



May 22- May 28, 2011

LSU Professors Develop Technology to Assist with Efficient Management of Water and Agriculture

(Source: [Baton Rouge Today](#))

Water, food and environment are important facets of the fabric of today's ecosystem. With the increasing population, the need for food and fresh water has been steadily rising. Increased consumption of fresh water and rapidly spreading pollutants are leading to an unhealthy contention between industrial and rural/agricultural sectors for access to limited water resources. In this setting, efficient management of water resources and irrigated agriculture has become an issue of utmost importance.

In developing countries like India, the rate of increase in food production is no longer able to keep pace with that of the population. It is estimated that nearly 60 percent of available land in India is wasteland. A viable solution to such a global problem lies in the use of affordable technology for driving precise agriculture, reclaiming wastelands and increasing yields ushering a new green revolution.

S.S. Iyengar, chair of LSU's Department of Computer Science and the Roy Paul Daniels professor in the LSU Center for Computation and Technology, and Supratik Mukhopadhyay, assistant professor of computer science, along with Samrat Ganguly of Nulogix Labs Inc. and Sangram Ganguly of NASA Ames Research Center and the Bay Area Environmental Research Institute, are jointly developing the Cognitive Information Management, or CIM, shell, a complex event-processing architecture and system that combines an agile machine-learning engine with distributed intelligent agents to provide real time analytics and control for precision agriculture and irrigation management. In collaboration with Morph2o LLC, a water management company, and the Indian Council for Agricultural Research's National Agricultural Innovation Project, or NAIP, the researchers are deploying the technology in arid regions in United States and India for soil and water management, fertigation and wasteland recovery.

The CIM shell combines information from satellite imagery from LANDSAT, a series of Earth-observing satellite missions jointly managed by NASA and the U.S. Geological Survey; macro- and micro-climate information as obtained from weather stations; and sensors and data about moisture, pH, salinity and other related factors from ground sensors and the USDA databases to generate accurate intelligent responses, which can include predictions on crop growth in a particular condition and floods and possible reactive measures.

This technology can also be used to predict and counter outbreaks of crop-threatening diseases by automatically turning on and off irrigation systems, sending alerts and other similar acts. It provides a convergent platform through the use of distributed databases and adaptable middleware that can access and store data from diverse sources, enabling their processing by agents and machine learning engines communicating the reactions to actuators.

For more information about SIM Shell technology, contact Iyengar at (225) 578-1252 or iyengar@csc.lsu.edu.

CCT Spotlight:

Leigh Townsend



Leigh Townsend joined the CCT in January of 2011 as the Outreach Coordinator for the LA-SiGMA project. She is from Gonzales, Louisiana. Leigh is married to her husband, Chris, and has a 5-year old son, Tucker.

Leigh is currently working on the LA-SiGMA Research Experience for Undergraduates, which begins at the end of May. She is also working alongside Kathy Traxler to plan the Computational Thinking from a Parallel Perspective workshop, sponsored by the National Computational Science Institute, that will take place at the end of July and beginning of August.

To unwind, Leigh likes to read, especially on her Kindle, watch funny movies and listen to all different types of music. She also enjoys vacationing at the beach.

Pats on the back:

- Congratulations to Sumanta Acharya, who received The 2011 Heat Transfer Memorial Award, which recognizes outstanding contributions to the field of heat transfer through teaching, research, design or publication. He will receive a \$1000 honorarium, a plaque and a certificate at the Heat Transfer Luncheon during the ASME Mechanical Engineering Congress & Exposition, November 11-17 in Denver, Colorado.

- Georgios Veronis received an award from NSF titled "Plasmonic devices for controlling light at the nanoscale." The award is for \$240,000 for three years.
- Congrats to Jennifer Claudet who was married on May 3rd.

CCT in the news:

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Source: [Baton Rouge Today](#)

MobiCon: Next Generation Mobile and Ubiquitous Platforms

Source: [Computing Community Consortium](#)

CCT Commencement Reception

Source: [Communication, Culture & Technology, Georgetown University](#)

Lectures this week:

TUESDAY --

There will be a lecture on [“Using Multi-Scale And Multi-Resolution Model With Graphics Processing Unit \(GPU\) to Simulate Real-Time Actual Cancer Progression”](#) by Le Zhang, Michigan Tech University. The lecture will take place Tuesday, May 24 at 2:00 P.M. via access grid in 338 Johnston Hall or live at t 234 Nethken Hall, Louisiana Tech University.

Please Note:

- On May 9th, Governor Jindal issued Executive Order BJ 2011-7 that directed executive branch agencies including higher education to cease spending in support (non-personnel) categories. Since the University has not received guidance on how to implement this executive order, LSU has developed operating guidelines to meet the spirit of the order through June 30, 2011. These Guidelines apply only to expenditures using State appropriated funds that are included in the University’s FY 2010-11 Operating Budget and so identified with a zero in the sixth digit of the account number. Please contact CCT Business Manager Theresa Markey (tmarkey@cct.lsu.edu) with any questions.
- The CCT Industry Partner Event/Crawfish Boil is this Thursday, May 26th (4:30 p.m. – 6:30 p.m.) in the Johnston Hall Back Courtyard.
- Upcoming Purchasing deadlines:
 - June 3: All requisitions regardless of dollar value are due to Purchasing

- Please email CCT Purchasing Coordinator, Andy Cox (acox8@cct.lsu.edu), the LSU property tag on all moveable (laptop, camera, etc.) and off-campus equipment as soon as possible, if you have not done so already.
- The LSU Center for Computation & Technology will host for the first time the LSU iOS Application Boot Camp August 1-12 (10 day camp; not including weekends) on the LSU Campus. This new educational experience offers LSU freshmen the opportunity to gain knowledge while enhancing their entrepreneurial spirit. Participants will work in groups to create their own operating App and have it loaded on their personal device by end of camp. Registration fee is \$300. For more info and to register, visit <http://www.cct.lsu.edu/iosbootcamp>
- Registration is now open for “Stop Motion Summer Camp,” July 11-15, 2011. This exciting summer education opportunity offers high school students a unique opportunity to build upon their interests in animation. Registration fee is \$125. For more information and to register, visit <http://www.cct.lsu.edu/StopMotion>
- Applications for the [SC11](#) Student Volunteer Program are open and close on August 12, 2011. Undergraduate and graduate students are encouraged to apply as volunteers to help with the administration of the conference. In exchange for volunteering, they will receive complimentary conference registration, housing, and most meals. In addition, limited support will be provided for transportation expenses (such as airfare) for international students and students from groups that traditionally have been underrepresented in HPC. For more information visit <http://sc11.supercomputing.org/?pg=studvol.html> or email student-vols@info.supercomputing.org.
- LONI Technical Forum scheduled for July 18-19 at Pennington Biomedical Research Center is now accepting registrations. Participation is FREE. If you wish to suggest a topic for discussion, email Lonnie Leger at Lonnie@lsu.edu. For more information, visit: <http://www.cct.lsu.edu/LONIForum2011>
- Prior approval is required for Special Meal Requests. Employees who make meal purchases without prior approvals may find that they must cover the cost of any monies spent for an unapproved event out of pocket, especially now that state funds are under a spending freeze. Please contact Susie Poskonka (susie@cct.lsu.edu) prior to any special meal with visitor(s) to file the appropriate request for approval. Prior approval could take up to two weeks, so please plan accordingly.
- Please remember to send your news concerning grants, awards, conferences, or other pertinent information to CCT Event Coordinator Jennifer Fontenot at jennifer@cct.lsu.edu
- Follow CCT with social media to access photos and see news, events or updated

information. These pages are public; you do not need an account to view the information.

- [Facebook group](#) : LSU Center for Computation & Technology
- [Twitter](#) : LSUCCT
- [YouTube channel](#) : LSUCCT

Upcoming events:

May 26: CCT-Industry Partnership Crawfish Boil, 4:30-6:30, Johnston Hall Courtyard

May 30- July 29: [NSF Research Experience for Undergraduates](#)

June 6-10: [Beowulf Boot Camp](#)

June 13-17: [Alice in Computation Land Summer Camp](#)

July 11-15: [Stop Motion Animation Summer Camp](#)

July 18-22: [Alice in Computation Land Summer Camp](#)

July 18-19: [LONI Tech Forum](#)

July 31- Aug 6: [Computational Thinking from a Parallel Perspective](#)

August 1- 12: [iOS Boot Camp for LSU Freshmen](#)

August 9-11: [SIGGRAPH](#) (Booth #841), Vancouver, Canada

Upcoming Grant Deadlines:

Note: Please check the [CCT deadline Web site](#), since it is updated daily.

[Software Infrastructure for Sustained Innovation \(SI2\)](#)

July 18, 2011 10:00 am

At Most \$ 1,000,000.00 available

[Faculty Early Career Development \(CAREER\) Program](#)

July 23, 2011 10:00 am

At Least \$ 400,000.00 available