



Computer Science Newsletter

*Newsletter of the Department of Computer Science, Louisiana State University (Baton Rouge)
Spring, 2003*

Chairman's Note

The purpose of this newsletter is to convey to our colleagues in academia and industry the highlights of our success during the spring and summer of 2003. This has been an exciting year in terms of research funding, publications and meaningful program review by distinguished computer scientists from good universities. The department has made some important strides during the 02/03 academic year. Our focus on hiring has been to enlarge our research impact areas that are important to the future success of high visibility across the country. Furthermore, our new faculty will also be able to teach important courses in networking, cyber security, etc. which are the need of this important hour. These new faculty hires will strengthen the themes of our research in the department.

The department underwent a meaningful program review during the spring 2003. The outside reviewers spoke well of the department and indicated that it has the potential to become a very strong unit. Noted strengths in the department are the number of ACM Fellows, IEEE Fellows, Editorial members, research publications, and the interaction of the department in interdisciplinary activities both within the College and across the university.

Finally, the department has made significant strides in research funding with three new sizeable research grants to the tune of 2.5 million dollars. These awards (starting from September 1, 2003) are from the highly competitive Sensor Networking and Information Technology Research (ITR)

program areas of the National Science Foundation. These awards will enhance the departments competitiveness and visibility in the critical research areas of sensor networks and cybersecurity. Future plans include integration of the departments activities and goals with those of LSU CAPITAL where appropriate. These developments reinforce the departments policy of hiring exceptional faculty. Thanks for taking the time to read this newsletter.

S. S. Iyengar

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Welcome!

Two new interdisciplinary faculty members, **Dr. Edward Seidel** and **Dr. Gabrielle Allen** will be joining the department in the Fall semester. **Mrs. Coretta Douglas** will be our new undergraduate coordinator.



Dr. Edward Seidel will be joining the department as a Professor from the Max-Planck-Institut für Gravitationsphysik where he was head of the numerical relativity group.

He obtained his Ph. D in astrophysics from Yale University in 1988. He was previously a Senior Research Scientist at the National Center for Supercomputing Applications from 1994-1996 and an Associate Professor at the University of Illinois in 1996. He will be holding a simultaneous appointment as director of the LSU CAPITAL program. His research interests are in Computational Science and Physics, Astrophysics and Grid Computing.



Dr. Gabrielle Allen will be joining us as an Associate Professor from the Max-Planck-Institut für Gravitationsphysik where she was part of Ed Seidel's group.

She obtained her Ph. D in astrophysics from England in 1988 and holds a joint appointment with LSU CAPITAL. Her research interests are in Computational Science, Astrophysics and Grid Computing.



Mrs. Coretta Douglas will be the departments new undergraduate coordinator. She will coordinate all the undergraduate related activities, schedule and assign courses

and work closely with faculty to facilitate the approval of new courses. Kudos to her for facilitating the quick approval of three new courses on Computer Networks (See the section on Events for details).

Congratulations!

Several award announcements were received recently from the National Science Foundation. They are:

NSF Grant! Professors **Raj Kannan** and **S. S.Iyengar** have obtained funding from the highly competitive National Science Foundation-Information Technology Research program (small ITR) for their work on data security in sensor networks. The award is for three years and \$400,000 starting September 1, 2003.

NSF Grant! Professors Kannan and Iyengar have obtained funding on a second NSF grant from the National Science Foundation in the highly competitive special program on Sensors and Sensor Technologies. Their work will include research on developing survivable sensor networks. These two grants on Sensor Networks will lay the foundation for exciting research at the LSU Computer Science department in the emerging and critically important field of sensor networks. The award is for three years and \$200,000 starting September 1, 2003.

NSF Grant! Professors **Peter Chen** and **Jianhua Chen** have received a grant from the NSF for research on Cybersecurity. The award also includes four other investigators from other departments at LSU. The award is for five years and \$1.8 million starting September 1, 2003.

Ph.D. Degrees!

Qishi Wu, "Control of Transport Dynamics in Overlay Networks", Major Professor: Dr. S.S.Iyengar, Chairman and Roy Paul Daniels Professor. Qishi is presently working at Oak Ridge National laboratory.

John Terry Sample, "Computer Assisted Screening of Digital Mammogram Images", Major Professor: Dr. John M. Tyler.

M.S. Degrees! The following students have successfully defended their projects for their M.S. degrees:

Kerey Lamar Carter, Srinivas Chakravarthula, Nitin Kashyap, Hua Cao Looney, Ravic P. Nijbroek, Sudhir Sambrani, Srinivas Thouta, Sreerama Murthy Venkata Vuppala, Yu Wang, Wende Wu, Samhitha Wukkalam, Bin Zhang, Chaitanya Addanki, Sridhar Karra, Yifan Qiu,

Yasaswi K. Rachakonda, Krishna M. Varipilli, Xijiang Wang.

B.S. Degrees!

The following list of students received Bachelors of Science degrees at the May 22, 2003 convocation. Dr. Karki attended as faculty representative.

Anderson gene Barber, La Toya Letrice Bosley, Craig Michael Ceccanti (Information Systems & Decision Sciences), Angela Shay Davis, Tonya Denise Davis, Robert Bryan Fowler, Hung Anh Hoang, Rashina Hoda (Honors), Matthew Thomas Jackson (Honors), Jeff Lynn Janies (Honors), Andria Quinn Jensen (Honors), Jeffrey Paul Launey, David Christian Laursen, Ronald J. LeCompte, Sean Patrick McCann, Paul Antoine Miller (Honors), Nicholas Domingo Muguira, Michael Paul Naquin, Kathy Bich-Thao Nguyen, Quyen Thi Thuc Nguyen, Robert Earle Perkins, Guy Pyrzak, John W. Tesch III (Electrical Engineering), Martin Steven Warioba, Matthew Douglas Weitz, Billy Gerald Yeung-Vee-Kao, Wei Zhao (Mathematics) (Honors).

The following list of students received Bachelors of Science degrees in Summer 2003: Trinity Thi Dao, Brian Elliott Davis, Brian Jay King, Kanwalbir Singh Sekhon, Ting Wang, Tingting Wang.

Recognition at the Honors Convocation!

The *2003 Outstanding Scholars* from the Department of Computer Science are: Usamah Ahmed, Brenna Eileen Bennet, Michael Davis brassette, Ashley Ann Cantrelle, Yi J.Cheng, To-Trinh Thi Dao, Brad thomas davis, Dee Chantel Davis, Anthony Paul Elias, Farid Harhad, Ronald Vincent Hidalgo, Rashina Hoda, Matthew Thomas Jackson, Jeff Lynn Janies, Andria Quinn Jensen, Syed Muasir Khalil, Michael Austin Langford, Lance Anthony Lohman, Anuradha Maha, Adam Wright Meyer, Nikolaos Michailidis, Paul Antoine Miller, Michael Paul Naquin, Shovon Nazmus, Quyen Thithuc Nguyen, Brandon Joseph Oncale, Tram Bich Pham,

Prakhar Srivastava, Ankit Tandon, Duy Anh Huynh Truong, Ting Wang, Martin Steven Warioba, Sanghee Jeong Yi, Wei Zhao.

In addition to these awards, the Department of Computer Science was pleased to recognize the following four students by awarding them a \$100.00 cash and a certificate of distinction during the 2003 Honors Convocation program held on March 17, 2003: **Farid Harhad, Ankit Tandon, Ting Wang, Ronald Hidalgo.**

Events

New Courses! Three new courses on Computer and Sensor Networks proposed by Dr. Kannan have been approved by the University. The courses are CSC 4501: Computer networks, CSC 7501: Advanced Computer Networks and CSC 7601: Design-Issues in High-Speed networks.

The Computer Science department formed a new undergraduate curriculum committee to revamp the course curriculum. After several intensive meetings, the committee (consisting of **Don Kraft** (Chair), **Coretta Douglas, Raj Kannan, Kathy Traxler** and **Jonathan Hefner**) revised the departments undergraduate curriculum to a format suitable for ABET accreditation. Congratulations to the committee members for their dedication and hard work in this daunting task.

A new committee has been formed to similarly revamp the graduate curriculum. The committee consists of **Doris Carver** (Chair), **Don Kraft, Raj Kannan, Arjan Durrezi** and **S. Kundu**. The committee will meet several times in the fall semester to discuss actions to be taken on enhancing the graduate curriculum.

Research Publications

Sheena R. Judson, Doris Carver, and Robert France, "Model Transformation at the Metamodel

Level”, Workshop in Software Model Engineering, UML Conference 2003, San Francisco, CA.

Kraft, D.H., Some Artificial Intelligence Approaches to Textual Information Retrieval, in Kacprzyk, J., Krawczak, M., and Zadrozny, S. (eds.), Issues in Information Technology, Warsaw, Poland: Akademicka Oficyna Wydawnicza, 2002.

Kraft, D.H., Martin-Bautista, Chen, J., and Sanchez, D., ”Rules and Fuzzy Rules in Text: Concept, Extraction and Usage, submitted to Special Issue on Soft Computing Applications to Intelligent Information Retrieval on the Internet, International Journal of Approximate Reasoning, 2003.

Kraft, D.H., Applications of Artificial Intelligence Techniques to Modern Information Retrieval, invited plenary presentation, Information and Knowledge Engineering, International Multi-conference in Computer Science and Computer Engineering 03, Las Vegas, Nevada, June 2003 Kraft, D.H., What is the Difference Between Information Science and Computer Science?, panelist, Consortium of Computing Sciences in Colleges, First CCSC Mid South Conference, Proceedings, v. 18, n. 6, Memphis, TN, March 2003.

S.S. Iyengar, Qishi Wu, Nageswara S.V. Rao, Networking Paradigm for Distributed Sensor Networks, Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS 2003), Lviv, Ukraine, 8-10 September, 2003.

B. Krishnamachari, S.S. Iyengar, Distributed Bayesian Algorithms for Fault-Tolerant Event Region Detection in Wireless Sensor Networks, IEEE Transactions on Computers, (2003, In Press).

Qishi Wu, Nageswara S.V. Rao, S.S. Iyengar, Statistical Effects of Control Parameters on Throughput of Window-Based Transport Method, IEEE International Conference on Computer Communications and Networks, October 2003, Dallas, Texas.

S.S. Iyengar and R.R. Brooks, Forthcoming handbook on Frontiers in Distributed Sensor Networks, CRC Press, Inc. Boca Raton, FL, 2003.

R. Kannan, and S. Ray, ”An Optical Switching Architecture for Hierarchical Group Communication ,” *The Journal of Systems Architecture*, July 2003.

R. Kannan, S. Sarangi, S. Ray and S. S. Iyengar, ” Minimal Sensor Integrity: Measuring the Vulnerability of Sensor grids ,” *Information Processing Letters*, Vol. 86, No. 1, pp. 49-55, 15 April 2003.

R. Kannan, S. Sarangi, S. S. Iyengar and L. Ray, ” Sensor-Centric Quality of Routing in Sensor Networks ,” IEEE INFOCOM 2003, San Francisco, CA April 2003.

R. Kannan, and Brian Bourgeois (Naval Research Laboratory), ” Efficient Protocols for Integrated Communication and Formation Control in UUV Task Forces ,” 13th International Symposium on Unmanned Untethered Submersible Technology (UUST), New Hampshire, August, 2003.

R. Kalidindi, L. Ray, R. Kannan, and S. S. Iyengar, ” Distributed Energy-Aware MAC Protocol for Wireless Sensor Networks,” in International Conference on Wireless Networks , Las Vegas, Nevada, June 2003. also as Technical Report LSU-CSC-TR03-03

Professional Activities

Don Kraft served as part of the external advisory board to evaluate the accredited baccalaureate degree program in computer science for the University of Southern Mississippi, Hattiesburg, MS.

S. S. Iyengar gave an Invited Talk on IT in Global Education,” at the conference on improving the Quality of Education to meet Global Challenges and opportunities, May 30-31, 2003, Bangalore, India.

S. S. Iyengar gave an Invited Talk on Computational Aspects of DSN,” at the Indian Statistical Institute, July 10-11 2003, Kolkata, India.

Grants and Contracts

S. S. Iyengar and Don Kraft, ”Recruitment of Superior Students to the Doctoral Program in Computer Science at LSU,” Louisiana State Board of Regents LEQSF - superior graduate students grant, \$72,000, Fall 2002 - Summer 2006.

Rajgopal Kannan and S. S. Iyengar, "ITR: Secure Data Distribution and Access in Large Sensor Networks," National Science Foundation, small ITR, NSF-ITR, \$400,000, 09/01/03-08/31/06.

Rajgopal Kannan and S. S. Iyengar, "Sensors: Survivable Sensor Networks," National Science Foundation, \$200,000, 09/01/03-08/31/06.

P. Chen, J. Chen, A. Ding, B. Marx and C. Fernandez, "Research on the Profiling Problem in Cybersecurity and Anti-Terrorism" National Science Foundation, medium ITR, NSF-ITR, \$1.8 million, 09/01/03-08/31/08.

S. S. Iyengar et al., Workshop on Wireless Networks Evolution and Trends and Next Generation Optical Networks, funded by ONR, \$5,000, (Award # N000140310204) at HPC Asia 2002, Bangalore, December 16-19, 2002.

S. S. Iyengar and R. Purohit (CDAC), American Scientists to participate in 6th International Conference on High Performance Computing in the Asia Pacific Region at Bangalore, Dec 16-19, 2002, \$16,000 (approx) for 8 scientists, Indo-US Conference on HIPC.

Upcoming Seminars

We anticipate the following outstanding speakers presenting in our seminar series in the Fall semester.

Prof. Tom. Kailath from Stanford University will be giving a talk on October 10 as part of the Chancellors Distinguished Lecture series. Dr. Richard

Brooks from Penn State University will be giving a talk on Sensor Networks.

Dr. Ed Seidel, LSU CAPITAL director will be giving a talk on September 10, 2003 on Research and Educational opportunities.

Further Information

The Computer Science Newsletter serves as a guide to activities in the department and other functions on and off campus. The Computer Science Newsletter is published by the Department of

Computer Science, Louisiana State University (Baton Rouge).

Items to be included in the newsletter should be submitted to Rajgopal Kannan in 279 Coates (rkannan@bit.csc.lsu.edu).

Previous issues of the newsletter can be found on the departmental home page at

<http://www.csc.lsu.edu/newsletter/>