

METRANS NEWS

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Inside this issue

- New, Major Grants for METRANS Researchers 1
- Taming a Firehose to Improve Traffic Management 1
- Creating a Dynamic Market for Vehicle Capacity 1
- New Professional Development Programs Offered at CITT 2
- CITT and METRANS to Host US, Canadian and Mexican Researchers 2
- Christine Nguyen Named Student of the Year 5
- Students Attend CTF Workshop 5
- New Research Projects Awarded for 2010-2011 6
- METRANS Faculty 7
- Dear Reader 8

METRANS RESEARCH

New, Major Grants for METRANS Researchers

METRANS faculty have successfully competed for two major research projects that leverage prior METRANS-funded research and advance important strategic objectives for the Center.

Professors Maged Dessouky and Sven Koenig received a \$1 million grant from the Federal Highway Administration to prototype an online market for unused vehicle capacity.

Professors Genevieve Giuliano, Lisa Schweitzer and Cyrus Shahabi were awarded a \$1.8 million grant from the Los Angeles County Metropolitan Transportation Authority to design an Archived Data Management System (ADMS) capable of storing and analyzing terabytes of regional transportation data.

"Both grants build on prior METRANS-funded research projects, demonstrating our ability to use METRANS money as seed funds to help investigators develop good ideas that can then compete for larger grants," says Giuliano, who is Principal Investigator on the ADMS project and Director of the Center.

"This allows METRANS to very effectively leverage its DOT and Caltrans money in the most productive way. That's really important."

In particular, the ADMS project fulfills an important objective of METRANS' 2005 strategic plan. "We committed to developing a virtual test bed for data sets, models and simulations to experiment with different transportation system management



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strategies. Our intent was to use this strategic objective to build up our METRANS research portfolio," Giuliano notes. "We fulfill that objective by virtue of this project. At the same time, we're doing other things related to this virtual test bed, such as a series of freight-related models and an entire port simulation that we're making available to the research community."

Both projects are described in detail in the articles below.

Taming a Firehose to Improve Traffic Management

Every day, transportation agencies in Los Angeles County generate about 10 gigabytes of information. The LA County Metropolitan Transportation Authority (MTA) tracks individual buses. The California Department of Transportation (Caltrans) collects traffic data and updates electronic freeway signs. The City of LA automatically adjusts traffic signal patterns to deal with emerging problems. California

Highway Patrol officers file incident reports. Such information is shared between agencies and filtered for public consumption on sites like Sigalert.com.

This data is a potential treasure trove to be mined by researchers, planners and policy makers if it were captured, stored and organized, but until now the data was discarded every day, simply because there was no way to keep and organize it in a useful way.

continued on page 5

Creating a Dynamic Market for Vehicle Capacity

"Rush hour" is an illusion. No one is rushing and no journey takes less than an hour. To make matters worse, bumper to bumper traffic is actually a crush of essentially empty vehicles. According to the US Census Bureau, 87.7 percent of Americans drive to work but more than three quarters of those commute alone.

Professors Maged Dessouky, Sven Koenig and Fernando Ordóñez hope to change that, and have

won a three-year \$1 million grant from the Federal Highway Administration to prototype an online "Transportation Market" for unused vehicle capacity. They believe their research has the potential to radically transform both how people commute and how regions will overcome transportation resource constraints in the coming decades.

continued on page 3

METRANS
Transportation Center
USC | CSULB

METRANS, a partnership of the University of Southern California and California State University, Long Beach, is a US Department of Transportation designated University Transportation Center. Its mission is to solve transportation problems of large metropolitan areas through research, education and outreach.

METRANS OUTREACH

CITT and METRANS to Host US, Canadian and Mexican Researchers

CITT and METRANS will convene a unique gathering of US, Canadian and Mexican researchers to explore the common trends that influence the economic competitiveness and environmental sustainability of Pacific Coast "Port Gateway" regions.

"Collaborators and Competitors: Understanding the Connections between Canadian, American and Mexican West Coast Ports and Gateway Regions" will take place Thursday, March 3, 2011 at California State University Long Beach. The lead sponsor for the conference is the Canadian Government's North American Research Linkages (NARL) program to facilitate North American collaboration within the research community and to foster the development of permanent exchange networks among the three nations.

"Economic changes in the trade sector make ports and port regions more connected than they have been in the past," says Dr. Tom O'Brien, CITT Director of Research and METRANS Associate Director for CSULB Programs. Those trends include the development of land-based trade corridors, the growth of cross-border mega-regions, the rise of integrated and complex supply chains, and shared environmental regulations. "As a result, there is increasing awareness that even gateway regions that compete for business may still benefit from collaboration on issues like infrastructure provision and environmental innovation."

Representatives from the goods movement industry, local communities, governmental stakeholders, and researchers will explore the common trends that influence the

economic competitiveness and environmental sustainability of Canadian, US and Mexican Pacific Port Gateway Regions, as well as the unique pressures that drive policy making at the national, state/provincial and local levels.

Session topics include Implications of Trade Trends on the North American West Coast, Cross Border Issues (Land, Air and Sea), Environmental Policy Making and Technology and Innovation at US, Canadian and Mexican Ports.

Immediately following the conference, a core group of academic researchers from Mexico, Canada and the US will gather March 4 for a half-day workshop to review what was learned and to develop a future research agenda focusing on the unique needs of West Coast gateway regions.

METRANS OUTREACH

New Professional Development Programs Offered at CITT

Building upon its existing Global Logistics Specialist programs and Caltrans Goods Movement Workshops, METRANS continues to support professional development through CSULB's Center for International Trade and Transportation (CITT). This year CITT added a Marine Terminal Operations Professional Program as well as a Global Logistics Specialist Professional Designation Program for International Students.

Marine Terminal Operations Professional Program

Launched in spring 2010, the Marine Terminal Operations Professional (MTO) Program prepares participants with skills essential for efficient terminal operation. This comprehensive training program was developed by CITT in collaboration with Marine Terminal Operators (MTOs) to provide new managers and job candidates competing for career opportunities with the knowledge and skills required by Marine Terminal Operators worldwide, who themselves need to thrive in a highly competitive environment.

"Currently, new frontline managers learn on the job. While on-the-job training is vital, it has its limitations and can be very expensive for an organization," says Angeli Logan, CITT Director of Trade and Transportation Programs. "New hires

need a variety of skills, from managing the gate and yard, to vessel operations, maintenance and repair, and customer service. They must also understand labor contracts, labor relations and conflict resolution, just to name a few of the topics taught in the program. We provide the skills the MTOs are looking for while also helping the students determine their fit to the industry."

The MTO program is structured so that participants may either complete all modules to earn the MTO professional designation or instead, select training areas of specific interest. The modules include general knowledge of the industry as well as training in specific skills in container terminals, break bulk, roll-on/roll-off and cruise terminal operations. The curriculum also covers the role of government agencies affecting terminal operations, including US Department of Homeland Security and the Coast Guard. The program includes field trips to various types of terminals to enhance the learning experience.

Global Logistics Specialist Professional Designation Program for International Students

The original Global Logistics Specialist (GLS) program provides classroom and online training

in all aspects of the supply chain and international trade to mid-level industry professionals and public agency staff. Although it began in January 1997, Logan says the curriculum is continually evaluated and updated to stay current with industry trends.

Logan notes that while most students in the GLS classroom and online programs have been domestic, the existing programs have already attracted online students from around the world, including students from the Dominican Republic, Canada, Vietnam, Mexico, the Philippines, Romania, India, Nigeria and Brazil.

To meet the needs of international students who want to participate in the classroom program, CITT, in conjunction with CSULB's American Language Institute (ALI), now offers the Global Logistics Specialist Professional Designation Program for International Students. In June 2010, the first two international students, one from Brazil and one from China, completed the program. The six-month program is designed to provide supply chain and logistics training from a US perspective. It also includes English language instruction from ALI and/or CSULB courses offered through "Open University," and students also experience various aspects of American culture.

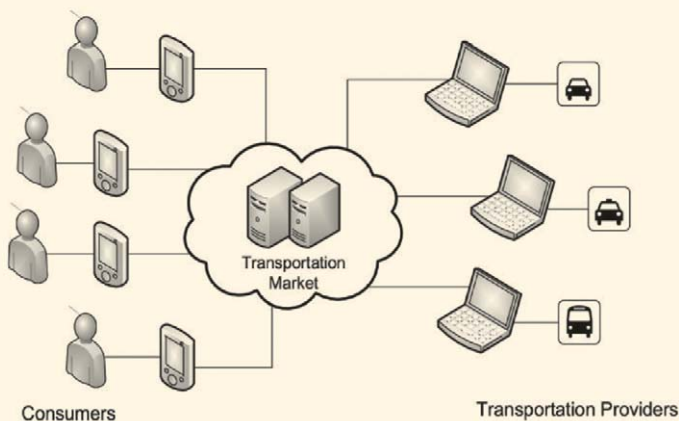
METRANS RESEARCH

Creating a Dynamic Market for Vehicle Capacity continued

The Federal Highway Administration's Exploratory Advanced Research Program promotes longer term and higher risk research with the potential for transformational improvements in defined topic areas where transportation breakthroughs are most needed. In this case, the FHWA issued an RFP for "Multi-Modal Connectivity Options for a Future Seamless Transportation System," to which Dessouky, Koenig and Ordóñez were the successful respondents.

Think of *colectivo taxis* in Mexico City, with drivers holding up fingers for how many additional passengers they can carry. Or the parking lots in Berkeley where commuters pick up passengers before crossing the Bay Bridge. Or the kind of carpooling programs encouraged by organizations like the University of Southern California. Then update those traditions with an online, real-time, mass market across a whole region. Imagine the scale and sophistication of eBay – for rides.

The researchers' task is to create a computer simulation for what a system would look like – first on a small-scale local basis, then for regional ride sharing, and then connect it to other transportation modes and systems. The goal of the RFP was to solicit proposals that investigate alternative modes of transportation that can be implementable in a 10-40 year timeframe. "What we're trying to show is that there is technology today that can build this type of system," says Dessouky.



The Transportation Market project will create a computer simulation for what a ride sharing system would look like; first on a small-scale local basis, then for regional ride sharing, and then connected to other transportation modes and systems.

People have introduced online ride sharing sites in the past, but have never attempted them on such a large scale, in real time, with such a sophisticated pricing mechanism and for a potentially huge population of registered users. Instead of programs specific to one route or one organization, the Transportation Market would expand the ability to share rides on an ongoing, advance reservation, or ad hoc basis.

Putting a Virtual Taxi Meter in Every Car on the Road

"You can think of it as treating every car as a taxi. This creates a market mechanism to encourage people to sell their unused vehicle capacity to other riders," says Dessouky, a professor in the Daniel J. Epstein Department of Industrial and Systems Engineering and Director of The Daniel J. Epstein Institute. "You want to go somewhere? Instead of taking a bus, you log into the system to see if you can catch a ride with someone who is heading your way at the right time – for a price you're willing to pay."

In more technical terms, transit solutions in most urban areas are centralized systems designed to operate on fixed lines such as bus routes and train tracks. The kind of dispersed demand found in regions like Southern California requires solutions that are both distributed and dynamic. Combined with the real-time traffic information provided by Intelligent Traffic Systems (ITS), emerging technologies such as Global Positioning Systems (GPS) built into both drivers' vehicles and riders' cellphones can inform adaptive real-time allocation of resources. The system proposed by Dessouky, Koenig and Ordóñez is based on the assumption that efficient markets can allocate resources effectively, and uses game theory and auction mechanisms to automate services and pricing in direct response to supply and demand for rides and routes. The model is viable given existing technologies, but the challenge is developing new approaches to distributed optimization, mechanism design, machine learning, agents, user-interfaces, computation of large scale equilibria, and planning under uncertainty.

The Transportation Market they envision would, at the very least, offer viable transportation alternatives to some passengers. On the other hand, they say, wide adoption "has the potential to reshape the landscape of transportation in a fundamental way." Rather than producing proprietary software, the Transportation Market simulator will be accessible to other researchers and private companies for further work or even commercialization.

Dessouky sees this less an *alternative* to mass transit than as an *alternate form* of mass transit. "Most people think of buses or trains when they think of mass transit, not people using personal automobiles as part of the equation," he says. "Trains are certainly necessary and society should pay for them, but they are expensive. This is one other way of looking at how to solve our transportation needs, especially in a place like California where a centralized transit system of fixed lines doesn't work so well."

Dessouky admits not everyone will make the "rational economic choice" to offer a ride. But in a future of deteriorating traffic, higher gas prices and new toll roads, eventually the Transportation Market would not just monetize the empty seats, but also many drivers' preference for privacy. "As an engineer, I want them to be more rational," he says "At some point that driver is going to ask, what is my time alone worth?"

And the Transportation Market will show them the day's price.

METRANS RESEARCH

Taming a Firehose to Improve Traffic Management continued

Now researchers at METRANS and the USC Integrated Media Systems Center (IMSC) have a new grant from MTA to create a massive data system that archives, integrates and analyzes this traffic information over time. USC Professors Genevieve Giuliano, Lisa Schweitzer and Cyrus Shahabi were awarded a \$1.8 million grant from MTA to design and develop an Archived Data Management System (ADMS) capable of managing terabytes of historical, real-time regional transportation data. The three-year award, announced in October, will fund development of IT applications in regional planning, traffic management, system performance and policy analysis.

“Agencies spent a great deal of effort putting together a system that lots of parties can use,” says Giuliano, who is Principal Investigator for the project, as well as METRANS Director and SPPD Senior Associate Dean for Research and Technology. “They came to us and said, ‘We throw away this data, but we really think something could be done with it. Do you have any ideas?’ Of course we had ideas. If we can keep the data, we’d have a tremendously rich data set, and we could use this history to do a better job of managing all sorts of things in the present and plan for the future.”

Giuliano expects the data to reveal insights supporting at least three new applications previously impossible in a region such as LA:

- Managing a transportation corridor across all modes and all systems – on a level above the independent jurisdictions of highway departments, transit agencies and municipal street departments – in order to move the most people (rather than vehicles) through the corridor.
- Monitoring the actual – versus theoretical – impacts of various exogenous factors on transportation in the region. For example, when fuel prices fluctuate, how much do residents of affluent or low-income neighborhoods switch their commuting behaviors between private cars and public transit?
- Designing better strategies or protocols to deal with major events or incidents in real-time by learning from previous examples.

For example, how many drivers actually get off the freeway when a sigalert is called, and what routes do they take instead?

The LA MTA is unique among the nation’s transportation agencies because it serves as transportation planner and coordinator, designer, builder and operator for one of the country’s largest and most populous counties. The agency developed the existing data network, called Regional Integration of ITS (Intelligent Transportation Systems).

“It tries to integrate multi-modal transportation systems, most of which are moving to real-time data and management,” explains Peter Liu, who was Regional ITS Program Manager at the agency until the end of 2010. “We use an open architecture so we can communicate, and we continue to integrate new stakeholders into our base of the major transportation agencies from the five-county region (LA, Ventura, San Bernardino, Riverside and Orange). So we have a good foundation, but the process needs to be continued as more transportation systems convert to real-time.”

Liu says the USC team was the right partner to help realize the system’s potential. “We have the vision but we don’t really have the know-how for the research and experimentation that’s needed. We’re just planners and engineers,” he says. “We really have faith in the USC METRANS center, especially teaming with IMSC on this data archiving system. They’re a nationally renowned urban transportation center, but they are also nearby and know the problems facing this metropolitan area better than any other.”

“For us, this project is all about real-life data, collected in real-time, with real-world applications, where we can apply the results of our past and future research,” says Shahabi, who is a Professor of Computer Science and Director of the Integrated Media Systems Center (IMSC). “The large amount of continuously collected data poses great technical challenges and bring our skills, expertise, algorithms and tools to test in a real-life scenario.”

According to Barak Fishbain, Associate Director at IMSC and leading this project within IMSC, the system provides data at a rate of about

40 megabytes per minute, requiring about 15 terabytes of storage per year of data. “This kind of storage would fit more than 50 million emails,” he says. So you can imagine challenges similar to finding a *specific* e-mail among 50 million.

The research would enable a new generation of intelligent transportation applications, such as better navigation algorithms and traffic load balancing, he says. The technical challenges of the project attracted the interest of Microsoft, which will not only provide funds for application development, but also contribute Microsoft research experts to work in collaboration with the Center’s staff.

“This gives us a rare and very unique opportunity to take a significant part in the research and development cycle of commercial software,” he adds. “This is a priceless experience for students who are interested in research careers in the industry.”

However, Giuliano adds that not all of the project’s challenges are technical. “We have a lot of stakeholders involved in this research, which is not a typical model of academic research,” she says. Besides METRANS and IMSC at USC, the project team includes industry subcontractors Delcan and Sarakki Associates. They also will work not only with MTA, but all of the other transportation agencies that own the data generated. *And different stakeholders are likely to have different objectives.* “That’s going to come to the surface when we talk about corridor management. Those become political discussions. The thing is that with this kind of system, we can actually simulate the what-ifs, so at least you know the trade-offs.”

“At the end of the day, we hand the data in the system over to the MTA, so it will be their system to use in these various applications after we’ve invented them. And of course, we expect to continue building more research on top of this, with access to the historical system to continue doing research. So hopefully this becomes a partnership where we are continually inventing new things that practitioners actually can use.”

METRANS EDUCATION AND RESEARCH

2011 National Urban Freight Conference Set for October 12-14

METRANS will hold the 4th National Urban Freight (NUF) Conference October 12-14, 2011 at the Hyatt Regency Long Beach in Long Beach, California.

The conference examines the impacts of goods movement and international trade in metropolitan areas. It is the only conference in the country that affords researchers and practitioners the unique opportunity to consider questions about the “urban side” of freight across many disciplines.

A worldwide Call for Abstracts has been issued, with abstracts due by May 31. Papers and presentations may be on any aspect of urban goods movement, including topics such as the following:

- Models for urban goods movement
- Port operations
- Economics, logistics, productivity and labor issues for trucking, air and rail freight

- Local and regional environmental externalities (congestion, air quality, etc)
- Policy and institutional issues in urban goods movement
- Security and vulnerability of goods movement
- Best practices and lessons learned

For more and updated information, please visit www.metrotrans.org/nuf/2011

METRANS RESEARCH

New Research Projects Awarded for 2010-2011

The following 14 projects were funded in the most recent METRANS grant process.

Area	School	Dept.	PI	CO-PI	Project Title
Goods Movement	USC	SPPD	Peter Gordon		Freight Shipments, Greenhouse Gases and Polluting Emissions: Implications for California and the US
Mobility	USC	SPPD	Jenny Schuetz		Does Rail Transit Investment Encourage Retail Activity?
Safety and Security and Vulnerability	USC	SPPD	Martin Krieger		Application Development of “Urban Tomography” for Transportation Security at a major Los Angeles Hub (LATH)
Mobility	USC	SPPD	Genevieve Giuliano		Accessibility, Location and Employment Center Growth
Mobility	USC	SPPD	Chris Redfearn		Reconsidering the Impact of Access to Transit on Local Land Markets
Goods Movement	USC	ISE	Fernando Ordóñez	Maged Dessouky	A New Approach for Routing Courier Delivery Services
Mobility	CSULB	CITT	Thomas O'Brien		Changing Workforce Development Needs for Regional Transit and Transportation Planning Agencies in California
Infrastructure	USC	EE Systems	Petros Ioannou		Dynamic Variable Speed Limit Control: Design, Analysis and Benefits
Goods Movement	CSULB	Comp. Eng	Xiaolong Wu	Burkhard Englert	Multimodal Biometric Models for Improving the Productivity and Security of the Terminal Gates
Goods Movement	CSULB	Economics	Chen Feng Ng	Elaine Frey	The Impact of the Economic Recession on Truck Traffic in Los Angeles
Infrastructure	CSULB	Civil Eng.	Shadi Saadeh		Investigation of Fracture Properties of California Asphalt Concrete Mixtures
Goods Movement	CSULB	MAE	Panadda (Nim) Marayong	Hen-Geul (Henry) Yeh, Hsien-Yang Yeh	Computer-Aided Container Handling Assistance for Ergonomic Crane Operation
Infrastructure	CSULB	Civil Eng.	Tariq Shehab		Cost Estimating Model for Sustainable Rehabilitation of Road Projects
Goods Movement	CSULB	Civil Eng.	Tang-Hung Nguyen	I-Hung Khoo	Noise Mapping of Container Terminals at the Port of Los Angeles

METRANS EDUCATION

Christine Nguyen Named Student of the Year

METRANS is pleased to announce that Christine Nguyen is the METRANS Outstanding Student of the Year for 2010.

Originally from Carol Stream, Illinois, Nguyen became interested in transportation studies while studying at Northwestern University. "I used the Chicago CTA buses and 'L' trains fairly regularly," she remembers. "I became fascinated by the trains in the Loop, in particular, because almost all of the train lines looped around those blocks and continued out north, west or south. This fascination extended to the movement and coordination of traffic on the one way streets of Chicago and my curiosity kept going from there."

Nguyen joined the doctoral program in the Epstein ISE Department in 2009 as a Provost's fellow, after completing her undergraduate studies at Northwestern's Department of Industrial Engineering and Management Science. Soon she was involved with research projects at USC's Center for Risk and Economic Analysis of Terrorism Events (CREATE). She says she chose USC for her graduate work because of

the quality of the faculty. "METRANS and CREATE were the big factors that highlighted USC over other schools. I wanted to go somewhere with a variety of faculty that I can learn from."

"She is a joy to work with," says her faculty advisor, Professor James E. Moore, II, who is jointly appointed in the Viterbi School of Engineering and the School of Policy, Planning, and Development. "She meshed very nicely with the rest of our research team, and is a consistent contributor with whom the other graduate students work to keep up," Moore says.

Meanwhile, Nguyen donated her time to teach about operations research to schoolgirls at the Expanding Your Horizons career day, organized by the award-winning Math/Science Interchange program, and continued her involvement until eventually joining the organization's board of directors. The group is headquartered adjacent to USC on the Mount St. Mary's College Doheny Campus.

Nguyen, who expects to complete her doctoral work by 2014, has not yet decided what she wants



to do after that. "There's still so much for me to learn and many areas I'd like to continue to explore. But certainly I want to stay in academia and do research," she says.

As METRANS Outstanding Student of the Year, Nguyen received \$1,000, a certificate from USDOT, plus a trip to the Transportation Research Board Annual Meeting in Washington, DC, which was held in January, 2011 and included the Annual Outstanding Student of the Year Awards Ceremony. This annual meeting is the largest meeting of transportation academics and professionals in the world (www.trb.org).

METRANS EDUCATION

Students Attend California Transportation Foundation Workshop

Five students from USC and CSULB attended the California Transportation Foundation's 2010 Transportation Education Symposium last November 4-5 in Santa Cruz for two days of mentoring and real-world learning.

The USC students were recruited by METRANS faculty members James E. Moore, II, Director of the Transportation Engineering Program at the USC Viterbi School of Engineering, and Emelinda Parentela, Chair of the CSULB Department of Civil Engineering and Construction Engineering Management.

"The Symposium brings together highest-level transportation professionals from California agencies and firms with the best and brightest transportation students from universities across the state," says Moore, who is also a member of the CTF Board of Directors.

Eligible students – juniors and seniors in civil engineering and urban planning – are nominated by their institutions. METRANS pays for USC and CSULB student travel.

At the event, 35 undergraduate students majoring in transportation, engineering or planning are met by 35 professionals representing the spectrum of transportation fields. The USC participants for the 2010 meeting were SPPD senior Corrine Montana and junior Jack Massey (both majoring in Policy, Management and Planning) and Astani senior Lillian Ware (majoring in Environmental Engineering). The CSULB participants were Civil Engineering undergraduates Emad Elias and Edgar Garcia.

"I have attended several conferences relating to engineering and this one was definitely the most rewarding and career-changing," Ware says. "It really opened my eyes to transportation engineering."

Each student attending the symposium is paired with an individual mentor – senior personnel from transportation agencies or consulting firms in transportation engineering or planning. The mentor works closely with the student during the two day symposium, answering questions about the profession.

"My mentor, Linda Bohlinger, and all the other transportation professionals who set aside time in their busy schedules to be with us, were extremely welcoming and supportive," Montana says. "I walked away so excited to be a part of the field."

Mentors also coach their students as they participate in a unique, team-based competition to formulate a professional response to a mock RFP for a transportation engineering project. There are also workshops about finding jobs in the industry.

METRANS EXECUTIVE COMMITTEE

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Marianne Venieris, Deputy Director
Executive Director, Center for International Trade and Transportation, College of Continuing and Professional Education, CSULB

Petros Ioannou, Associate Director of Research
Professor, Electrical Engineering Systems, Director, Center for Advanced Transportation Technology, USC

Anastasios Chassiakos, Director, California Pre-Doctoral Program, California State University, Office of the Chancellor

Maged Dessouky, Professor, Daniel J. Epstein Department of Industrial and Systems Engineering, USC

Kristen Monaco, Professor, Department of Economics, CSULB

James E. Moore II, Professor, Daniel J. Epstein Department of Industrial and Systems Engineering, USC

METRANS FACULTY

Since its inception, METRANS has funded 103 faculty at USC and CSULB. Given METRANS' interdisciplinary theme, they are experts in engineering, business, economics, geography, information sciences, public policy, planning, public administration and health sciences.

California State University, Long Beach

Tracy Bradley Maples
Chin Chang
Anastasios Chassiakos
Robert Chi
Burkhard Englert
Mohammed Forouzesh
Robert Friis
Darin Goldstein
Lisa Grobar
Min He
Kenneth James
Christine Jocoy
Tim Jordanides
I-Hung Khoo
Melody Kiang
Shui Lam
Christopher Lee

Bei Lu
Joseph Magaddino
Wade Martin
Kristen Monaco
Tang-Hung Nguyen
Thomas O'Brien
Emily Parentela
Cheryl Pruitt
Hamid Rahai
Grace Reynolds
Shadi Saadeh
Antonella Sciortino
Tariq Shehab-Eldeen
Seiji Steimetz
Reza Toossi
Jalal Torabzadeh
Fei Wang
Suzanne Wechsler
Xialong Wu
Steven Yamarik
Guy Yamashiro
Henry Yeh
Hsien-Yang Yeh

University of Southern California

Garrett Asay
Amol Bakshi

Tridib Banerjee
Jean-Pierre Bardet
Burcin Becerik-Gerber
Hanh Dam Le-Griffin
Maged Dessouky
Michael Driver
Fokion Egolfopoulos
Roger Ghanem
Genevieve Giuliano
Peter Gordon
Ramesh Govindan
Martin Gundersen
Randolph Hall
Hossein Hashemi
John Heidemann
Petros Ioannou
Erik Johnson
Behrokh Khoshnevis
Sven Koenig
Ilias Kosmatopoulos
Martin Krieger
Bhaskar Krishnamachari
John Kuprenas
Bumsoo Lee
LaVonna Lewis
Sami Masri
Najmedin Meshkati
James E. Moore II

Dowell Myers
Ulrich Neumann
Fernando Ordóñez
Gary Painter
Kurt Palmer
Qisheng Pan
Alice Parker
Andrea Polidori
Viktor Prasanna
Konstantinos Psounis
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METRANS Website

More information on transportation research, publications, education, training and technology transfer can be found at www.METRANS.org.



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Reflected Knowledge (www.reflectedknowledge.com)

Dear Reader:

President Obama's 2011 State of the Union address emphasized education, innovation, technology development and infrastructure investment. We at METRANS were pleased to know that our goals are so well aligned with those of the President! In this issue you will read about two new research projects that build upon our previous METRANS investments, our efforts in developing new professional development programs through CITT, our upcoming international conference jointly sponsored with the Canadian government, and of course yet more accomplishments of our students.

2011 is shaping up to be a busy year. We have been fortunate in maintaining our full funding, allowing us to go forward with new research projects. In following issues you will hear about our follow-up webinars that extend our discussion on the impacts of the Panama Canal that began with our first Point/Counterpoint event in the fall of 2010. You will see our "save the date" for our fourth National Urban Freight conference, to be held in October 2011. You will also see more articles on students and alumni, keeping you up to date on longer term impacts METRANS has had on training the next generation of transportation professionals.

Genevieve Giuliano

Director
METRANS Transportation Center