

ACE in Atlanta

ACE Atlanta 2009-2010 Program Newsletter #6 - Nov 19, 2009



We thank **Panola** for their generous Food Sponsorship of the ACE Atlanta 2009-2010 Program!



Announcement Section

- The Atlanta ACE Program registration is closed for the 2009-2010 program.
- Only registered students with completed parent consent forms already received will be able to attend further sessions and field trips.
- We wish you a very safe & enjoyable Thanksgiving holiday!

Next Class!

December 2: Mechanical Engineering & Contracting!

ACE Atlanta visits Georgia Tech!

ACE Atlanta thanks the Georgia Tech professors and graduate students for their kind hospitality and welcome to their labs and campus. ACE Atlanta students and mentors enjoyed a personalized tour of the exciting programs within the Building Construction department and the School of Civil and Environmental Engineering at Georgia Tech on Wednesday, November 18, 2009.

We would like to thank the following students for their participation. Please note that only students who have completed their applications online at www.acementor.org and turned in their Parent Consent forms are on this list as ACE Students. We are closing the ACE application as we are now going into our 7th ACE session.

- Jarius A., North Springs HS
- Gabriel A., Lithonia HS
- Branniton Bell, Lithonia HS
- Ian B., Mays HS
- Christopher B., Lithonia HS
- Samuel B., Lithonia HS
- Charles C., Our Lady of Mercy HS
- Gerald D., Landmark HS
- Sherline D., Lithonia HS
- Micah D., Landmark HS
- Eddie D., Stephenson HS
- Stephen D., Lithonia HS
- Cornelius G., Mays HS
- Andrew H., Mays HS
- Austin L., Stephenson HS
- Marquevious M., Stephenson HS
- Shane M., Mays HS
- Killian O., Lithonia HS
- Kamau O., Mays HS
- Briana P., Douglass HS
- Marcus P., SW Atlanta Christian
- Victor P., Hiram HS
- Olu S., Lithonia HS
- Gary T., Lithonia HS
- Darius T., Hiram HS
- Niambi T., Mays HS
- Melvin W., Lithonia HS

There will not be an ACE class next week due to the Thanksgiving holiday. Have a safe and enjoyable Thanksgiving!

ACE Atlanta is thankful for its great students!

Georgia Tech Field Trip Recap

Students and mentors were divided into four groups to tour various professors' labs on the Georgia Tech campus. The session started with pizza in the Mason Building, Room 142 and tours left from there. Graduate students served as tour guides as we visited various research laboratories in the Building Construction Program and the School of Civil and Environmental Engineering.



"CONETech Lab", Javier Irizarry Ph.D., P.E., Assistant Professor, Building Construction Program, Georgia Tech

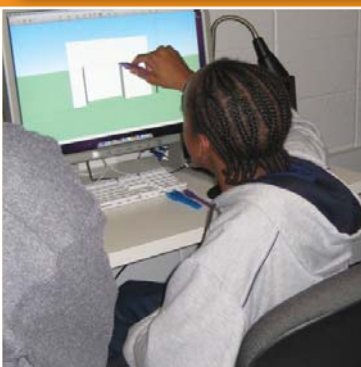
Thank you to Dr. Irizarry for his overview of the CONETech Lab: "CONETech Lab's mission is to establish the framework for developing next generation technology enhanced solutions to construction environment problems by incorporating the cognitive processes of the human component of construction operations". He lists some samples of research projects: Risk Perception of Construction Operators, Constructability of Transportation Infrastructure, Technology Enhanced Training and Construction Education, and Situation Awareness in Construction Operations. Technologies used in his research lab include GPS, RFID, mobile computing devices and interactive display technologies.

ACE students were given the opportunity to use the specially designed stylus to create

Thank you to our Mentors & Guests!

- Elijah Cannon, Lithonia High School
- Rachel Hendrix, Skanska
- Drew Gaskins, Gilbane Construction
- Leon Grant, Hiram HS
- Linda McCoy, IBG Construction Services
- Amy Norman, Holder Construction
- Amber Scates, Holder Construction
- Terance Ward, New South Construction
- Winston Williams, Turner Construction

We are thankful for the continued support and enthusiasms of our mentors. The success of the ACE Program is due to your consistent and positive involvement!

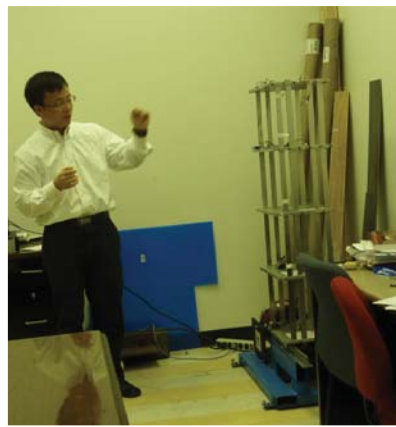


building structures in the laboratory. Please see the photo at the bottom left of this page for a visual example!

To learn more about Dr. Irizarry's work, please visit <http://conectech.coa.gatech.edu>. You can also learn more about the ConecTech lab and its ongoing research projects at <http://conectech.coa.gatech.edu/Home.html>.

"Laboratory for Smart Structural Systems", Yang Wang, Ph.D., Assistant Professor, School of Civil and Environmental Engineering

Thank you to Dr. Wang for the following overview of his laboratory: "Assistant Professor Yang Wang joined the Civil and Environmental Engineering (CEE) faculty at Georgia Tech in 2007.



"The safety and reliability of infrastructure systems are essential for human societies" says Dr. Wang, "and the condition of these systems may deteriorate rapidly due to material aging, improper usage, harsh environment, and damages resulting from natural or man-made hazards."

"Due to the large scale and high complexity of typical buildings, bridges, tunnels, dams, and other civil structures, the task of monitoring and protecting them is extremely challenging. Dr. Wang's Laboratory for Smart Structural Systems is capitalizing on recent advances in wireless communication, micro-electro-mechanical systems (MEMS), and integrated circuits to design low-cost modular structural monitoring and control systems to make real-time intelligent decisions for these complex structures. He works on

both the physical implementation and the theoretical formulation in wireless structural health monitoring and control.

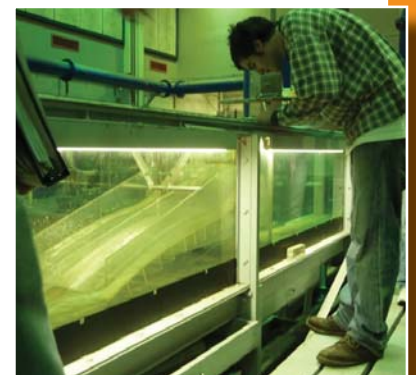
"Wang states "In the future, hundreds or even thousands of miniature wireless sensors mounted on a civil structure will be able to acquire and process measurement data, communicate with each other, and make informed decisions about the structure's safety condition. And when connected with structural actuators, the wireless sensors can also form a feedback structural control system to effectively mitigate undesired structural vibration during earthquakes or typhoons."

Visit to the Hydraulics Lab in the School of Civil and Environmental Engineering

ACE students visited the Hydraulics Lab in the School of Civil and Environmental Engineering. <http://clockwatching.net/~grant/CEEgradapp.pdf> describes the lab as follows:

"The hydraulics laboratory has approximately 18,000 square feet of floor space and is fully equipped for research in open-channel hydraulics, sediment transport, cavitation and two-phase gas-liquid flows, and mixing in density-stratified water bodies." ACE students were able to ask graduate students about their work and research.

Apparently, the hydraulics lab at Georgia Tech is one of the most established hydraulics research facility in the United States.



To learn more about the lab facilities, please visit <http://www.ce.gatech.edu/about-cee/facilities/laboratories/>.

“The Construction Information Technology Laboratory (CITL)”, Ioannis Brilakis, Ph.D., Assistant Professor, Building Construction

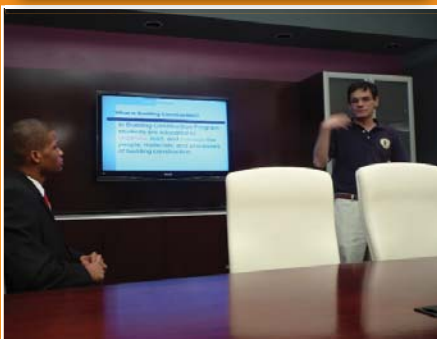
Thank you to Dr. Brilakis for the following overview of his research lab: “The Construction Information Technology Laboratory (CITL) at the Georgia Institute of Technology is committed to providing high-quality leadership on research, education and technology transfer to address issues related to infrastructure sensing (from the construction phase and beyond), data analysis, and knowledge generation. CITL works with federal, state, military, and private agencies to solve research problems of great significance, and create feasible and sustainable methods that gradually advance the body of knowledge in construction IT, while always looking for the next leap. The goals of CITL are to (1) Create, synthesize, modify and/or adapt the next generation IT methods and systems needed to automate and improve construction, inspection and rehabilitation methods; (2) Educate a new generation of students who will be well versed in the art of multidisciplinary thinking and problem solving, and can collaborate effectively in teams to tackle problems in the border of signal, image, and video processing, computer vision, and construction engineering; (3) Provide continuing education opportunities to keep practitioners at the cutting edge of IT methodologies and technologies with construction applications; and (4) Provide technology transfer resources to disseminate knowledge.”



“Building Construction”, Daniel Castro Lacouture, Ph.D., P.E., Associate Professor, Building Construction

Thank you to Dr. Castro-Lacouture for his extremely entertaining and informative presentation on the Building Construction program at Georgia Tech. The students learned about what type of courses they would take upon entering Georgia Tech and if they chose to pursue a degree through Building Construction. The students also enjoyed the opportunity to engage in several friendly competitions - identifying Machu Picchu, the world-famous pre-Columbian Inca site in Peru, and the Petronas Towers in Kuala Lumpur, Malaysia.

Please visit Dr. Castro Lacouture’s website at <http://www.coa.gatech.edu/~dcastro/Research.html> to learn more. He states that he is “investigating the possibility of linking web-based technologies and construction sustainable performance to get real-time data for project control.”





“The Economics of Sustainable Built Environment (ESBE) Lab”, Babaak Ashuri, Ph.D., Assistant Professor, Building Construction

All information in this section is from http://www.coa.gatech.edu/bc/about_us/Ashuri/People.php: “Dr. Baabak Ashuri is director of the Economics of the Sustainable Built Environment (ESBE) Lab. He specializes in Economic Decision Analysis, Strategic Risk Management, Investment Analysis under Uncertainty (e.g., the Real Option Methodology), Capital Budgeting, and Project Finance. His current research focuses on the identification and evaluation of flexible technologies and systems for sustainable buildings, enhancing the value of healthcare facilities by incorporating flexible features, and developing real option models for the financial assessment of PPP highway projects under traffic uncertainty. The findings of the in-depth industry case studies, economic model development, and simulation analysis on the aforementioned topics are then utilized to generate fundamental theory about sustainable investment in the built environment. All research includes an integrated education research program to disseminate knowledge to professional associations and ensure infusion in next generation architects, engineers, facility managers, and policy makers. Dr. Ashuri is an Assistant Professor in the Building

Construction Program at the Georgia Institute of Technology where he teaches ‘Decision Analysis and Risk Management’, ‘Building Economics and Value Engineering’, and ‘Real Option Analysis for Life Cycle Costing of Flexible Infrastructure Assets’ and advises undergraduate, Masters’, and Ph.D. students.”

Thank you to Dr. Ashuri for opening up his lab for our ACE visit!

“Structures Lab”, Reginald DesRoches, Ph.D., Associate Chair & Professor, School of Civil and Environmental Engineering

All information in this section is from Dr. DesRoches’ website on the GA Tech website at <http://people.ce.gatech.edu/~rd72/>: “Professor DesRoches’ research, service, and professional interests center on development of mitigation strategies to reduce the risks from earthquakes, particularly, earthquakes in the central and southeastern United States. His specific research interests include seismic resistant design and retrofit of bridges, protective systems for buildings and bridges, performance of transportation networks, and structural applications of smart materials. He is currently the deputy director of the NEESR-Grand Challenge Project, “Seismic Risk Mitigation for Port Systems”.”

The GA Tech website describes the Structures lab as follows: “An 18,000-ft² Structures and Materials Laboratory with an 8,000 ft² strong floor, an L-shaped reaction wall with capacities of 100-300 kips, and two 30-ton-capacity cranes.” Thank you to Dr. DesRoches for this very special tour! Images from this tour will be in the next newsletter!

A very special thank you to our Georgia Tech guides!

ACE Atlanta would be terribly remiss if we did not thank the wonderful graduate students who helped facilitate our visit by meeting us at the North Avenue MARTA station, getting us to campus safely, and helping us negotiate all the hallways from lab to lab, or pathways from building to building. Your warm hospitality emphasizes that Georgia Tech is just not full of highly brilliant students, professors, thinkers and researchers, but truly great people as well.

Thank you to Habib Fathi, Stephanie German, Gauri Jog, Atefe Makhmalbaf, Man Woo Park, Abbas Rashidi, Aswathy Sivaram, and Zhenhua Zhu!

