Department of Computer and Information Sciences
State University of New York at Fredonia
Fredonia, NY 14063
2154 Fenton Hall (716) 673-4820
http://www.cs.fredonia.edu

Computer and Information Sciences News

Vol. 4 Newsletter for the Department of Computer and Information Sciences at SUNY Fredonia January 2011

Message from the Chair

Welcome to the Department of Computer and Information Sciences! We are a community of faculty and students who are excited about our dynamic discipline and how it changes people's lives. The department offers a program in computer science and one in computer information systems, each with a number of concentrations. Thus, it prepares the students for a wide range of careers or graduate studies. Our classes are small – at most 30 students – and the education is student-centered. We provide individualized advisement to all our undergraduates about the programs, course scheduling, and career opportunities.

Our faculty includes accomplished scholars and teachers offering a variety of courses. Department members are recipients of numerous awards such as Wilkes Award of the British Computer Society, SUNY Fredonia President's Award of Excellence, SUNY Chancellor's Award of Excellence in Scholarship, Kasling Memorial Lecture Award, and Hagan Young Scholar Award. We love to involve the students in our research activities – an opportunity which is offered primarily to graduate students at other universities and research centers.

We are proud of our alumni, who are employed nationwide as computer consultants, programmers, systems analysts, network administrators, project managers, software engineers, hardware specialists, web developers, and educators. We are working together to improve the welfare of our community and society.

Reneta P. Barneva
Professor and Chair

5-Year Review

The department will celebrate its seventh birthday on July 1, 2011. Despite the severe budget cuts we started many new projects and accomplished many tasks. The Self-study was completed in December 2010 and we are expecting Dr. Joan Lucas from SUNY Brockport to evaluate our programs. It was a monumental task comprising over 1000 pages. Dr. Barneva was the principal writer. Prof. Olson conducted the analysis on accreditation. Prof. Szocki wrote the information on equipment. Dr. Hansen summarized the data about the teaching load and summarized it. Ms. Cross collected statistical data about the student enrollment and time for graduation. She and Prof. Decker proofread the manuscript. Statistical data was provided by Dr. Xiao Y. Zhang, Director of the Institutional Research & Planning. Some texts, written by the previous department chair, Dr. Siddiqui in various documents are used throughout the self-study. The report for MACS scholarship was written by Drs. Z. Arnavut, J. Straight, M. Arnavut, and J. Zubairi. Various policies, procedures, syllabi, and newsletters authored by different department members were also included.

New Faculty and Faculty Promotion

At the beginning of Fall 2010 the department welcomed the following faculty:

Prof. Camarata has been employed by the Angel Business Unit for 15 years. He has recently accepted the promotion to replace his retiring supervisor in the position of Director of IT in Jamestown.

Prof. Conroe comes to us after a career in the Air Force followed by work as a defense contractor. Dave began programming at the Air Force global weather center as a data base programmer and soon became a senior programmer and project manager. He comes to us from New Mexico State University where he led the development of software for the Army research lab at White Sands. He holds an MS in Computer Science and MS in Systems Management. Dave taught graduate level management courses.

Prof. Greg Kricheldorf holds three associate degrees in Math, Computer Science, and Arts. He is a graduate from SUNY Fredonia with a BS in Computer Science and Master's Degree in Teaching from Empire State University. He worked for three years in the Buffalo Public School System doing curriculum development and teaching full time.

Dr. Natalie Nazarenko and **Dr. Gurmukh Singh** got promoted - they became full-time visiting professors. Dr. G. Singh is teaching for the department since 2005. He holds a Ph.D. degree in Physics. He has over 20 years of teaching experience at various colleges and universities. He is a very productive scholar: he has authored over 120 research papers. In 2007 he was awarded Kasling Award – the highert research recognition at SUNY Fredonia. Dr. N. Nazarenko has a Ph.D. degree from the Ukrainian Academy of Sciences. Her expertise is in computer information systems. She has been teaching in the US since 1996. Currently she teaches courses in data mining, e-commerce, information system structures and system programming. She currently lives in Buffalo.

Prof. Amber Powell joined the department in Spring'11. She is teaching one section of CSIT 251 Information Systems Structures. She got her Summa Cum Laude B.S. Degree in Mathematics Education from SUNY Fredonia, a Master's Degree from St. John Fisher College in Business Administration and a B.S. Degree from RIT in Management Information Systems.

Mr. Rob Olson got the internal title of assistant system administrator. Mr. Olson graduated from JCC and transferred to SUNY Fredonia in 2003. He graduated in to 2005 with a B.S. in Computer Science (Systems Software) from the Department of Computer and Information Sciences and a M.S. in Interdisciplinary Studies (Cognitive Science) in 2007. Currently, he is a lecturer in the department teaching courses such as Introduction to Artificial Intelligence,

Compiler Construction, and Theory of Computation**. Mr. Mike Szocki** became a senior system administrator.

Scholarly Activities

Dr. Gurmukh Singh published four research papers in collaboration with Dr. A. Mukhopadhyay from North Bengal University, India in the Proceedings of the Department of Atomic Energy (DAE) Symposium on Nuclear Physics held at Birla Institute of Technology and Science, Pilani, India on December 20-24, 2010.

Professor Robert Olson published a paper "An Analysis of Discrete Computing Structures: Re-Evaluating Implementation" in the proceedings of the 13th International Conference on Humans and Computers - HC2010 held at the University of Aizu, Japan, December 8-10, 2010.

Professor David Conroe gave a talk "Cold War Computing" at the multidisciplinary symposium on the early Cold War era held on Friday, Dec. 3, 2010 at Williams Center.

Dr. Gurmukh Singh published the papers:

1. "Modeling Mendel's Laws on Inheritance in Computational Biology and Medical Sciences", authored by Gurmukh Singh, Khalid Siddiqui, Mankiran Singh and Satpal Singh has been recently published in the Journal of Educational Technology Systems, Vol. 39 (1), 31-46 (2010-2011).
2. Ring and jet-like structure and two-dimensional intermittency in nucleus-nucleus collisions at 200A GeV/c, Ghosh, P. K. Haldar, S. K. Manna, A. Mukhopadhyay and G. Singh, accepted for publication in Nuclear Physics A (2010).
3. Centrality dependence of nonstatistical fluctuation in single particle density distribution in 32S-Ag/Br interactions at 200A GeV/c, M. K. Ghosh, A. Mukhopadhyay, D. Roychowdhury and G. Singh, International Journal of Modern Physics, Vol. E19 (11), 1-18 (2010).
4. Intermittency and related issues in 16O-Ag/Br collision at 200A GeV/c, M. K. Ghosh, P. K. Haldar, S. K. Manna, A. Mukhopadhyay and G. Singh, Canadian Journal Physics, Vol. 88 (8), 575-584 (2010).

In September 2010, **Prof. Kanev from the University of Shizuoka, Japan,** visited the department and gave a talk "Possibilities for Internships and Graduate Study at Shizuoka University and Research on Surface-Based Interfaces."

The same month, **Dr. Zubairi** gave a talk "Using Wireless Sensor Networks for Medical Emergency Data Handling" at the Social Science Colloquium.

Dr. Singh made a presentation "Good Course Design Technique for Effective Online Teaching" at the 4th Teaching and Learning Conference at SUNY Fredonia in August 2010. He also published three papers in the proceedings of the international conference Applications of Computer and Information Sciences to Nature Research (ACISNR-2010), ISBN 978-1-60558-918-3.

In May 2010, the International Symposium Computational Modeling of Objects Presented in Images: Fundamentals, Methods and Applications - CompIMAGE'10 was held in Buffalo, NY. It attracted participants from Brazil, Canada, Egypt, France, Germany, India, Italy, Japan, Hungary, Malaysia, Poland, Portugal, Spain, Turkey, UK, and the USA. **Dr. Barneva** was Co-chair and Chair of the Organizing Committee. **Dr. Siddiqui** served on the Organizing Committee as a treasurer. **Dr. Nazarenko**

and **Mr. Szocki** helped with the organization as members of the Organizing Committee. President Hefner attended the symposium and conferred the best student paper awards. Dr. Barneva co-edited the conference proceedings together with the **Nobel Laureate Dr. Herbert A. Hauptman**. The materials of Symposium were published by the prestigious scientific publishing house Springer Verlag (Berlin-Heidelberg) in the Lecture Notes in Computer Science Series.

In May 2010, **Dr. Barneva** published the article "Digital Stars and Visibility of Digital Objects" in Lecture Notes in Computer Science, Vol. 6026, Springer Verlag, Berlin-Heidelberg, 2010, ISBN 978-3-642-12711-3

In January 2010, **Dr. Barneva** published an article in the Journal of Educational Technology Systems. This was one of the 10 papers accepted for publication in the special journal issue devoted to CIT Conference held in Oswego, NY, in 2009. This journal publication is very competitive since CIT usually attracts several hundreds of participants.

Dr. Zubairi served as co-editor of an e-book on Applications of Modern High Performance Networks. It is available at Bentham eBooks. SUNY Fredonia Campus Report announced the publication: "Junaid Zubairi edits new e-book on networks"

Curriculum Updates

Android

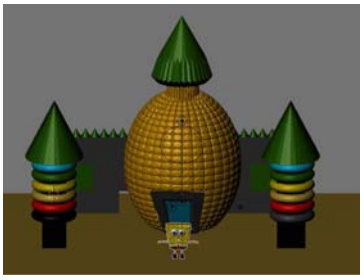
The course on Android Programming is designed to provide a smooth introduction to Java programming while creating applications for smartphones.

Android is an operating system based on Linux with a Java programming interface. It provides its own Java Virtual machine (Dalvik Virtual Machine - DVM) to develop applications. It supports 2-D and 3-D graphics using the OpenGL libraries as well as data storage in a SQLite database.

Android has potential to go beyond the smartphone applications. Being open source, it is compelling for a variety of different hardware manufacturers.

The course **CSIT 291 Special Topics: Android Programming** is offered for first time in Spring'11. If there is sufficient interest, it will be offered in the summer as well. The course does not have any prerequisites.

Blender



Blender is a free 3D graphics application that can be used for modeling, texturing, rigging, water and smoke simulations, animating, rendering, simulations, non-linear editing, compositing, and creating interactive 3D applications, including video games, animated film, or visual effects.

Blender's features include advanced simulation tools such as rigid, realistic body, fluid, cloth and softbody dynamics, modifier-based modeling tools, powerful character animation tools, a node-based material and compositing system and Python for embedded scripting.

Released as free software under the GNU General Public License, Blender is available for a number of operating systems, including GNU/Linux, Mac OS X, and Microsoft Windows.

The course **CSIT 203 Introduction to Multimedia** teaches important concepts using Blender. It was first offered in Spring'10 and every semester thereafter. It

is part of the Computer Information Systems Program and does not require any prerequisites.

Ruby on Rails

Ruby on Rails is an open source web application framework for the Ruby programming language. It was created by David Heinemeier Hansson in 2004. In August 2006 Apple announced that it would ship Ruby on Rails with MacOS X v10.5 "Leopard", which was released in October 2007. Thus, Ruby on Rails became very popular.

There is a shortage of Ruby on Rails developers and currently they are very well paid. According to Mr. Bob Richardson, the Founder of SellingHive, one of the companies in the SUNY Fredonia Technology Incubator, companies can pay up to $150 per hour for an experienced programmer.

We are planning to start a course on Ruby on Rails in Fall 2011, if there is enough interest among the students. The course will be designed for beginners and won't require any previous programming knowledge. All majors are welcome. A number of local companies including SellingHive will support the course and provide projects for students during the semester. Students in the course would also have the opportunity for internships with the companies.

Student Activities

Twelve seniors graduated in Fall 2010. At the exit survey, 78% of them reported that they feel the education at Fredonia prepared them well for employment or graduate school. The courses found most useful in their education were Data Base Management Systems, Data Structures, Visual Basic II, Problem Solving with Objects, and Compiler Construction. When asked which electives they would have liked to take at Fredonia, the topic that came up the most was experience in mobile programming, particularly for Android devices, Java programming, and networking.

Prof. Greg Cole got student evaluations 5.0/5.0 in his class CSIT 120 Computer Science Overview. Good job, Prof. Cole!

The first Computer Information Sciences Student Expo was held on December 1, 2010 in 115 Fenton Hall. There were over 30 presentations from various courses – programs on Alice, scenes modeled on Blender, web sites, videogames, software engineering, graphical applications, data mining, hypercomputing, and e-commerce projects, and even a program for robot manipulation! The Expo was attended by many guests, including VP David Herman, Dean Boisjoly, Dr. Croxton – OSCAR Director, Mr. Ray Christopher from the Technology Incubator, and Drs. Yarmakhov and Zakharova from Psychology Department.

On November 5, 2010, the students Ozgun Erensoy, Arda Gumusalan, and Basar Koc attended the IEEE Western New York Image Processing Workshop at Rochester Institute of Technology.

The department alumna Ms. Kaori Sagawa became a graduate student at the University of Shizuoka, Japan.

The High School Competition organized by the department was held on May 17, 2010 under the leadership of Prof. Szocki. Over 45 students from 12 schools coached by 10 teachers attended the event. There were participants from many new schools.

The following computer and information sciences students presented at the 12th Annual SUNY Fredonia Research and Creativity Exposition, April 27, 2010:

- Samuel Raghunath, Mentor Dr. Reneta Barneva, "Game Development and College-level Curriculum with Direct X 10."

- David Rizzo, Michael Ruggieri, Mentor Dr. Reneta Barneva, "Android Game Application."

- Mike Seay, Mentor Dr. Anatole Ruslanov, "Cryptography and Terrorism"

- In April 2010, the student Samuel A. Raghunath, mentored by Dr. Barneva, presented a poster at the Fifteenth Annual Consortium for Computing Sciences in Colleges Northeastern Conference CCSCNE-2010.

SUNY Fredonia Computer and Information Sciences News

Computer and Information Sciences Endowment

The department thanks to its many alumni and sponsors who have contributed to the endowment and scholarship accounts. As the support from the state is dwindling down every year, we need more of your support to provide that margin of excellence in our programs. Your support has helped us provide scholarships and awards to deserving students. Therefore, THANK YOU and please continue your support. You can send your donations to the Fredonia Foundation's office in the name of the department.

Writer: Dr. Reneta P. Barneva
Editor: Ms. Melanie Cross
Web Site: http://www.cs.fredonia.edu/
Please send your **comments and suggestions** to Ms. Cross
Emails: Melanie.Cross@fredonia.edu
Department of Computer and Information Sciences
2154 Fenton Hall
SUNY Fredonia
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Phone: (716) 673-4820
Fax: (716) 673-4821