Jan 1, 2004 - Dec 31, 2004

COMPUTER AND INFORMATION SCIENCES

Hossein Hakimzadeh, Chair

The computer science faculty remain active in their research, teaching and service to our university. We continue to refine our graduate and undergraduate programs in Computer Science and Informatics. Our joint graduate program in Applied Mathematics and Computer Science, which began accepting students in 2002, graduated its first student in 2004. Several other students who entered the program in 2002 are expected to graduate shortly. At present, 45 students are pursuing their graduate degree in this program. Our bachelor of science in Computer Science continues to graduate approximately 15 students per year. The majority of these graduates continue to live and work in the area and contribute to our community.

The department completed the renovation of the new informatics laboratory and faculty offices. Currently there are about 20 students in the informatics B.S. degree program. Plans are already underway to hire three new informatics faculty to help develop this program.

Recently, the department has made a deliberate push to increase its grant writing activity. Hence, 2004 marks a record year in faculty involvement in writing grant proposals and obtaining funding. Nearly every member of the department has been engaged in developing and submitting internal and external grants. Drs. Batzinger, Hakimzadeh, Knight, Scheessele, Schwartz, Wolfer, and Vrajitoru were all involved in grant writing activities. Dr. Surma was also engaged in research activity funded by NSF since 2003.

The department continues to be active in its outreach mission. Examples of such activity include faculty and student volunteering efforts to provide expertise to our local and regional non-profit organizations; increased interaction with local and regional educational institutions; internships and professional practice; increased course offerings for non-majors and community members; increased departmental sponsorship of public presentations; development of stronger relationships with our alumni; and the creation of endowments and scholarships in computer science.

SCHOLARSHIP

Single-author or joint-author books or monographs written by you and published by an academic or commercial press

Books, collections, and monographs edited by you

Print or electronic refereed journal articles, book chapters, and creative works published

Dengfeng Gao, Jose Alvin G. Gendrano, Bongki Moon, Richard T. Snodgrass, Minseok Park, Bruce C. Huang, and Jim M. Rodrigue. Main Memory-Based Algorithms for Efficient Parallel Aggregation for Temporal Databases. *Distributed and Parallel Databases,* vol. 16(2), 123-163, 2004.

Ruth Schwartz and Michele Russo. Saving the Time of the Researcher: How toQuickly find Articles in the Top Information Systems Journals. *Communications of the ACM,* vol. 47(2, February), 98-101, 2004.

Print or electronic non-refereed journal articles, book chapters, and creative works published

Books, journal articles, and manuscripts reviewed and formally submitted

Papers appearing in published Proceedings of professional conferences

Vasile Rus. Experiments with Machine Learning for Logic Arguments Identification. In Midwest Artificial Intelligence and Cognitive Science Conference (MAICS-2004), Pages 40-47, Eric G. Berkowitz, Editor, April 2004, Schaumburg, IL.

_____. Using Decision Trees for Logic Arguments Identification. In International Conference on Artificial Intelligence, 2004, Las Vegas, Nevada.

_____. A First Exercise for Evaluating Logic Form Identification Systems. In Proceedings of the Association of Computational Linguistics Annual Meeting, Barcelona, Spain, July 2004.

_____ and Alex Fit-Florea. "An Algorithm for Discovering the Underlying Logic Structure of Language", Pacific International Artificial Intelligence Conference, September 2004, Auckland, New Zealand.

David Surma. Reducing Communication Overhead in 3D Mesh Networks for Unicast and Path-based Multiple Multicasts. Published in proceedings of International Society of Computer and their Applications (ISCA). 17th International Conference on Computer Applications in Industry and Engineering (CAINE)". pages 126 - 131, November 18,

2004, Orlando, FL. November 2004.

_____. Techniques to Reduce Communication Overhead in Multiple Multicasts for Torus Networks. Published in the Proceeding of IASTED 16th International Conference on Parallel and Distributed Computing and Systems (PDCS), pages 82 -87, November 11, 2004, MIT, Cambridge, MA.

Dana Vrajitoru and J. Ratkiewicz. Evolutionary Sentence Combination for Chatterbots. In Proceedings of the IASTED International Conference on Artificial Intelligence and Applications (AIA), pages 287-292, Editor: Acta Press. February 2004, Innsbruck, Austria.

Dana Vrajitoru. Intra and Extra-Generation Schemes for Combining Crossover Operators. In Proceedings of the Midwest Artificial Intelligence and Cognitive Science Conference, April 2004, pages 86 - 91, Editor: E. G. Berkowitz, Roosevelt University, IL.

Dana Vrajitoru and J. DeBoni. Consistent Weighted Graph Layouts. In Proceedings of Graph Theory 2004, pages 93-94, 2004. Editor:University of Paris 6.

Dana Vrajitoru and R. Mehler. "Multi-Agent Autonomous Pilot for Motorcycles." Institute of Electrical and Electronics Engineers (IEEE) Region 4 Electro/Information Technology Conference (EIT2004), August, Milwaukee, WI. (Proceeding to appear)

Invited presentations made

Vasile Rus. "The Impact of World Knowledge in Question Answering." University of North Texas, November, Denton, TX.

Formal presentations made at state, regional, national, and international professional meetings

Dengfeng Gao. "Extending XQuery and SQL to Support Temporal Data." Collaboration Symposium of Internet Technology Commerce and Design Institute, January 27, Tucson, Arizona.

Vasile Rus. "Learning Functional Arguments." Midwest Artificial Intelligence and Cognitive Science Conference (MAICS) 2004, April, Roosevelt University, Chicago, IL.

_____. "Using Decision Trees for Logic Arguments Identification." International Conference on Artificial Intelligence (IC-AI) 2004, June, Las Vegas, NV.

Michael R. Scheessele. "How much ground influences perception of degraded figures?" Vision Sciences Society, May, Sarasota, FL.

David Surma. "Reducing Communication Overhead in 3D Mesh Networks for Unicast and

Path-based Multiple Multicasts". Presented at International Society of Computer and their Applications (ISCA). 17th International Conference on Computers Applications in Industry and Engineering (CAINE), pages 126 - 131, November 18, 2004, Orlando, FL.

David Surma. Techniques to Reduce Communication Overhead in Multiple Multicasts for Torus Networks". Presented at the International Association for Science and Technology for Development (IASTED) 16th International conference on Parallel and Distributed Computing and Systems (PDCS), pages 82 -87, November 11, 2004, MIT, Cambridge, MA.

Dana Vrajitoru. "Evolutionary Sentence Combination for Chatterbots." In Proceedings of the International Association for Science and Technology for Development (IASTED) International Conference on Artificial Intelligence and Applications (AIA), pages 287-292, Editor: Acta Press. February 2004, Innsbruck, Austria.

_____. "Intra and Extra-Generation Schemes for Combining Crossover Operators." Proceeding of the Midwest Artificial Intelligence and Cognitive Science Conference, April 2004, pages 86 - 91, Editor: E. G. Berkowitz, Roosevelt University, IL.

_____. "Multi-Agent Autonomous Pilot for Motorcycles." Institute of Electronics and Electrical Engineers (IEEE) Region 4 Electro/Information Technology Conference (EIT2004), August 2004, Milwaukee, WI.(Proceeding to appear)

Juried shows, commissioned performances, creative readings, or competitive exhibitions by you Digital programs or development of applications and items for technology transfer (e.g., software development, web-based learning modules) designed by you related to your field of expertise

Vasile Rus. Logic Form Identification Evaluator. www.cs.iusb.edu/~vrus/, Spring, 2004.

Provisional or issued patents registered to you

Scholarly work not appearing elsewhere

James Wolfer. "Invited Robot Exhibit" Making IT Happen, March 2004.

Dana Vrajitoru. "Invited Graphics Exhibit" Making IT Happen, March 2004.

James Wolfer. An interview with Dr. Wolfer regarding the SBC Fellowship grant titled 'Enhancing Computing Curriculum with Robot Assembly Language Programming' was published as "Excellence in Scholarship" in the Chancellor's annual report for 2004. This work was also featured multiple times in the IU Homepages and Alumni papers.

OTHER: GRANT ACTIVITIES

New external grants, contracts, and scholarly fellowships awarded

Hossein Hakimzadeh and Robert Batzinger. A Multilingual Software Tool for Translating English to South Asian and Middle Eastern Languages. Syscon International, ($1400).

Hossein Hakimzadeh. Hardware and Software Grant. McGraw-Hill / Irwin Publishing, ($5000).

New internal grants, contracts, and scholarly fellowships awarded

Hossein Hakimzadeh and Ruth Schwartz. A Web Based Tool for Conducting Alumni Surveys for IUSB Departments and Academic Units. Assessment Grant, ($2,937).

Hossein Hakimzadeh. Equipment grant to purchase two servers and printer for the development of IU-EVAL electronic evaluation system. Lilly Foundation and IUSB Career Services, ($3,000).

Hossein Hakimzadeh. Hourly grant to pay seven student interns working on the implementation of IU-EVAL electronic evaluation system. Lilly Foundation and IUSB Career Services, (Approx. $10,000).

Vasile Rus. An Evaluation System for Logic Form Identification. IUSB ($8,000).

Michael R. Scheessele. Computer Vision. Curriculum Development Grant, IUSB ($3000).

Ruth Schwartz and Hossein Hakimzadeh. Developing an Assessment Plan for Informatics. Assessment Grant, ($2,000).

Dana Vrajitoru. Faculty Fellowship Grant, IUSB ($8000).

New external and internal grants, contracts, and scholarly fellowship proposals submitted but not yet funded or not yet published

Hossein Hakimzadeh, William Knight, James Wolfer, Ruth Schwartz, Michael

Scheessele. National Science Foundation proposal to provide scholarship funds to 22 computer science students for four years ($280,000). Proposal was not funded.

Dana Vrajitoru. Career Development Grant, NSF ($500,000). (Not Funded)

James Wolfer, Dana Vrajitoru. "A Multisensory Augmentation Studio for Computer Graphics and Human Interaction", NSF (Approx. $200,000)

Continuing external and internal grants, contracts, and scholarly fellowships

James Wolfer. SBC Fellowship grant titled 'Enhancing Computing Curriculum with Robot Assembly Language Programming'. This grant was obtained in 2003 for a two year period. ($14,728)

Surma, David. National Science Foundation Grant for "RUI: Using Communication Reduction Techniques to Improve Throughput in High Performance Networks". This grant was obtained in 2003 for a two year period. ($100,000).

OTHER: HONORS AND AWARDS

Honors or Awards received

Vasile Rus. *Who's Who Among Executives and Professionals,* Honors Edition 2004/2005.

SERVICE-Campus

Activities related to campus service (not including your home department)

Hossein Hakimzadeh. Member of the search and screen committee for the Dean of the School of Business and Economics; Chaired the search and screen committee for the Instructional Technology Specialist for the University Center for Excellence in Teaching (UCET). Both searches are ongoing.

William J. Knight. Academic Senate's Academic Personnel Committee; Academic Senate's Faculty Board of Review; member of the CLAS Curriculum Committee and chair in the Fall.

Michael R. Scheessele. Member of IUSB IRB; Chair of CLAS Cognitive Science Committee; Member of CLAS Graduate Liberal Studies Committee (Spring); Member of Psychology Search and Screen Committee (Spring); Member of Social Informatics Search and Screen Committee (Fall).

Dana Vrajitoru. Cognitive Science Committee; Promotion and Tenure Committee for Lecturers.

Advising sessions for new students in which you participated (summer and during year)

William J. Knight. June 5, July 20, August 20, August 25, December 3.

SERVICE-University

Activities related to university service (IU system)

SERVICE-Community

Activities related to local community service

Extension and outreach activities related to your field of expertise (other than formal presentations)

Hossein Hakimzadeh, Ruth B. Schwartz and James Wolfer. Presentation and discussion of the new Information Technology Magnet Program, Riley High School (Nov. 2004).

Hossein Hakimzadeh, Vasile Rus. Presentation at the Career Day, Mishawaka High School (April 2004).

Invited Formal Presentations made at local community or campus workshops, seminars, or meetings in your field of expertise

SERVICE-National/International

Activities related to national or international service (other than review activities)

Vasile Rus. Chair of Expert Systems Session at FLAIRS, 2004.

Dana Vrajitoru. Co-chaired the Natural Language track for the International Association for Science and Technology for Development (IASTED), International Conference on Artificial Intelligence and Applications (AIA) 2004.

Service on doctoral or master's degree committees off the IUSB campus

Editorial positions (boards, editorships, etc.) held by you (professional publications)

Professional publication manuscript review activities

Journal or Publication (Number of Manuscripts Reviewed)

Dana Vrajitoru. *Journal of Intelligent Systems* (1).

Dengfeng Gao. International Symposium on Temporal Representation and Reasoning (1), ACM International Conference on Management of Data.

Vasile Rus. *International Journal of Artificial Intelligence Tools* (1).

Activities related to recognized or visible service to your profession (e.g., service on a regional or national committee, service on a self-study visitation team for another institution, service on an expert panel)

Vasile Rus. NSF Panelist.

Grant proposals formally reviewed by you related to your field of expertise

Vasile Rus. Career grant, NSF.

Leadership positions you held in a professional association (e.g., elected officer, committee chairperson, conference chair)

Vasile Rus. Chair of Logic Form Identification Competition as part of SENSEVAL-3.

SERVICE-Media-Local

Local community media-related activities related to your field of expertise (e.g., interviews)

Dana Vrajitoru and **James Wolfe**r. Interview featuring the Intelligent Systems Laboratory (ISL) on the WNDU news, April 2004.

SERVICE-Media-National/International

National or international media-related activities related to your field of expertise (e.g., interviews)

Service work not appearing elsewhere