pointers

DEPARTMENT OF COMPUTER SCIENCE
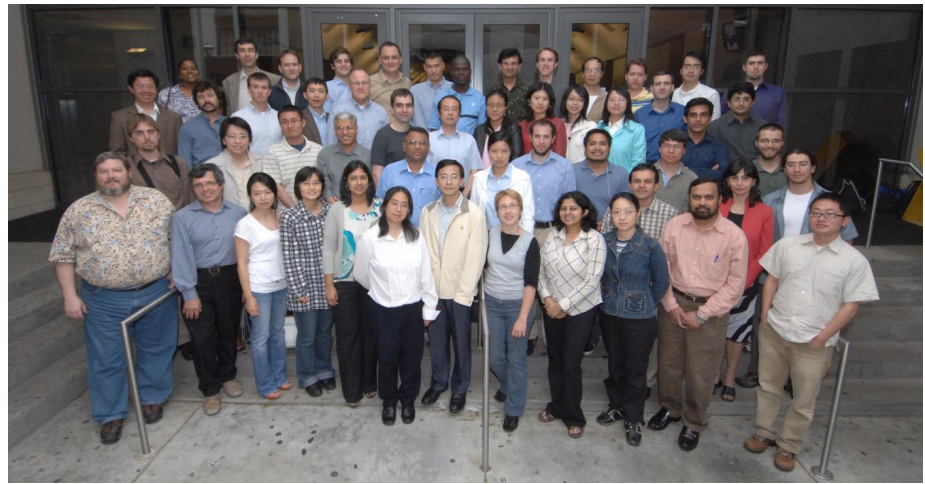**GEORGIA STATE UNIVERSITY**

MESSAGE FROM THE CHAIR

Dr. Yi Pan

For the second year in a row, the Department of Computer Science organized and hosted the International Symposium on Bioinformatics Research and Applications. Hosting an international event of this magnitude was a great honor for our department and for Georgia State University. We hope to see you at ISBRA 2009, which will be held in Fort Lauderdale.

Other highlights of our Spring Semester include the reelection of Dr. Scott Owen as president of ACM SIGGRAPH and the publication of several significant books by department faculty members. We are proud of the high-quality work being done by our distinguished faculty.

DEPARTMENT HOSTS INTERNATIONAL BIOINFORMATICS SYMPOSIUM

In May, the Department of Computer Science hosted the Fourth International Symposium on Bioinformatics Research and Applications (ISBRA 2008), drawing researchers, developers, and practitioners working on all aspects of bioinformatics and computational biology and their applications. Attendees came from 11 countries and 20 U.S. states.

The symposium featured 35 papers (selected by the program committee from 94 submissions) and 24 posters. Six distinguished scientists were invited to give keynote addresses: Dr. Andrew Scott Allen (Duke University), Dr. Kenneth Buetow (National Cancer Institute), Dr. Andrey Gorin (Oak Ridge National Laboratory), Dr. Yury Khudyakov (Centers for Disease Control and Prevention), Dr. Dan Nicolae (University of Chicago), and Dr. Kwok Tsui (Georgia Tech). Tutorials were presented by Dr. Giri Narasimhan (Florida International University) and Dr. Sanguthevar Rajasekaran (University of Connecticut).

Some of the participants at ISBRA 2008, which was held in the Aderhold Learning Center on campus

The proceedings of ISBRA 2008 were published as volume 4983 of the Springer *Lecture Notes in Bioinformatics* series, and it is anticipated that a special issue of a major bioinformatics journal will be devoted to expanded versions of the best symposium papers.

The following awards were presented at the conference banquet:

- *Best Paper:* Qian Zhu, Zaky Adam, and David Sankoff (University of Ottawa) and Vicky Choi (Virginia Tech), "Generalized Gene Adjacencies, Graph Bandwidth and Clusters in Yeast Evolution"

- *Best Poster:* Justin Kennedy, Ion Mandoiu, and Bogdan Pasaniuc (University of Connecticut), "Genotype Error Detection and Imputation using Hidden Markov Models of Haplotype Diversity"

The general chairs of ISBRA 2008 were Dr. Dan Gusfield (University of California, Davis) and Dr. Yi Pan. The program chairs were Dr. Ion Mandoiu (University of Connecticut), Dr. Raj Sunderraman, and Dr. Alex Zelikovsky. Dr. Robert Harrison and Dr. Yan-Qing Zhang were the organizing chairs, Dr. Anu Bourgeois was the finance chair, and Dr. Dumitru Brinza (University of California, San Diego) and Dr. Yingshu Li were publicity chairs. Ph.D. students Gulsah Altun and Stefan Gremalschi served as poster chairs.

ISBRA 2008 was sponsored by the Department of Computer Science, the Biomedical Computational Center, and the Molecular Basis of Disease Program.
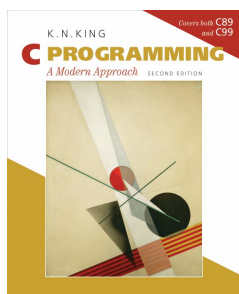
CONTENTS

OWEN REELECTED SIGGRAPH PRESIDENT

Dr. G. Scott Owen was recently reelected to a second three-year term as president of ACM SIGGRAPH. His second term began on July 1, 2008, and will end on June 30, 2011. SIGGRAPH (Special Interest Group on Computer Graphics), which has over 8,000 members, is the world's leading organization for researchers, artists, developers, filmmakers, scientists, and other professionals who share an interest in computer graphics and interactive techniques. It is best known for the annual SIGGRAPH conference, which last year was attended by over 24,000 people. SIGGRAPH's parent organization is the Association for Computing Machinery, the world's first and largest computing society.

KING UPDATES C PROGRAMMING BOOK

The second edition of *C Programming: A Modern Approach,* written by Dr. K. N. King, was published in April. The first edition, which appeared in 1996, was used at over 225 colleges, making it one of the leading C textbooks of the last ten years. The new edition features complete coverage of both the C89 standard and the C99 standard, with a quick reference to all C89 and C99 library functions provided as an appendix. Other highlights include expanded coverage of GCC, new coverage of abstract data types, and expanded coverage of international features. The new edition provides 60% more exercises and programming projects, with solutions to one-third available at the book's web site. Instructors have access to a password-protected instructor resource site containing solutions to the remaining exercises and projects as well as PowerPoint presentations for most chapters.
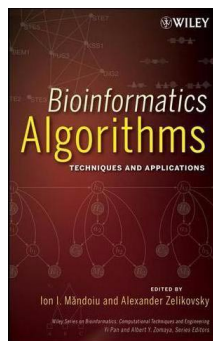
Published by W. W. Norton, *C Programming: A Modern Approach* (ISBN: 978-0-393-97950-3) is an 832-page paperback book. Dr. King is also the author of *Java Programming: From the Beginning* and *Modula-2: A Complete Guide.*
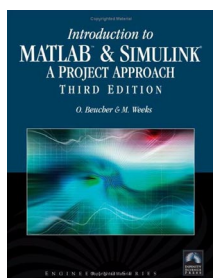
ZELIKOVSKY IS CO-EDITOR OF BIOINFORMATICS BOOK

Dr. Alex Zelikovsky is a co-editor of the recently published book *Bioinformatics Algorithms: Techniques and Applications* (ISBN 978-0-470-09773-1), along with Dr. Ion Mandoiu of the University of Connecticut. The book, which is part of the Wiley Series in Bioinformatics, introduces algorithmic techniques in bioinformatics, emphasizing their application to solving novel problems in post-genomic molecular biology. Topics include general algorithmic techniques, genome and sequence analysis, microarray design and data analysis, analysis of genetic variation across human population, and structural and systems biology. Published by John Wiley & Sons, *Bioinformatics Algorithms: Techniques and Applications* is a 500-page hardcover book. The list price is $125; Amazon.com sells the book for $100.

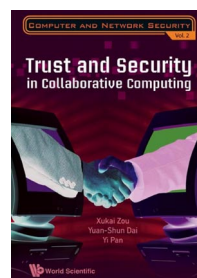## WEEKS CO-AUTHORS BOOK ON MATLAB AND SIMULINK

Dr. Michael Weeks is the co-author of the recently published book *Introduction to MATLAB & Simulink: A Project Approach,* Third Edition (ISBN 978-1-934015-04-9). The book covers both MATLAB (a numerical computing environment and programming language) and Simulink (a tool for modeling, simulating, and analyzing multidomain dynamic systems). It includes 20 projects and over 80 exercises, and comes with a CD-ROM containing MATLAB examples, source code, third-party simulations, and projects. The book, which is 386 pages long, is available from Amazon.com for $47.

Dr. Weeks is also the author of *Digital Signal Processing Using MATLAB and Wavelets,* which appeared in 2006. Both books are published by Infinity Science Press.

PAN BOOK IS BEST-SELLER

A book co-authored by Dr. Yi Pan was on the March Bestsellers list at the World Scientific Publishing Company web site. The book, *Trust and Security in Collaborative Computing,* discusses the latest efforts to develop a trusted environment with the high security and reliability needed for collaborative computing. Topics covered in the book include secure group communication, access control, dependability, grid computing, key management, intrusion detection, and trace back. The book also describes a project for developing a nationwide medical information system with high dependability and security.

Trust and Security in Collaborative Computing (ISBN: 978-981-270-368-2) is a 248-page hardcover book aimed at graduate students, academics, and researchers. The book, which is co-authored by Xukai Zou (Indiana University-Purdue University Indianapolis) and Yuan-Shun Dai (University of Tennessee), was published earlier this year. Copies are available at Amazon.com.

Dr. Pan is the author or editor of 34 books, including four published in 2008 and four in 2007.

INTERNAL GRANTS AWARDED TO COMPUTER SCIENCE FACULTY

Three Computer Science faculty members were among 52 Georgia State professors who recently won internal grants from the university. The awards were competitive, with applications reviewed by an Internal Grant Peer Review Committee consisting of 24 senior faculty members. Two CS faculty members received Research Initiation Grants, which promote the scholarly and artistic activity of the faculty and foster academic excellence within the university:

- Dr. Raheem Beyah, "A Passive Network-Based Approach to Node Resource Utilization Discovery"
- Dr. Xiaojun (Matt) Cao, "Optimizing Resource Utilization in Wireless Optical Mesh Networks"

Another faculty member was a co-recipient of a Research Team Award, which provides funding for an interdisciplinary research team to prepare a competitive proposal for external research funding:

- Dr. Hassan Babaie (Geosciences) and Dr. Raj Sunderraman, "Designing Process Ontologies for Natural, Experimental, and Simulated Rock"

RECENT PH.D. GRADUATES

Gulsah Altun. *Dissertation:* Machine Learning and Graph Theory Approaches for Classification and Prediction of Protein Structure. *Advisor:* Dr. Robert Harrison. *Co-advisor:* Dr. Yi Pan. *Current position:* Postdoctoral fellow, The Scripps Research Institute. (May 2008)

Eunjung Cho. *Dissertation:* Efficient Molecular Dynamics Simulation on Reconfigurable Models with MultiGrid Method. *Advisor:* Dr. Anu Bourgeois. (May 2008)

BELKASIM AWARDED RPG GRANT

Dr. Saeid Belkasim has been awarded an internal grant for $25,000 from Georgia State's Retention, Progression, and Graduation (RPG) program. The RPG program is funded by the University System of Georgia as part of an effort to improve rates of undergraduate student retention, progression toward a degree, and graduation.

For the past three years, the Provost's office has solicited faculty proposals for innovative projects that will raise RPG rates. Each year, approximately a dozen departments receive funding. Dr. Belkasim's RPG proposal is the first from the Department of Computer Science to be funded. Proposals were evaluated by a committee of faculty members serving in the University Senate, with the final decision made by the Provost.

Dr. Belkasim's proposal was titled "Match Our Needs At Learning Interactively: Stepwise Approach (MONALISA)." The project, which will be done in collaboration with Dr. Raj Sunderraman, involves implementing an interactive online educational system for the department's CSc 1010 and 2010 courses. This system will match student needs with a dynamically expanding resource library, using an interactive expert-system database that compares a student's background with the level of a posed question before providing an answer. The system can also be used as a student advisement tool by creating a study plan that helps students gradually improve their level of knowledge.

WEEKS VISITS CÔTE D'IVOIRE

In January, Dr. Michael Weeks was one of five GSU representatives to visit the International University of Grand-Bassam (IUGB) in the West African nation of Côte d'Ivoire (Ivory Coast). IUGB is located on the island of Grand-Bassam, a short drive from the country's largest city, Abidjan.

IUGB is currently setting up a four-year American-style educational program, with content delivery in English. (French is the official language of Côte d'Ivoire.) GSU and IUGB established an official partnership last year and plan to set up a student exchange in the near future. Currently, students from IUGB transfer to GSU for their final two years of study. Some IUGB students are already enrolled at GSU, with thirteen more arriving this fall.

The trip was organized by the Office of International Affairs under the leadership of John Hicks.

FACULTY NEWS

Dr. Raheem Beyah has joined the editorial board of *Wireless Communications and Mobile Computing,* a journal published by John Wiley & Sons. *Wireless Communications and Mobile Computing* is aimed at academics and researchers in the telecommunications and networking industries. The journal publishes papers related to the convergence of wireless communications and mobile computing, two areas of immense growth and innovation.

Dr. Raheem Beyah was awarded a grant for $11,500 through a subcontract with the Georgia Institute of Technology. Funding for the grant comes from Cisco's Service Provider Video Technology Group (formerly Scientific Atlanta). The grant will be used to study error characteristics of video streams over different MAC and physical layers.

Dr. Raheem Beyah gave a talk at the University of Central Florida on March 20 as part of the Distinguished EECS Seminar Series. The talk, which was sponsored by UCF's School of Electrical Engineering and Computer Science, was titled "Authentic Delay Bounded Event Detection in Heterogeneous Wireless Sensor Networks."

Dr. Xiaolin Hu was featured in the Winter 2007 issue of *Georgia State Magazine.* An article on page 13, titled "Sound the Alarm: Fighting Wildfires with Keystrokes," discussed software named DEVS-FIRE that Dr. Hu is helping to develop. According to the article, DEVS-FIRE will allow firefighters "to compute the optimal use of manpower, equipment, and funds for suppressing a wildfire." The project was inspired by a 2003 wildfire that Dr. Hu witnessed as a graduate student at the University of Arizona. The National Science Foundation provided a $120,000 grant to fund the project. Dr. Hu is the principal investigator for the grant; the work is being done in collaboration with Lewis Ntaimo of Texas A&M and James Nutaro of Oak Ridge National Laboratory.

Dr. G. Scott Owen was nominated for a two-year position as a SIG Governing Board Council Representative to the ACM Council. The ACM Council is the volunteer governing body for ACM (Association for Computing Machinery), the leading organization for computing professionals.

An interview with **Dr. Yi Pan** was published in Volume 9, Issue 11 of *Ubiquity,* a web-based ACM publication. The editor's introduction to the interview notes that "*Ubiquity* is proud to publish the inspirational remarks of Yi Pan ... Besides talking about computing, he talks about what it takes to have a happy, productive, worthwhile and successful life."

Dr. Yi Pan delivered the keynote talk at the 9th IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing (PDSEC-08), which was held in Miami on April 18. The title of his talk was "Scientific Computing on Public Computing Platforms – Practices and Experiences." The purpose of the workshop was to bring together computer scientists, applied mathematicians, and other researchers to discuss using parallel and distributed computing to solve problems in science and engineering. PDSEC-08 was held in conjunction with the 22nd IEEE International Parallel and Distributed Processing Symposium (IPDPS 2008).

Dr. Sushil Prasad gave an invited talk at the 9th International Conference on Distributed Computing and Networking (ICDCN 2008), held in Kolkata, India, on January 5–8. The conference, which is organized by Department of Computer Science and Engineering at Jadavpur University, is a leading forum for disseminating the latest research results in distributed computing and networks. Dr. Prasad is the chair of the IEEE Computer Society Technical Committee on Parallel Processing.

Dr. Sushil Prasad presented the keynote address at the First International Workshop on Mobile and Ubiquitous Context Aware Systems and Applications (MUBICA 2007). The title of the address was "SyD: A Middleware for Collaborative Applications over Heterogeneous Mobile Devices and for Distributed Scientific Workflows over Web Services." MUBICA 2007 was held on August 6, 2007 in Philadelphia in conjunction with the 4th Annual International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MOBIQUITOUS 2007). The MUBICA workshop focused on the continuous connectivity of devices used by today's geographically mobile workforce.

RECENT DEPARTMENTAL COLLOQUIA

January 17. "Finding the Right Genes," *Dr. Lawrence O. Hall,* University of South Florida (Molecular Basis of Disease Distinguished Lecture Series)

February 28. "Mathematical and Computational Aspects of 'Sequencing' Proteins by Mass-Spectrometry," *Dr. Andrey Gorin,* Oak Ridge National Laboratory

March 14. "Machine Learning for Autonomic Management in Networked Computing Systems," *Dr. Cheng-Zhong Xu,* Wayne State University

May 13. "Access Control Polynomial-based Security Support for Trusted Collaborative Computing (TCC)," *Dr. Xukai Zou,* Indiana University-Purdue University Indianapolis

AI AWARDED SUPPORT TO ATTEND ICDCS

Ph.D. student Chunyu Ai was awarded a travel grant to attend the 28th International Conference on Distributed Computing Systems (ICDCS 2008). At the conference, she presented the paper "Data Estimation in Sensor Networks Using Physical and Statistical Methodologies," which was co-authored with Dr. Yingshu Li (her Ph.D. advisor), Wiwek Deshmukh, and Yiwei Wu. Of the 638 papers submitted to the conference, only 102 were accepted (an acceptance rate of less than 16%).

Ms. Ai was also awarded an N^2 Women Student Fellowship, which partially covers a student's travel cost to a meeting where an N^2 Women event will be held. In exchange, the student must help organize the N^2 Women meeting.

Networking Networking Women (N^2 Women) is an organization for women who work as researchers in the fields of communications and computer networking. Ms. Ai is one of only seven students to win the N^2 Women Student Fellowship this year.

ICDCS 2008, which was sponsored by the IEEE Computer Society, was held in Beijing on June 17–20.

VISWANATH WINS AWARDS

Ph.D. student Navin Viswanath recently won awards from two conferences. His paper on "Handling Disjunctions in Open World Relational Databases" was named one of the six best student papers at the Annual Conference of the North American Fuzzy Information Processing Society (NAFIPS 2008), winning a cash prize of $100. The paper, which was co-authored by his Ph.D. advisor, Dr. Raj Sunderraman, was presented at a special session. The conference was held in New York City on May 19–22.

Mr. Viswanath also won a grant from the European Society for Fuzzy Logic and Technology (EUSFLAT) for "Defaults in Open World Relational Databases," a paper that was also co-authored by Dr. Sunderraman. The paper was presented at the 12th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU 2008), held in Malaga, Spain on June 22–27. The grant was for 250 euros, the amount of the conference registration fee. Grants were awarded to five student members of EUSFLAT who co-authored a paper accepted by the conference.

STUDENTS RECEIVE AWARDS AT HONORS DAY

The following computer science students were presented with departmental awards at the annual Arts and Sciences Honors Day ceremony:

Outstanding Senior Award
Carson Herrick
Ya-Yun Chang

Outstanding Graduate Research Award
Akshaye Dhawan
Yiwei Wu

Outstanding Teaching by a Graduate Student Award
Evelyn Brannock

The ceremony was held on April 14 at Georgia State's Rialto Center for the Arts.

Have something to say?

Mail suggestions and alumni news to *webmaster@cs.gsu.edu*.