

the EXPLORER

NEWSLETTER OF THE COLLEGE OF SCIENCE AND TECHNOLOGY AT TEXAS SOUTHERN UNIVERSITY

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EDITORIAL

LEI YU

Editorial Director

OSCAR H. CRINER

Editor in Chief

SHISHIR SHISHODIA

Editor

DESIRÉE JACKSON

Associate Editor

ALAMELU SUNDARESAN

Associate Editor

HECTOR C. MIRANDA

Photography

College of Science and Technology Hosts Several Summer Programs During Summer 2010

The summer programs in the College of Science and Technology are designed to promote college enrollment in the STEM fields and prepare various student groups for the rigors of college life.

The College offered several summer programs during summer 2010. Twenty-five students from the Houston area were selected to participate in Texas Southern University's inaugural Summer Maritime Academy, June 7th – July 2nd, 2010. The purpose of the academy was to introduce students to opportunities in the maritime industry.

The Department of Engineering Technologies of Texas Southern University in collaboration with UNITE-JETS hosted its Third Annual Pre-College Engineering Summer Program during the period June 14-July 9, 2010. The program was designed to provide academic

instruction, hands-on activities and mentorship to rising 9th-12th graders from middle and high schools within the Houston metropolitan area.

The Space Engineering and Science Internship Program (SESIP) hosted high school students from several schools in the greater Houston area. Students were involved in a 10-week research intensive program under the mentorship of TSU research professors.

The TSU Center for STEM Education and Outreach (C-SEO) hosted a summer STEM Camp from July 6 – July 31, 2010 for 50 middle school students from local Houston school districts. Students were provided with hands-on activities based on real world scenarios in the STEM areas.

Twenty-six students from nine HBCUs nationwide were selected to participate in a STEM Teacher Quality and Retention Program



(TQRP) Institute from June 13 - June 26, 2010 on the TSU campus. Sponsored by Shell Oil Company, the Thurgood Marshall College Fund and Texas Southern University, the Institute introduced STEM majors to teaching in mathematics and science classrooms.

Other summer programs offered by COST were Houston National Summer Transportation Institute and the TSU Summer Academy in Mathematics.

COST Faculty Sweeps TSU Faculty Excellence Awards

The COST had much to celebrate as all the Texas Southern University Faculty Excellence Awards for 2009-2010 were awarded to COST Faculty. The Presidential Achievement Medal was awarded to Dr. Marian Hillar, Professor of Biology. Dr. Hillar has written more than one hundred publications, ranging from biochemistry to the philosophy of humanism. Dr. Hillar is the current

President of the Socinian Society.

The Faculty Award for Mentoring Undergraduate Research was earned by Dr. Lila Ghemri, Associate Professor of Computer Science. Dr. Shishir Shishodia, Assistant Professor of Biology, received the Scholarly Research/Creative Activities Award.

*Dr. Hector Miranda
Department of Biology*



Dean Lei Yu with 2010 College Faculty Awardees

COST Scholars and Leaders Recognized

College of Science and Technology awards were given in a ceremony on April 29, 2010 to students, faculty and staff for outstanding scholarship, research, and service. Ten students were rewarded for their academic success when the College awarded them the American Opportunity Scholarship. The Undergraduate Research Enrichment Scholarship was given to four students who distinguished themselves academically and wrote competitive undergraduate research proposals. To encourage students pursuing careers in research, the College offers the Graduate Research Enrichment Scholarship. Eight graduate students received this award.

Faculty awards went to Dr. Lila Ghemri, who received the Distinguished Undergraduate Advising Award; Dr. Shishir Shishodia received the Distinguished Research Award; and Dr. David Olowokere received the Distinguished Service Award. The Distinguished Staff Award went to Ms. Nadereh Jahedmotlagh. Dr. Shishodia and Dr. Ghemri were also recipients of this year's University Faculty Excellence Awards in the same categories. The Deans Leadership Awards went to Dr. Hector Miranda, Dr. Shishir Shoshodia, Dr. Wei Wayne Li, Mrs. Paula Eakins, Dr. Robert Ford, and Dr. Carol Lewis for demonstrating exemplary leadership in the College. The College of Science and Technology would like to congratulate this year's scholarship recipients and Dean's Leadership awardees.

*Dr. Hector Miranda
Department of Biology*



1. Left to Right: Dr. Khaled Kamel, President John Rudley, Dr. Shishir Shishodia, Dr. Lila Ghemri, Dr. Marian Hillar, Mrs. Hillar, Provost Sunny Ohia, Dean Lei Yu and Dr. Olufisayo Jejelowo; 2. Dr. Hillar receiving Presidential Achievement Medal from President Rudley and Provost Ohia; 3. Dr. Ghemri receiving Faculty Excellence Award from President Rudley and Provost Ohia.



*Left: Student awardees with
Dean Lei Yu*

College of Science and Technology Alumni Task Force

On June 9, 2010, an Alumni Task Force was formed to facilitate the development of an active alumni association for the College of Science and Technology. This Task Force is headed by Perry Miller and consists of Derrick Wilson, James DuMond, Jr., Jim Dickinson, LaKeisha Melton, Roben Armstrong, Roderick Holmes, Vincent Sanders, Ed Booker, Cleverick Johnson, Charlotte Smith-Baker, Chelsea Harris, Shelley Smith, Kedrick Lyons, Martina Gallien, and

James Cox. Other alumni will be added in order to have full representation by all departments in the College. The Task Force, which meets on the second Wednesday of each month, began building a contact database for the COST alumni. This will be used to establish a functioning, valuable and supportive Alumni Association. Currently the Task Force has over 500 alumni contacts and is working hard to engage all COST alumni locally and nationally.

College of Science and Technology Annual Report

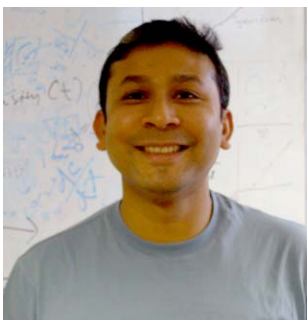
The College of Science and Technology initiated a new effort to showcase the achievements of the College through its Annual Report. Under the direction of the College's administrative team, the Annual Report was designed by Dr. Aladdin Sleem from the Department of Computer Science with the assistance of Dr. Alamelu Sundaresan from the Department of Biology.

This is a significant step for the College in reporting metrics and is expected to be a good tool to disseminate the aims and mission of the College enhancing its reputation. The report provides comprehensive information about the College, its departments, degree programs, research centers, student offerings, events, scholarships and the faculty directory.

ANNOUNCEMENT

The College of Science and Technology Alumni and Industrial Partnership Luncheon will be held on Thursday, October 28, 2010 from 11:00 AM to 1:30 PM in the TSU Science Center Atrium. Please mark your calendar. More information will come soon!

International Scientist Exchange Program



Dr. Diganta Das

Dr. Diganta B. Das, Senior Lecturer in the Department of Chemical Engineering, Loughborough University, UK, is visiting the Department of Chemistry

for six weeks between August and September of this year.

His joint travel grant application with Dr. Alamelu Sundaresan and Dr. John Sapp (Departments of Biology and Chemistry, TSU) was funded by the Royal Society, UK.

This joint project is expected to pave the way for joint research proposals, graduate student supervision/exchange, and a memorandum of understanding between the two universities.

COST Administrative Council Retreat

The College of Science and Technology held its First Annual Strategic Planning Retreat on Tuesday and Wednesday, August 10th and 11th, 2010. The retreat was held at Columbia Lakes Resort and Conference Center in rural Brazoria County. The Administrative Council considered the mission, goals and objectives and defined the faculty committees that will contribute to the final College of Science and Technology Strategic Plan for 2010 – 2015. The Strategic Plan puts forth the processes by which the College will achieve its Mission and Goals.

The Goals are to: (1) Provide high quality instruction; (2) Perform basic and applied research; (3) Engage in community service; (4) Optimize enrollment of college-ready undergraduate students and enhance graduate student enrollment; (5) Strive for a steady increase in external funding; and (6) Ensure that the College's administrative units function effectively and efficiently so that they support the missions of the College and the University. The strategic plan will provide the roadmap for the College to achieve greater competitiveness and a higher visibility in the community.



OUTREACH PROGRAMS C-SEO

Center for STEM Education and Outreach

The Center for STEM Education and Outreach (C-SEO) was established in 2009 to take advantage of the STEM national movement with global implications. The Center reports to the Office of the Provost and is headed by Professor Robert Ford.

C-SEO works actively with the TSU College and Career Readiness Initiative (CCRI), with its director serving as the Chemistry Department representative. CCRI will focus on working with

ten high schools in the area, most of which are major TSU enrollment feeders.

C-SEO has also established a working relationship with the Harris County Department of Education, linking many of the 28 Independent School Districts in Harris County to the STS-129 Shuttle Launch on which TSU launched its Microbial-1 experiment. Dr. Ford, the C-SEO Director, traveled to Kennedy Space Center for the STS-129 launch, where he served as moderator for a STEM and African American Participation Forum, hosted by NASA Headquarters.

As a Global Learning and Observations to Benefit the Environment (GLOBE) Partner, C-SEO in collaboration with Tekoa Academy, a Port Arthur charter school and the International GLOBE

Headquarters Office conducted two teacher training events at Tekoa, certifying 14 teachers in the GLOBE atmosphere protocol. The Partnership also worked closely with Forest Brook Middle school in the North Forest ISD to establish a student GLOBE team. This team conducted water studies, presented their results at the Houston Live Earth event (Earth Day), and produced a report that earned commendations from North Forest ISD Superintendent Adrian Johnson. The Forest Brook team, led by two teachers C-SEO trained in 2009, was featured on the International GLOBE web site as a model National Lab Day undertaking.

In its advocacy work for improved schools and student performance, C-



Professor Robert Ford

SEO attended and convened community meetings in association with the Third Ward Community Cloth Education Thread. A memorandum of understanding is being fashioned to unite C-SEO and Cloth in collective efforts to expand engagement of parents and community in pursuit of quality education in Third Ward schools. Recent efforts have focused on the HISD Apollo 20 School Transformation Initiative. Dr. Ford, C-SEO director received the Dean's STEM Award for 2010.



STUDENT SERVICES

IMPORTANT DEADLINES	DATE
Last day to pay tuition and fees without a late fee	August 20
\$104 late fee applied to all first-time registrations	August 23
Classes begin	August 23
Change of program period	August 23 - August 27
Office of Student Services: TSU Science Center 157 Tel: 713 313 1860	

COST Students Recognized as Valedictorian and Salutatorian for Summer 2010 Commencement

Students from the College of Science and Technology were recognized as the Valedictorian and Salutatorian in the Summer 2010 Commencement. The valedictorian is Ms. Trang Vo Minh from the Department of Chemistry with a GPA of 3.63. Mr. Bo Sun is the salutatorian with a GPA of 3.55. Bo is a double major in biology

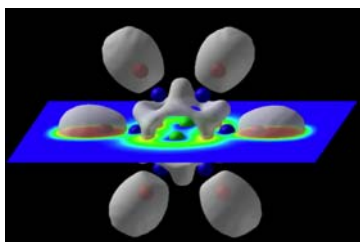
and chemistry. The faculty and staff of COST congratulate them on their success.



DREME Foundation Summer Program at COST, TSU

FACULTY SPOTLIGHT

Dr. Christopher J. Tymczak has specialized in the identification, development, and implementation of new scientific codes for exploiting advanced computing resources impacting large scale computation in Many-body physics, Quantum Chemistry and ab initio Molecular Dynamics. He is an Associate Professor of



Electron Density of $Al_2B_6H_6$, an analog of benzene

Physics at Texas Southern University, where he is spearheading the integration of supercomputing resources into various STEM programs. Dr. Tymczak is the founder and Director of the Texas Southern University High Performance Computing Center. At Los Alamos National Laboratory, Dr. Tymczak is a permanent scientific associate within the [FreeON](#) initiative, involving the development of a massively parallel linear scaling quantum chemistry method, currently under development in collaboration with Dr. Matt Challacombe (T-12)

and Dr. Anders Niklasson (T-1). He is one of the first scientists to exploit wavelet-based methods in large scale computing for understanding the electronic structure of materials. For the last four years, he has advanced FreeON development through the exploitation of advanced data structures and advanced machine architectures. FreeON is now recognized as one of the first quantum chemical codes with scalable parallelism within large-scale parallel clusters. Dr. Tymczak is also a recipient of one of the first Welch Foundation grants awarded to Texas Southern



Dr. Christopher J. Tymczak

University for which he has just received renewal. Currently, Dr. Tymczak is also collaborating with Dr. N. Gonzalez-Szwacki of University of Warsaw, Dr. V. Weber of University of Zurich and Dr. X.Q. Wang of Clark Atlanta University on the theoretical description of novel boron based nano-systems. Dr. Tymczak is a Graduate of Texas A&M University.

DEPARTMENT SPOTLIGHT COMPUTER SCIENCE

The primary mission of the Department of Computer Science is to expose students to the most current trends in both computer software and hardware. It involves the study and design of computer systems and associated system software. Particular emphasis is given to programming techniques, software engineering, computer networks, and distributed systems. The programs offered by the Department of Computer Science lead to the Bachelor of Science or the Master of Science in Computer Science. Majors in other disciplines at TSU are also welcome to take Computer

Science as a minor. These programs are designed primarily to prepare graduates for productive work in highly computer-dependent areas of business, government, and industry. In recent years, majors graduating from the program have attained their first jobs in business applications, computer software development, scientific and applied mathematical programming, and have gone to graduate school.

A new track started in the fall 2009; the Bachelor of Science in Computer Science with Computer Networks Concentration.



This track is for students who plan to have in-depth knowledge of today's rapidly growing field of Computer Networks. Students who major in Computer Science and prefer to follow this track are not required to select a minor. The curriculum of this track is designed to provide the students with the same breadth of computer science knowledge as the previous curricula but has more depth in the area of computer networks. Students pursuing this track will be ready to apply for leading industry

certificates such as the Cisco Certified Network Associate (CCNA) which improves their competitiveness in today's challenging job market where networking is an essential ingredient of almost every business.

Recent enhancements in the research and learning infrastructure include the Certified Cisco Networks and Advanced Information Security laboratories, which

(Continued on page 8)

*Dr. Khaled Kamel
Chair, Computer Science Dept.*

STUDENT SPOTLIGHT

Terrell Gibson is a dedicated and bright pre-doctoral fellow in the Environmental Toxicology Program. He earned a BS in Biology from Morris College, South Carolina and joined a program in business entrepreneurship at California State University (CSU), San Bernardino. Upon completion of an ITTN Fellowship, he was offered the position of accounts executive at GA-Communications, a marketing company in Stone Mountain, GA. His love of science steered Mr. Gibson's academic matriculation towards the Environmental Toxicology

Ph. D. program at Texas Southern University. He joined the program in the fall of 2008.

While at Texas Southern University, the Environmental Toxicology Program has expanded his knowledge in the areas of environmental science, biology and chemistry. Currently, Terrell serves as a teaching assistant in the program and is conducting graduate research on the bio-assessment of metal exposure in the urban environment and *in vitro* lunar dust and metal toxicity studies under the advisement of Drs. Renard Thomas and Alamelu



Mr. Terrell Gibson

Sundaresan. He has obtained promising results and his project is expected to elucidate potential mechanisms of toxicity of lunar dust (a NASA funded study) and metals at the cellular-physiological level and pave the way to identify bio-signatures for specific toxic exposures.

Dr. Alamelu Sundaresan
Department of Biology

TSU Faculty Hold Symposium at Texas State University, San Marcos

Dr. Oscar Criner, Dr. Renard Thomas, and Mr. Ralph Ross conducted a symposium on Complex Systems and Urban Sustainability at the 20th Annual International Conference of the Society for Chaos Theory in Psychology and Life Sciences held at Texas State University at San Marcos.

The symposium addressed complex ecological systems in the Gulf Coast in three phases: first, Dr. Criner spoke on the complexity in food, water, and energy production and consumption, Mr. Ross spoke on the pollution occurring from animal waste in the meat industry, and Dr. Thomas spoke on estrogens in the environment. The presentations were enthusiastically received with great interest from the conferees.

Undergraduate Summer Research Program 2010

Ms. Sharhonda Lee, a TSU Undergraduate Research Program Fellow, did her summer internship in the Department of Biology and was awarded 2nd place for her presentation and overall performance at the closing ceremony.

ALUMNI RAVES BY JORGE BLANCO

Upon graduating high school, I began my college career at Texas Southern University. Majoring in Biology, I was astonished at how complex the human body is, and yet, it works so smoothly. Courses in Genetics, Molecular Biology, and Human Anatomy and Physiology allowed me to visualize how intricate the human body is. While at TSU, I was involved with several organizations, honing my leadership skills as President of Beta Beta Beta Biological Honor Society and Beta Kappa Chi Scientific Honor Society. These organizations allowed me to contribute to TSU and to the community.

I was afforded a glimpse of medical school through the Early Medical School Acceptance Program (EMSAP), a partnership between the University of Texas Medical Branch (UTMB) in Galveston and TSU. My experiences in EMSAP further fueled the fire to pursue a career in medicine.

I continued my education pursuing a Master of Science degree in Biology. This in depth study of Biology showed me how problems at the molecular level can affect the entire body. With the guidance of my graduate advisors and Biology faculty, I was able to further develop leadership skills and love for



Mr. Jorge Blanco

knowledge that I am now using as a medical student at UTMB.

My goal in life is to have an effect not just on the patient's health but also in their well being. I want to be a leader, a caregiver, a friend, a comforter, a role model, and a compassionate person to everyone I encounter.

STUDENT ACCOMPLISHMENTS

Faculty and students of Department of Transportation Studies participated in, and presented at the 2010 Intelligent Transportation Society of America (ITSA) Annual Meeting & Exposition, May 3-5, 2010 in Houston. Drs. Fengxiang Qiao and Lei Yu presented their research paper "A Genetic Algorithm Based Microscopic Simulation to Develop the Evacuation Plan for Multi-Institutional Centers." Dr. Lei Yu also served as the moderator of a technical session. Over 2000 people gathered for this event, and 125 companies and agencies packed the exhibit floor and offered technology demos.

On Saturday, July 17, 2010, The Port of Houston Authority and

Several departments in College of Science and Technology, Texas Southern University (TSU) participated the E-STEM Academy, Inc. Schools Recruitment Day Program at the TSU Science Center. The booths operated by the Port of Houston Authority, the Houston Maritime Museum, and the COST Department of Transportation Studies led by Dr. Fengxiang Qiao, were some of the highlights of this event, all supporting the newly established Maritime Transportation Management and Security Program in the College of Science and Technology.

André White, a senior Mathematics major, and LSAMP Scholar, traveled to Washington D.C. on July 21,

2010. While in Washington, Mr. White participated in poster presentations held in the Sam Rayburn House Office Building. Several members of congress questioned Mr. White about his experience as an LSAMP Scholar and his research experiences at Texas Southern University.

The L. L. Clarkson Mathematical Research Experience is part of the Undergraduate Summer Research program initiated during the 2010 summer sessions. Students participating in the summer research experience included Aqeeb Sabree and Ruqiah Muhammed. Professors R. M. Nehs and W. E. Taylor supervised the research

projects of the three participants. All three students are LSAMP Scholars. This was the second year of the Clarkson Research Experience held in the Mathematics Department.



COST STUDENT AWARDS

American Opportunity Scholarship: Osman Ahmed (Computer Science), Eugene Ansah (Chemistry), Isidro Cervantes (Electronics Engineering Technology), Elo Chukwuma (Electronics Engineering Technology), Aisha Durodola (Electronics Engineering Technology), Haruna Kibirige (Computer Science), Thierry Kouamou Tantchou (Chemistry), John Shoboiki (Electronics Engineering Technology), Peter Stoute (Construction Technology), and Samuel Ubanyionwu (Chemistry).

Graduate Research Enrichment Scholarship: Grace Arthur (Transportation Planning and Management), Sovandara Chea (Computer Science), Kadidiatou Diallo (Transportation Planning and Management), Jamie Dooley-Renfro (Environmental Toxicology), Raji Kannah (Computer Science), Sharine Law (Biology), Gloria Okome (Environmental Toxicology), and Siobhan Tarver (Environmental Toxicology).

The Undergraduate Research Enrichment Scholarship: Kimberly Gilkes (Biology), Marcia Robin (Civil Engineering Technology), Samuel Somuah (Computer Science), and Elvino Taylor (Computer Engineering Technology).

The College of Science and Technology would like to congratulate this year's scholarship recipients.

*Dr. Hector Miranda
Department of Biology*

CONGRATULATIONS TO ALL

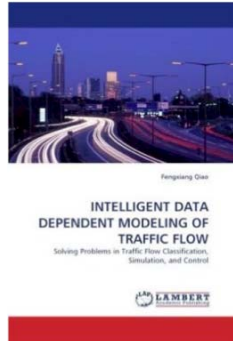
SCHOLARSHIP OPPORTUNITIES

- American Opportunity Scholarship
 - CBER Scholarship
 - CTTR Scholarship
 - CITGO Scholarship
 - Graduate Research Enrichment Scholarship
 - Dr. Naomi W. Lede's Scholarship
 - Dwight D. Eisenhower Fellowship
 - EMSAP
 - H-LSAMP Program
 - JAMP
 - Maritime Transportation Management and Security Scholarship
 - Prostate Cancer Research Summer Internship
 - Undergraduate Research Enrichment Scholarship
- For detailed information, please visit www.tsu.edu/pages/3593.asp

SCHOLARLY AND CREATIVE ACTIVITIES

Dr. Fengxiang Qiao Published a Book on Intelligent Data Dependent Modeling

Dr. Fengxiang Qiao, Assistant Professor in Department of Transportation Studies recently published his book "Intelligent Data Dependent Modeling of Traffic Flow: Solving Problems in Traffic Flow Classification, Simulation, and Control," ISBN: 978-3-8383-2906-2. This monograph proposes several Intelligent Data Dependent approaches that can be applied to relevant modeling problems in the classification, simulation, and control of traffic flow. The studies cover a wide range of traffic flow systems dealing with freeway mainline flow, freeway ramp flow metering, roadway flow dispersion between intersections, flow



simulations at signalized intersections, and flow simulations at unsignalized intersections. Most of the proposed approaches reflect recent and advanced technologies in relevant technical fields such as computer science and automatic control engineering, which are all intelligent and robust to the changing physical environments.

Grants

Alamelu Sundaresan, Preliminary studies of Lunar dust in three dimensional lung tissue models NASA/USRA. 2010-2011, \$46,000.

Alamelu Sundaresan, NSF Travel Award for Joint NSF JAM conference, June 2010.

Publications

X. Chen, C. Olmi, and G. Song, "A Remote Bridge Experiment with Vibration Control," Proceedings of International Symposium on Life-Cycle Performance of Bridges and Structures, Changsha, China, June, 2010.

X. Chen, Y. Zhang, L. Kehinde, and D. Olowokere, "Developing Virtual and Remote Undergraduate Laboratory for Engineering Technology," Proceedings of ASEE Annual Conference & Exposition, Louisville, KY, June, 2010.

Presentations

X. Chen, "Adaptive Rate Wireless Sensor Network and Its Applications," Nanjing University of Science and Technology, Nanjing, China, June 21, 2010.

X. Chen, "Adaptive Rate Wireless Sensor Network for Structural Health Monitoring," Donghua University, Shanghai, China, June 10, 2010.

A. Sundaresan, Keynote lecture, "Tissue like assemblies in analog microgravity", Scandinavian Society of Biomaterials, Hafjell, Norway, April 12-16, 2010.



TSU NASA CBER Poster Competition at TSU

COMPUTER SCIENCE

(Continued from page 5)

provide the base needed for the research, and teaching activities of the department. Students will have a better understanding of all the core computer networks and security concepts giving them the skills needed for the installation, troubleshooting, and monitoring of network devices to maintain the integrity, confidentiality, and availability of data and devices. The lab will give

students a hands-on learning environment with an emphasis on practical experience, as well as clear understanding of the theoretical foundations discussed in the classroom. Research in Multimedia Distribution, Internet Protocol Television (IPTV), and Voice over Internet Protocol (VoIP) is also supported by this facility.

In addition to the focus on

applied research and active learning, the Computer Science department supports a strong and proactive outreach program. This includes interdisciplinary projects within TSU and nationally. Recent efforts targeted middle and high school students in the greater Houston area. Students from WALIPP, a TSU charter middle school, were taught various computer science

concepts starting from the very basic all the way through creating HTML web designs. Mentors from the Department of Computer Science were also able to assist the students with their other school work such as Math and Science during the 4 hour weekly sessions. The pilot project was supported by the US Department of Labor and the Texas Workforce Commission.