



July 25-31, 2010

REU Students Present Summer Projects to NSF Official, CCT Leadership

Sixteen students participating in the first Research Experience for Undergraduates program at the CCT presented their summer-long research projects to CCT faculty and a representative of the National Science Foundation Friday, July 16.

Edward Seidel, LSU Floating Point Systems Professor of Physics & Astronomy and former CCT director, who is the National Science Foundation's Assistant Director for the Mathematical and Physical Sciences Directorate, attended the presentations to meet with students, provide feedback, and emphasize the importance of interdisciplinary research. CCT Interim co-Director Jorge Pullin, Horace Hearne Chair of Theoretical Physics in the LSU Department of Physics & Astronomy, also attended, along with University faculty who served as mentors for the students throughout the summer.

This CCT Research Experience for Undergraduates, called REU, program began May 31 and will continue through July 29. It is one of the first three such programs funded through the National Science Foundation's Office of Cyberinfrastructure. The focus for this REU is Interdisciplinary Research Experience in Computational Sciences, in which students learn to use campus, state and national cutting-edge cyberinfrastructure to investigate different scientific phenomena.

CCT faculty Juana Moreno, Department of Physics & Astronomy, and Gabrielle Allen, Department of Computer Science, served as principal investigator and co-principal investigator, working with CCT staff Bety Rodriguez-Milla and Kathy Traxler to secure grant funding from the National Science Foundation and the Louisiana Board of Regents for this summer program.

During the REU, college students from Puerto Rico, Illinois, Ohio, New York, Florida, Arkansas, Missouri, Michigan, Pennsylvania and Louisiana have collaborated with LSU faculty and staff. At Friday's session, the students created short presentations detailing the projects they have undertaken alongside their mentors throughout the summer.

The research projects for the Summer 2010 REU encompass a broad range of computational science topics, including modeling of gamma ray bursts and binary black hole systems; visualizing data from galaxy collisions and neutron star mergers; creating computer simulations of flame-resistant materials; accelerating scientific codes using graphics processor units; developing new computer interfaces that use radio frequency

identification technology; molecular dynamics studies of how ions behave in a liquid matrix; designing of metallic photonic crystals to harvest solar energy; new techniques for multi-touch, tactile displays; and designing tools and languages that makes it easier for collaborating researchers to develop, share and manage computer applications across networks.

“I am very impressed with the quality of work you all have been able to produce in a short amount of time,” Seidel told the students, noting that the interdisciplinary emphasis of CCT’s REU is what leading science organizations consider the ideal setup for research.

The CCT REU students will create posters about their work to present this week as part of the 17th annual LSU Summer Undergraduate Research Forum, where students from summer programs across campus present their research projects. These presentations will take place Thursday, July 29, from 1-4 p.m. in LSU's Union Cotillion Ballroom.

A panel of distinguished University faculty and researchers will select the top six posters presented at SURF, and the students who created those will receive funding to attend and present their research at a conference of their choice. For more information about this activity, visit <http://lbrn.lsu.edu/portal/staticpages/index.php?page=SURForum>.

For more information on CCT’s REU in Interdisciplinary Research Experience in Computational Sciences, visit <http://reu.cct.lsu.edu>.

Pats on the Back:

CCT Faculty, Students Recognized at the SIAM 2010 Annual Meeting

The members of the Class of 2010 Society for Industrial and Applied Mathematics (SIAM) Fellows, including Professor Susanne Brenner, were recognized at the Prizes and Awards Luncheon July 13 at the SIAM Annual Meeting in Pittsburgh, Pennsylvania. Dr. Brenner was named a SIAM Fellow in April 2010.

At the SIAM meeting, Dr. Brenner was a member of a panel discussing Ethics and Integrity in SIAM Publishing. The panelists discussed plagiarism, unethical gaming of metrics such as impact factors, and other misconduct. They also discussed SIAM's policy on authorial integrity.

LSU's SIAM Student Chapter was chosen to send a representative to give a presentation at Student Days during the SIAM Meeting. Silvia Jimenez, an LSU graduate student, represented the chapter and gave a talk on "Correctors and Field Fluctuations for the $p_{\epsilon}(x)$ -Laplacian With Rough Exponents." Silvia and her faculty advisers, Susanne Brenner and Li-yeng Sung, also participated in the Student Chapter Breakfast Meeting with SIAM Leadership.

Michael Neilan and Susanne Brenner organized a special session on Numerical Methods

for High-Order Nonlinear Equations. Xiaoliang Wan co-organized sessions on Uncertainty Quantification in Complex Systems, and Hongchao Zhang organized a session on Recent Advances in Optimization Methods and Applications.

The following postdoc and faculty members gave talks at the SIAM Meeting:

- Michael Neilan, C^0 Penalty Methods for the Fully Nonlinear Monge-Ampere Equation
- Li-yeng Sung, Isoparametric C^0 Interior Penalty Methods for Plate Bending Problems
- Li-yeng Sung, Higher Order Nonconforming Finite Elements for $H(\text{curl}) \cap H(\text{div})$
- Xiaoliang Wan, Numerical Approximations of Stochastic Elliptic Models
- Hongchao Zhang, A Derivative-free Regularized Trust Region Approach for Least-squares Minimization

CCT In The News:

LSU CCT to Display Digital Media Research at SIGGRAPH 2010

Source: [HPC Wire](#)

Source: [Gulf Coast News](#)

LSU CCT Hosts Workshop for Louisiana High School Teachers

Source: [Supercomputing Online](#)

Research Experience for Undergraduates Students Present Summer Projects

Source: [HPC Wire](#)

Please Note:

- 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 one week, so please plan accordingly.
- The 17th annual LSU Summer Undergraduate Research Forum (SURF), where undergraduate students from across the LSU campus present their summer research projects, will take place Thursday, July 29, from 1-4 p.m. in LSU's Union Cotillion

Ballroom. CCT's REU participants will participate, presenting posters detailing their summer-long research projects. The students will attend to discuss their work, which ranges widely across a variety of scientific fields, including chemistry, biology, chemical engineering, math, computer science, biochemistry and physics. Please come and ask the participants about their summer research! For more information, visit <http://lbrn.lsu.edu/portal/staticpages/index.php?page=SURForum>

- Registration is still open for the Virtual School of Computational Science and Engineering course on Proven Algorithmic Techniques for Many-Core Processors, which will take place Aug. 2-6. LSU is one of the sites for this course, which is open to graduate students, faculty, post-doctoral researchers and professionals from academia, government and industry. Registration fee is \$100. Participants can enroll online at <http://www.vscse.org/summerschool/2010/manycore.html>.
- HPC@LSU is offering assistantships for graduate or undergraduate students. HPC@LSU offers a great environment in which to learn about high performance computing (HPC), and gain experience with the various support activities. The work ranges from vetting user account and password requests, to trouble shooting user problems with application development tools and job scripting. The depth of involvement is limited only by interest and willingness to learn. Starting stipend is dependent on experience. HPC@LSU will award up to three assistantships. Interested students should submit an e-mail outlining their interests and background experiences to Jim Lupo, HPC User Services Manager, at jalupo@cct.lsu.edu. Applications will be considered through Aug 6, 2010.
- LSU Day, a celebration of the University's sesquicentennial anniversary that highlights the various research and education accomplishments of different areas of campus, will take place on Saturday, Nov. 13, concurrent with LSU Homecoming. This event originally was scheduled for April 24, but the University canceled it because of severe weather. At LSU Day, CCT will host a "Visualize This!" exhibit showcasing student research projects and visualization work in the LSU Union computer laboratory. If you would like to participate, please contact CCT PR Manager Kristen Sunde at ksunde@cct.lsu.edu.
- **Supercomputing Conference 2010 Information and Deadlines:**
 - Follow SC10 with social media to get the latest news, information, and deadlines -- Twitter @ SuperComputing; Facebook group: SC10.
 - The SC10 Education Program is now accepting applications for travel support to attend the conference, which will take place Nov. 13-19 in New Orleans, Louisiana. The program is open to undergraduate faculty, undergraduate and graduate students, and high school teachers interested in learning how to use supercomputing and computational science in their classrooms. Participants are encouraged to stay through the entire conference, where they will be engaged in hands-on activities to encourage them to apply computational

science, grid computing and high-performance computing resources in education. The deadline to apply for the SC10 Education Program event is July 31. For more information, please visit

<http://sc10.supercomputing.org/?pg=edprog.html> or e-mail education@info.supercomputing.org

- The SC 10 Education Program introduces undergraduate faculty and pre-college educators to HPC and computational tools, resources and methods. During a four-day, intensive workshop at the conference, educators learn ways to integrate HPC and computational techniques into their classrooms and research programs. Special events scheduled for SC10 include a teacher's day and support for high school field trips. Limited travel support is available; those who do not receive travel support may participate by paying a separate registration fee. Travel support applications are due July 31; details are available at: <http://sc10.supercomputing.org/?pg=edprog.html>. For more information, email: education@info.supercomputing.org.
- Disruptive Technologies, an annual part of SC that examines new computing architectures and interfaces that will significantly impact the high-performance computing field throughout the next five to 15 years, is taking submissions. The SC10 Disruptive Technologies Program will feature panel sessions and an exhibit showcase. The conference is taking submissions for topics through Thursday, Aug. 5. Participants can send their proposals to the SC10 submissions Web site, <http://submissions.supercomputing.org>. For questions about this program, please contact disruptive-techs@info.supercomputing.org.
- The SC10 Broader Engagement Program, which offers students, faculty and professionals from groups traditionally underrepresented in high-performance computing an introduction to SC through networking and technical sessions, is now taking applications. Participants will attend sessions immediately preceding the conference that provide an introduction to and professional development in HPC and computational science. Community building activities include the mentor /protégé program, which matches Broader Engagement and Student Volunteer protégés with self-identified mentors attending SC. As part of the Broader Engagement Program, the SC10 Student Job Fair will take place from 10:30 a.m. to 1:30 p.m. Wednesday, Nov. 17. Applications for participation grants in Broader Engagement are due Aug. 16. Details are available at: <http://sc10.supercomputing.org/?pg=broadeng.html>. For more information, email: be@info.supercomputing.org
- Applications for Student Volunteers for [SC10](#) are now being accepted. The deadline to apply is Sunday, Aug. 27. Undergraduate and graduate students are encouraged to apply as volunteers to help with the administration of the conference. In exchange, students will receive complimentary conference registration, housing (for out-of-town volunteers) and some meals. Volunteers

will be expected to be available for a total of 4-5 hours of work per day during the week of the conference, which will take place Nov. 13-19 in New Orleans. Successful applicants will be notified of their acceptance by Sept. 30. If you have any questions please e-mail student-vols@info.supercomputing.org.

- Please remember to send your news concerning grants, awards, conferences, or other pertinent information to PR Manager Kristen Sunde at ksunde@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 Grant Deadlines:

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

[Expeditions in Computing](#)

September 10 2010 10:00 am

At Least \$ 10,000,000.00 available

[CISE Cross-Cutting Programs: FY 2011](#)

December 17 2010 10:00 am

At Most \$ 3,000,000.00 available