in the Society's Technical and Research Program as the Chairman of Panel HS-4 on Design Philosophies of the Hull Structure Committee.



Dr. Amde M. Amde co-organizes a mini symposium in Italy, presents keynote papers at two international conferences

Dr. Amde M. Amde co-organized and participated in a mini-symposium on "Failure Analysis of Materials," as part of the Eleventh International Conference on Fracture, held recently in Turin, Italy. The mini-symposium was partly sponsored by the National Science Foundation.

Recently, Dr. Amde also participated as part of the U.S. contingent in a National Science Foundation sponsored Indo-US Workshop on High Performance Cement Based Concrete Composites in Chennai, India. He presented a keynote paper and served on the International Advisory Board of this ICACS 2005 International Conference. In addition, Dr. Amde presented a keynote paper at the International Conference on Advances in Concrete and Construction (ICACC) in Hyderabad, India.



Dr. Chung C. Fu wins the ASCE MD Section Award

Dr. Chung C. Fu is the recipient of the 2005 Outstanding Engineering Educator of the Year Award of the ASCE-MD Section. Congratulations to Dr. Fu.



Dr. Mark Kaminskiy received a 2005 research and development recognition award

Dr. Mark Kaminskiy, the Chief Statistician at the Center for Technology and Systems Management, received a 2005 research and development recognition award from the Ford Motor Company for his outstanding contribution to research and development of the algorithm for Enhanced Identification of Reliability Concerns. The algorithm for Enhanced Identification of Reliability Concerns was developed in a project contracted to the Center for Technology and Systems Management of the University of Maryland in 2003-2004 with Drs. Kaminskiy and Ayyub as the co-principal investigators, and is currently being used by the Ford Motor Company.



Dr. Galloway was accorded an honorary diplomate award

Dr. Gerry Galloway was accorded an honorary diplomate award by the American Academy of Water Resources Engineers (AAWRE) at the World Water and Environmental Resources Congress in May 2005. He was part of the eleven members of the first group of diplomates who were accorded honorary status, the AAWRE's highest distinction. There was a reception held for a total of 93 diplomates on hand (hosted by the AAWRE and the American Academy of Environmental Engineers) who were commended for completing ASCE's first voluntary, post licensure specialty certification program.

The AAWRE was founded by practicing water resources professional who are members of ASCE's Environmental and Water Resources Institute (EWRI) to improve the practice and elevate the standards of water resources engineering, as well as, to raise its stature. Approved by the AAWRE's board of trustees in March 2005, the Diplomates comprise of a wide range of water resources engineering experts in academia, public service, and private practice.



Dr. Goodings Receives Clark School Outstanding Service Award

Dr. Deborah Goodings was honored with the Clark School Outstanding Service award recently. Dr. Goodings has a long history of service to the Department and the College, most recently as Associate Chairman of the Department from 2001 to 2003, as Chairman of the Engineering Council through AY2002/2003, as advisor to Civil Engineering students who required special advising for curricular or personal reasons from 2001 to 2003, and now as undergraduate advisor to half of our juniors and seniors.

Dr. Goodings identified an Engineers Without Borders (EWB) project in the design phase and joined our chapter to it. She used the funding provided to travel with five engineering undergraduates to northern Thailand for two weeks in June, 2004, where they refined the design for and then constructed a simple wastewater treatment system, as well as working on interior finishing, for a health clinic to serve a cluster of Lisu hill tribe villages.

Since then, Dr. Goodings has overseen the development of four new EWB-UMCP projects: one on the Pine Ridge Indian Reservation in South Dakota; one to Patadel, Ecuador; one to return to northern Thailand to build an orphanage for children who have escaped to Thailand from Burma, but without their parents; and a new project under development to construct a clinic in a poor district of Cairo.

In addition to the time Dr. Goodings spends on these projects, she has made impressive connections to our community of local engineering practitioners. The measure of the leadership she has provided to our students is in the effect she has already been seen to have on senior students' graduate study and career choices.



Dr. Seagren and Tim Moore awarded the 2005 Rudolph Hering Medal

Prof. Eric Seagren and his former M.S. student Tim Moore were awarded the 2005 Rudolph Hering Medal from the American Society of Civil Engineers (ASCE) for their paper "Nonaqueous phase liquid pool dissolution as a function of average pore water velocity," which was published in ASCE's Journal of Environmental Engineering in 2003 (Vol. 129, Issue 9, pages 786-799). The award, which consists of a bronze medal and a certificate, was presented at the ASCE World Water and Environmental Resources Congress in Anchorage, Alaska, which was held May 15-19. The Rudolph Hering Medal was instituted and endowed in 1924 by the Sanitary Engineering Division (now the Environmental and Water Resources Institute) of ASCE, in honor of Rudolph Hering, past Vice President of the Society. The medal is

awarded to the author(s) of the paper which contains the most valuable contribution to the increase of knowledge in, and to the advancement of, the environmental branch of the engineering profession.



CATT's Tarnoff on U.S. Traffic Signal Inefficiency; traffic signal assessment on the news

Phillip Tarnoff, Director for the Center of Advanced Transportation Technology (CATT) has contributed to a recent FHWA study finding that U.S. Traffic Signals contribute to pollution and delays.

The National Transportation Operations Coalition (NTOC) is an organization established by the Federal Highway Administration (FHWA), American Association of State Highway Officials (AASHTO), the Institute of Transportation Engineers (ITE) and others to encourage increased emphasis including funding for transportation operations. The NTOC identified traffic signal timing as one of the most important areas requiring increased attention. The University of Maryland Department of Civil & Environmental Engineering CATT, played a lead role with the NTOC in conducting a traffic signal self assessment in which local agencies were asked to evaluate the quality of their existing traffic signal operations. The results showed a serious national deficiency in this area with signal operations receiving a score of D- using the evaluation system that had been established. On April 20th, the NTOC held a major press event, during which the results of the survey were unveiled. The briefing was attended by all of the major media outlets including radio, TV and the press. Mayor Anthony Williams in his role as the President of the National League of Cities was the keynote speaker. Both prior and during this event, Phil Tarnoff, the director of the CATT was interviewed by the Associated Press, National Public Radio, WTOP radio and the Cox Cable News network. As a result of these interviews, he has received national exposure speaking about the current state-of-the-practice in traffic signal operations.



Invention of the Year Nomination

A work by **Dr. Mark Austin** and his colleagues Natasha Shmunis, Vimal Mayank and David Everett, "A Tree-to-Graph Folding Procedure for Systems Engineering Requirements" (IS-2004-068) has been chosen as one of the finalists for Invention of the Year 2004. Invention of the Year awards in each category of Information, Life, and Physical Science was presented at a reception on Tuesday, April 19, 2005 in the Club House Banquet Room at the University of Maryland Golf Course from 4:30 to 6:00 p.m. Natasha and Vimal were Faculty Research Assistants at ISR. Dave Everett works at Goddard.



FACULTY PROFILE: KAYE BRUBAKER

Professor Kaye L. Brubaker has always loved academia, and she followed her heart to her current role of Undergraduate Faculty Advisor and Associate Professor in the Civil and Environmental Engineering Department.

Her high-school career counselor gave her the customary diagnostic test to pinpoint her strengths, and she did particularly well in the category of "Academic Tolerance". This put her on her path of helping students develop good relationships with their academic endeavors.

Upon learning that she took four years of French in high school, her academic advisor in college wanted her in his French literature class. This resulted in a Bachelor's degree in French and Modern Languages.

Background. Her first job was as a proofreader in a print shop; she later trained as a graphic artist, a skill she brought with her to the D.C. area. When her husband began his graduate studies in UM's School of Architecture, she noted the restlessness she felt at work and how she missed the sciences, so she spoke with a career counselor at George Washington University about being a female graduate student in Engineering. The reply was surprisingly pragmatic, as one would expect from an engineer: simply time your pregnancies so the children are born during the summer.

Armed with this useful bit of information, she headed to College Park for advising and was taken aback by the enthusiasm everyone had for their work. This energy, which she had lacked in her career thus far, attracted her to complete a Bachelor's in Civil Engineering with emphasis in Water Resources.

The pursuit of her graduate degrees at MIT took her far from the area for six years after that, but she's been home since then. She revels in the excitement of the UM College Park campus: its academic rigor, excellent athletic program, and cultural offerings such as the Clarice Smith Center for Performing Arts add to the perks of being in the Metro area.

Service is a big part of her job as faculty; she has served on the Committee of Undergraduate Association, has helped review Undergraduate Affairs, serves as Chair of the Horton Research Grant Center, and was the web editor for the American Geophysical Union for 3 years. She is also involved in the Burgers Program for Fluid Dynamics, a collaborative effort between the School of Engineering and the Physics and Computer Sciences Departments.

Future plans and dreams. *I'm considering becoming a licensed engineer; I teach a P.E. review course, so I might as well. I entered the field to be useful to society, so I'd like to go on sabbatical to do design work and water research for developing countries.*

I also continually seek the balance between teaching, advising a few hundred students as the main faculty advisor for the CEE department, and my home life. Someday I'd like to grow into mentoring graduate students.

I've been lucky to have great students and have learned about people's differences in personal style and motivation, and to help develop their gifts to the highest level.

Proud and busy mother of a musically- and athletically-inclined twelve-year-old son, these days Prof. Brubaker is Advisor for UM's Solar Decathlon project. We wish her luck, and hope that her dreams of having a private librarian come true.



Professor Brubaker's favorite moments at work:

1. Getting lost in analysis involving math and maps
2. Debugging programs
3. Wading through two-meter snow in Colorado, gathering samples to analyze snow pack contents



STAFF PROFILE: SANDY STARK

Sandy Stark is a living testament of what it is to be a member of the University of Maryland family. To say that Sandy is a dyed-in-the-wool Terp is an understatement; the course of her life and her outstanding collaborations and accomplishments all bear the imprint of the University of Maryland as the site for the series of fortunate events that highlight her life's turning points.

She was born and raised within walking distance of the College Park campus. It was as an undergraduate that she met her husband Chris, a fellow UM undergraduate student. Her first on-campus job was a part-time job at the motor pool; she then took a full-time position as an account clerk at the Family Studies Department.

During a brief absence from the University to open a child care center for teenage mothers at Northwestern High School in Prince George's County, Sandy drove her sister Carol to an interview at the UM School of Architecture. It was on this fortunate trip that Sandy met Nancy Lapanne. Sandy's sister later told Sandy of an opening in Architecture; Sandy interviewed and landed this position working for Nancy. When Nancy became the Civil and Environmental Engineering Department's Director of Administrative Services in 1999, she brought Sandy with her to act as Account Clerk.

Part of Sandy's legacy to the CEE department was to streamline the grants and orders process. With time, Sandy trained more in grants and became the Grants Coordinator. Her professional growth reflected the evolution taking place in the Department's business office in that they built a team to work without overlap in job responsibilities and everyone's position has a backup. This built a close working team in the Department where staff are able to step out of their usual tasks to train in others' responsibilities. This cross-training kept the job interesting for Sandy, and it made for a great opportunity to acquire more skills.

During her tenure in the CEE Department, the research budget has grown over 40 million in grants, which recently made Civil & Environmental the top department in the College of Engineering bringing in grant money.

Connecting with People. Sandy has amassed priceless memories at the University of Maryland. One of her greatest mentors here was her father-in-law, Francis C. Stark, former Vice President of Academic Affairs who was affiliated with the University from 1937 until he passed away in 2003. Sandy recalls many great stories he told about the University, which gave her relationship with UM an additional layer.

In addition to her extended family, Sandy likes working with all the people she comes in contact with. She enjoys helping in the UM summer program for high-school students to prepare them for their university careers. She takes pleasure in working with the faculty as she shares the inner workings of the grants administration process with them.

Moving Forward. Sandy has recently moved on from her post as Research Coordinator in the Civil & Environmental Engineering Department to become a Research Coordinator at UM's Institute for Physical Science & Technology (IPST) where, in her natural inclination to build on her knowledge, she looks forward to working on grant pre-and post-awards.

Sandy will be missed in the Department but still remains part of the UM family.

Sandy also reveled in the social side of the CEE Department; she likes to get to know about people's lives as she works with them because she considers family. She cites the example of new fathers Wan Chan, IT Coordinator, and Al Santos, Graduate Coordinator, talking excitedly about their kids; it wasn't until recently that she got to witness the joy new fathers experience, a phenomenon brought to her attention in her daily workplace experience.



Sandy considers herself lucky to have worked in the CEE Department. From the Department's point of view, Sandy has been a good peer to her CEE co-workers. She has shared her knowledge of others' tasks to help them get the bigger picture of office operations, which added to the working relationship with people. The CEE faculty's reaction at her departure surprised Sandy; she has now realized how much her job meant to them.



Dr. Carolyn Merry named Chair, Department of Civil and Environmental Engineering and Geodetic Science

The Ohio State University College of Engineering is pleased to announce that **Dr. Carolyn Merry** has been named chair of the Department of Civil & Environmental Engineering and Geodetic Science.

Merry's research and teaching interests include remote sensing, GIS applications and surveying. Current projects include analyzing high resolution imagery to map and count vehicles along highways as part of the National Consortium on Remote Sensing in Transportation Flows initiative at Ohio State; mapping temperatures, chlorophyll and surface turbidity patterns from AVHRR and SeaWiFS satellite data for use in predicting water quality; preparing land use/land cover maps along the coast of Lake Erie for use in developing a time-series of land cover change; and using Landsat-7 and digital terrain data for hydrologic engineering applications as part of the OhioView Consortium. Past research has included using satellite imagery to evaluate and map a tractor train traverse route from McMurdo Station to the South Pole, Antarctica.

A professor and interim director of Ohio State's Center for Mapping, she joined Ohio State in 1988. Merry earned her doctoral degree in civil engineering from the University of Maryland, her master's degree in geology from Dartmouth College and her bachelor's degree in geology from Edinboro State College. Before joining Ohio State, she worked for 15 years at the U.S. Army Cold Regions Research and Engineering Laboratory in New Hampshire as a research physical scientist and geologist.



Perry Laudenslager

Perry Laudenslager, a December 2003 graduate of the University of Maryland, was killed in a car accident at the intersection of Interstate 395 and Route 4. He had received a bachelor of science degree in civil engineering, and had been working at Geo-Technologies Associates, Inc. for about a year before his demise. He was 23. Our deepest condolences to his family and friends.

Alumni Updates From Our Readers

Richard C. Meininger (BSCE 1962, MSCE 1964)

After working for many years in the engineering programs of national trade associations for the aggregates and concrete industries, and as a consultant in materials, Mr. Meininger accepted a concrete pavement research position with the Federal Highway Association at their McLean, Virginia Research Center.

James R. Lambrechts (BSCE 1973)

Prof. Lambrechts has moved careers. After nearly 30 years as a practicing geotechnical engineer (the past 27 years as Vice President of Boston-based Haley and Aldrich, Inc.), he is now faculty at Wentworth Institute of Technology.

Donald (Don) R. Henderson (BSCE 1959)

Don Henderson has a Bachelor of Science Degree in Civil Engineering from the University of Maryland graduating in 1959. He was Vice President and Project Operations Manager at URS Corporation located in the Tampa, Florida Office that acquired Greiner Engineering Corporation in the mid-1990s. Mr. Henderson has spent his complete 42-year engineering career with URS Greiner in several offices.

Don Henderson is a Fellow in the Florida Engineering Society (FES) and the American Society of Civil Engineers, and was a member of American Management Association and Society of American Military Engineers. For the National Society of Professional Engineers (NSPE) he reviewed and critiqued the NSPE Project Management Video Training Seminars tapes.

He has donated his time in the community service area, such as sitting on the University of Texas Civil Engineering Department Advisory Board for 2 years. Don received several awards for his engineering and public service accomplishments culminating by being selected as the 1998 Engineer of the Year for the West Coast of Florida by several engineering societies in the Tampa area.

Thank you for the updates and please keep them coming. You are welcome to e-mail them to skaul@umd.edu, or mail them in using the form provided on page 19 of this issue.



ALUMNI PROFILE: DAVID MONGAN

David's varied and somewhat accidental career has contributed greatly to his vision of the engineer as a Master Integrator: someone who can carry out a feat as grand and dexterously executed as John Roebling did with the Brooklyn Bridge.

Beginnings. David Mongan always wanted to be a lawyer. He chose to apply to universities with well-ranked law schools and began his undergraduate studies with full scholarship at Washington and Lee University in Lexington, Virginia.

The summer after his sophomore year, he worked in construction and surveying, where he continued working until he was selected for induction at the time of the Vietnam War. He didn't get drafted because of his bad eyesight. His friends from high school, students in civil and electrical engineering at the University of Maryland, put together his love of mathematics and his then-chosen field of employment, and suggested that he enroll in the Civil Engineering program at the University of Maryland. After graduating with his bachelor's degree, he wanted to specialize in traffic engineering so he enrolled in the Master's program in Civil at UM. He was awarded his Master's in 1976.

In the 1980s, having a Master's degree in Business Administration became a highly coveted degree for both entrepreneurial and corporate-oriented white-collar workers; David's wife was obtaining her Masters in Art Education and he had a few close friends pursuing the same degree at Loyola University in Baltimore. He realized he was at a point in his studied career where he wanted to focus on business side of things as opposed to the conceptual, tangible-deliverables side, so he went after a master's in Business in Baltimore.

Undergraduate Life at UM. David was a member of Chi Epsilon and a member of the American Society of Civil Engineers (ASCE), of whom he was a vice president. The University of Maryland had facilitated a close relationship between students and the Maryland Section of the ASCE. Every second Wednesday of each month, David and his fellow ASCE member students would go to Baltimore and have dinner at the Engineering Club, where they interacted with practicing engineers. Other members of the ASCE-Maryland Section were professors at UM who were active in the professional industry aspect of the civil engineering trade.

What are your words to a current or aspiring civil engineering student? The future of civil engineering today is much broader than thinking in terms of construction or design; so many facets relate to people, processes, and the environment. If you want to work helping people better their lives and environment, then clearly civil engineering has a multitude of opportunities.

There's more to a civil engineer's work than to focus on the design side of it. To work on the management side of CE, that area is wide open, not just in running a company but in the broader sense of management in the private and public sectors.

Who's on your short list of Master Integrators in Engineering?

There have been many throughout history. The first who comes to mind is John Roebling [builder of the Brooklyn Bridge, as well as many other bridges and canals]: they weren't just designing in an office and handing it over to contractor; they came up with the concept of a bridge or canal, worked with the financiers, worked with the contracting team to build it and with people

that eventually operated and maintained the bridge or canal. They were master integrators to make this happen.

People become compartmentalized in all professions; they specialize to the point where they only deal with one particular aspect of their trade. A true engineer that rises to the pinnacle rises above all boundaries. There are opportunities for all who want to achieve that.

How does a civil engineer best serve the greater community?

The vision of this, as embodied in the ASCE's vision, is that civil engineers are global leaders building a better quality of life. Civil engineers serve the people by improving on, and creating a better quality of life. The public benefits every day by what civil engineers do and continue to do, and thus the public has the responsibility to be engaged within their community or level of public policy and decision making they wish to be engaged in to guide the direction relative to quality of life even if this means controversy.



"I have a term for the civil engineers of the future; they are the master integrators. On any project, it is an essential effort to integrate the people and resources required to accomplish the project's objective. Beyond the civil engineering aspect of any assumed task, there are a number of non-engineering aspects that are essential to the project's objective and they involve attorneys and government officials, as well as the contractors and the administrative staff that documents and facilitates the project's execution."

Today the civil engineer who rises in an organization must interface across this broad segment of professionals and laypeople and bring this diverse group together for the common purpose of integrating scientific innovation with the fulfillment of everyday people's quality of life."

Civil engineers have the obligation to listen to dialogue and provide input for this viewpoint. Civil engineers have responsibilities as groups and individuals to be involved in public policy so as not to operate in a vacuum, but in relation to the people and infrastructure. The ASCE periodically issues a report card on America's infrastructure; this effort has been used by the White House and the U.S. Congress to identify needs for improvement and where additional finance is required. The ASCE puts forth this effort out of a sense of obligation to inform public servants and the public on the state of affairs.

David is a proud recipient of the William H. Wisely American Civil Engineer Award for his sum total contribution to the ASCE and the profession of civil engineering. We thank David for his time in speaking with Civil Remarks and are very proud to have him in the University of Maryland community.



David Mongan, P.E., joined Whitney, Bailey, Cox & Magnani (WBCM) in 1989 and was named Partner in 1991. Shortly thereafter, in 1994, he was named Managing Partner and then President when the company converted from a Limited Liability Partnership to a Limited Liability Company in 2000.

Whitney, Bailey, Cox & Magnani, LLC, with offices in Maryland and Pennsylvania, provides architectural and professional consulting services in highway and bridge

engineering, transportation planning, building structure design, industrial design, environmental engineering, land development and site engineering, planning and urban design, design of waterfront and marine-related facilities, and construction inspection and field surveying to public and private clients throughout the Mid-Atlantic region.

The University of Maryland's Solar Decathlon Team would like to thank Richard W. Magnani, former Vice-President of WBCM. Mr. Magnani has generously provided the Team with crucial funding and labor resources, for which the Solar Team is very grateful and appreciative.

CURRENT RESEARCH

APPLIED TRANSPORTATION RESEARCH AT UNIVERSITY OF MARYLAND UTILIZES EMERGENCY DATA FOR EVERYDAY USE



Dr. Gang-Len Chang, Civil Engineering professor in the Transportation area, sheds light on a few of his several research projects. His projects focus on integrating existing technologies used for emergency evacuations with user-friendly Web interfaces for the betterment of the commuting public's travel times and planning. Sensors that gather data for emergency evacuations often don't get used during non-emergency situations. Dr. Chang's projects seek to maximize the use of such sensors by repurposing the compiled data and making it available to the public free of charge.



Simulation-Based Online Travel Time Prediction (SBOTTP) System for Ocean City, Maryland

This project presents the framework and the field application of a simulation-based on-line system for travel time prediction. The proposed system features its design to contend with most critical issues associated with real-time operations, which

includes: estimation of missing volumes, detection of incidents, data filtering, and computation of traffic volumes over the projected time intervals so as to activate the simulation function. The proposed system was deployed over two routes of 30 miles between Salisbury and Ocean City, based on a total of 10 detectors. The preliminary application results clearly indicate that, with a proper integration the proposed system offers a cost-effective tool for real-time travel time applications.

To facilitate the application of potential users, this study has set up a website (<http://oceancity.umd.edu>) for the Ocean City SBOTTP system. The website offers the following functions:

- The current status and data from each of these 10 detectors
- The historical data from each of these 10 detectors
- The real-time predicted travel times
- The historical travel time profile computed from the system
- The current and historical profile of vehicle presence in Ocean City



Applied Technology and Traffic Analysis Program

To effectively contend with increasing statewide traffic congestion and to best use diminishing resources for potential improvement, the Office of Traffic and Safety (OOTS) and the Department of Civil Engineering at University of Maryland have jointly initiated an Applied Technology and Traffic Analysis Program (ATTAP).

The proposed ATTAP intends to serve as a vehicle that will enable OOTS to take full advantage of state-of-the-art developments in information sciences, applied technologies, and traffic analysis. It will also function as a resource databank that inventories available software as well as field data for traffic system evaluation. The proposed ATTAP consists of an Internet Web station as the information center, and a technical office for its operations and maintenance. To assume the primary mission of supporting OOTS, the Web station will have the following principal modules:

- **Information and Technology Module for Project Management.** The primary function of this module is to document state-of-the-art technologies for traffic improvement or management, including their costs, benefits, effectiveness, and potential constraints. To facilitate the project management by engineers of OOTS, this module will also contain a graphical network that can display all traffic projects initiated by the districts and OOTS, and provide the critical information associated with each project.
- **Traffic Simulator Module.** This module will include all completed and on-going developed traffic simulators for major commuting corridors such as I-95, I-495, and I-270. Through an embedded friendly interface and introduction, it will enable potential web station users to take full advantage of each simulator's capabilities and identify most appropriate applications.
- **Traffic Software Bank for Planning and Operation Analysis.** Mainly serving as a library to keep all state-of-the-practice software for traffic analysis, this module will also offer the following services to the staff of OOTS:
 - Investigating and testing new computer programs for emerging and existing traffic safety and operational issues;
 - Providing a rigorous evaluation regarding the output reliability and sensitivity of each candidate software for traffic analysis;
 - Developing customized software applications for the highway systems and users in the state of Maryland.
- **Databank for Statewide Traffic Operations and Analysis.** This module will inventory mainly critical data that are essential for OOTS to perform responsible activities.



Integration of Detector Data, Archive information, and Simulation for Reliable Estimation of Travel Time during Non-recurrent Congestion – An Application for the I-270 Corridor

This study presents an Integrated Traffic Information and Simulation System (ITIS), including a detailed description of its principal components and their interrelations, the main

functions embedded in each technical module, and key algorithms employed to verify users' needs and to perform the required estimation. The proposed ITIS system offers an effective tool for MSHA engineer/planners to take full advantage of information available from on-line detectors, archive data, and simulation results for estimating travel times during non-recurrent and recurrent congestion patterns. With those embedded functions and customized interfaces, the ITIS system can also be used for work zone planning and operational analysis, and for assessment of various traffic control strategies. The developed ITIS with its extensive information can also serve as an intelligent database system that can help potential users identify the data needs based on the requested applications, and perform the best estimation with available data.



The 16th International Symposium on Transportation and Traffic Theory



The ISTTT series is the main gathering for the world's transportation and traffic theorists, and those who are interested in contributing to or gaining a deep understanding of traffic and transportation phenomena in order to develop effective

approaches to plan, design and manage these systems. The Symposium deals primarily with the scientific and fundamental aspects of transportation and traffic phenomena, including identification and characterization of previously undocumented or underappreciated phenomena, formulation, observation and testing of new models of and new perspectives on known phenomena, as well as extension, refinement, testing or critique of existing theories and models of known phenomena.

The ISTTT 16 reflected a large number of new scientists from a variety of nationalities and disciplines, and the mutual coexistence of a growing number of theoretical perspectives and modelling cultures.



It is also a time when theories and models developed over the past 40 years are finding their way into professional practice through computer software packages to a greater extent than at any time in the past. It is the aim of the ISTTT 16 to take stock of some of these developments, feature authoritative assessments of their contribution or promise, and engage in constructive debate the greatest and most innovative minds that are actively contributing to pushing the envelope in transportation and traffic science.



Like its predecessors, the ISTTT 16 kept an open mind about the scope of the conference and what constitutes transportation and traffic theory. Its ambition reflected the best work underway anywhere in the world on the science of traffic and transportation. We were

surprised by the novelty of some of the contributions, even when they didn't fit directly into the line of work represented at previous Symposia.

We'd Like to Hear From You!

We want to know where life has taken you since you left the University of Maryland. Please complete the form below, including any additional comments. Also, send the address of any Civil & Environmental Engineering Alumni you know who are not receiving the newsletter *Civil Remarks*.

FIRST NAME	MIDDLE INITIAL	LAST NAME
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BUSINESS PHONE	FAX NO.	E-MAIL
<hr/>		

Alumni News:

Please send to:
Sangeeta Kaul,
Civil Remarks
 Civil & Environmental Engineering Department
 University of Maryland
 College Park, MD 20742-3021
 For further information, please contact us at
<http://www.cce.umd.edu/>