Oct. 4-10, 2009

Professor Receives $1 Million in National Science Foundation Funding to Develop a High-Speed Networking Testbed, Creating Future Internet Capabilities

With the rise of high-speed networks such as the Louisiana Optical Network Initiative, or LONI, today's researchers have unprecedented opportunities to collaborate across institutions. These networks allow rapid communication and data transferring, so scientists working at research institutions in different states, or even different countries, can work on the same project together in real time.

While multi-disciplinary and multi-institutional research now takes place frequently as more facilities gain access to high-speed networks, limitations still exist. Only a certain number of users can access a network at a time, and multiple users create bottlenecks, which slow the overall speed. Researchers also cannot easily modify a network's capabilities to suit their individual needs without creating problems for other research projects on that network. And, the overall research community lacks applications that operate consistently across network connections.

LSU Professor Seung-Jong "Jay" Park will address these limitations through two projects he is leading at the University to make research across high-speed networks, which can transport 10 Giga bits of data per second (Gbps), more efficient and available to more users.

Park, an assistant professor in the LSU Department of Computer Science who holds a joint appointment with the CCT, has received $1 million in total funding from the National Science Foundation to support this work.

Park's two projects are Development of a Cyberinfrastructure of Reconfigurable Optical Networks, or CRON, for Large-Scale Multidisciplinary Scientific Research, funded through the foundation's Major Research Instrumentation Program, and Global Environment for Network Innovations, or GENI.

CRON and a federation project with GENI are overlapping projects. Through CRON, Park will work with a research team including Professors Thomas Sterling, Department of Computer Science and CCT, Sitharama Iyengar, Department of Computer Science and CCT, Rajgopal Kannan, Department of Computer Science and CCT, and Daniel S. Katz, Computation Institute at University of Chicago and affiliated faculty member with CCT and the LSU Department of Electrical and Computer Engineering, to develop new

hardware and software components for 10Gbps high-speed networking. These tools will allow 10Gbps networks to accommodate more users at a time without reducing speed or processing power.

The federation project with GENI will integrate the developing CRON testbed with other testbeds around the country, moving toward a more integrated, worldwide environment to aid research for future Internet activity. Through GENI, networks will connect and share applications more efficiently, making it easier for researchers working through different networks to adapt this technology to suit their specific needs without disrupting other users.

"Through this research, we are improving on existing high-speed networking technology to create a collaborative and exploratory virtual laboratory that allows academia, industry and the public to work more effectively toward groundbreaking discoveries and innovation," Park said. "We hope the applications we develop will provide a prototype for what next-generation Internet and networking capabilities should be."

The CRON project began in August 2008, and the GENI project begins Oct. 1. The National Science Foundation has funded CRON and GENI for three years.

For more information on the projects, please visit lanet.cct.lsu.edu.

Pats on the Back:

- Xiaoliang Wan, Ph.D., has received an award from the Department of Energy titled "Stochastic Nonlinear data-reduction Methods with Detection & Prediction of Critical Rare Event." The award is in the amount of $125,137 for three years.

CCT in the News:

- Q & A – Smart Data Handling: An Interview with Tevfik Kosar
  Source: International Science Grid This Week
  http://www.isgtw.org/?pid=1002064

- Professor Receives $1M in NSF Funding to Develop a High-Speed Networking Testbed
  Source: HPC Wire
  http://www.hpcwire.com/industry/academia/Professor-Receives-1M-in-NSF-Funding-to-Develop-a-High-Speed-Networking-Testbed-63114447.html

- LSU Grant to Ease Computer Network Bottlenecks
  Source: The Advocate
  http://www.2theadvocate.com/news/63296717.html

Lectures This Week:

- The Electrical and Computer Engineering Research Seminar Series Presents "The Local View in Networks" by Ashu Sabharwal, Ph.D., Assistant Professor and Director of Center for Multimedia Communication, Rice University. The lecture will take place Wednesday, Oct. 7 from 10-11 a.m. in 117 Electrical Engineering Building.

- The Department of Physics & Astronomy will host a Quantum Krispy Kreme Seminar about Entropy Exchange in Laser Cooling Friday, Oct. 9, with Hal Metcalf. The seminar will take place in Nicholson 435 at 4 p.m. Coffee and donuts will be provided. For more information, please visit: http://ws.cc.sunysb.edu/metcalf

- Xin Li, Assistant Professor at CCT and Electrical and Computer Engineering, will be organizing this year's CCT Colloquium Series. He is working hard to put together an interesting program for the coming year and would appreciate any input or suggestions. Feel free to contact Xin at xinli@cct.lsu.edu.

Please Note:

- Future ALL CCT meetings for the Fall 2009 semester will take place Oct. 21, Nov. 11 and Dec. 16. All meetings are at 3 p.m. in Johnston 338 unless otherwise announced. Please make every effort to attend these important meetings.

- CCT Events Coordinator Jennifer Claudet is placing an order for CCT shirts. If you are interested, please stop by her office, Room 140 in the CCT Annex, to look at the catalogs and place your order. Payments must be made in advance! The deadline to place orders for CCT shirts is this Friday, Oct. 9.

- Undergraduate students from community and technical colleges and universities in Texas, Oklahoma and Louisiana are invited to register to participate in the Association for Computing Machinery, or ACM, South Central Regional Collegiate Programming Contest, which will take place Nov. 6 and 7, 2009. The regional contest is part of annual events leading up to the ACM International Collegiate Programming Contest World Finals. Students from universities around the world compete regionally in teams of three undergraduate students and one professor, who acts as the coach. The top regional teams worldwide earn an invitation to compete at the World Finals, which will take place in spring 2010. LSU hosts the South Central Regional Contest, which will take place Saturday, Nov. 7, with an introductory scripting contest on Friday, Nov. 6. The professor acting as coach must register each team by Saturday, Oct. 31 to compete in the regional competition. Teams pay a registration fee of $175, or an early bird fee of $125 if they register by Monday, Oct. 12. To register, visit: http://icpc.baylor.edu .

- CCT faculty, staff and students can access pictures from events, conferences and activities from the online photo gallery at http://www.cct.lsu.edu/site97.php. These images are CCT property and are available to use for posters, presentations and other needs.

- Registration is now open for the Supercomputing 2009 Education Program at the conference in Portland, which will take place Nov. 14-17. The Education Program helps educators and students learn more about computational science topics and gives educators ideas to bring these topics into their classrooms. The program is open to undergraduate faculty, undergraduate and graduate students, and high school teachers. To register or for more information, please visit http://computationalscience.org/sc09.

- Please remember to send your news concerning grants, awards, conferences, or other pertinent information that should be communicated to CCT to PR Manager Kristen Sunde at ksunde@cct.lsu.edu.

Upcoming Grant Deadlines:

Note: Please see the CCT deadline Web site, as many NSF deadlines are listed here: http://www.cct.lsu.edu/about/grants/deadlines/events.php

- CreativeIT
  October 13 2009 10:00 a.m.
  A portion Of $7,000,000.00 available
  http://www.nsf.gov/pubs/2009/nsf09572/nsf09572.htm?govDel=USNSF_25

- EPSCoR Research Infrastructure Improvement Program: Track-1 (RII Track-1)
  October 19 2009 10:00 am
  At Most $ 4,000,000.00 available
  http://www.nsf.gov/pubs/2009/nsf09570/nsf09570.htm?govDel=USNSF_25

- EPSCoR Research Infrastructure Improvement Program: Track-2 (RII Track-2)
  November 18 2009 10:00 am
  At Most $ 2,000,000.00 available
  http://www.nsf.gov/pubs/2009/nsf09571/nsf09571.htm?govDel=USNSF_25