The former UCA Computer Science Student Club has become a student chapter of the Association for Computing Machinery (ACM) since July 2012. To reflect the change, it is now named the UCA ACM Bears. The ACM Bears meets Thursday’s at X-Period on Computer Science floor of Math Tech Building. In fall 2012, they have organized many meaningful activities. Among them, the ACM Bears held the first student organized multidisciplinary computing research seminar on November 26, 2013 at the Student Center Ballroom. Six professors from UCA departments of Biology, Computer Science, Physics, and Occupational Therapy presented their research work with students. The ACM Bears welcomed new students, recruited members, and ran successful fund raising in the fall semester. There was a great turnout and lots of fun in the “BIG GAME” annual event. Dr. Bernard Chen is the faculty advisor of the ACM Bears. To know more about the ACM Bears, email ACMBears@gmail.com
ACM-W Bears (Association of Computing Machinery for Women) is established here at UCA! We are a chapter of UCA-ACM Club for women in tech to engage in and talk about anything technology. Our purpose is to foster a community for female faculty and students in the tech. Some of our past events include 'Hack Lunches,' to get us excited about tech and to work on projects together, as well as 'Tech Talks', where UCA Alumni Marvalee Foster was recently part of! We plan to have more Tech Talks to give us an insight of the experience as women in technology and the technical work involved as well as hack lunches to encourage involvement outside the classroom. All around, we are a group planning on getting more established and reaching out to women who want to be involved in and are excited about technology.

Female Computer Science Scholarship Awarded

Six Computer Science female freshmen received the Fall 2012 Computer Science Female Freshman Scholarship in the amount of $500. Recipients of the scholarship were Samantha Anima, Amanda Falls, Angela Lewis, Yaying Li, Jessica Stewart, and Kelsey Zahorec. At the ACM Bears meeting on September 6, Dr. Chenyi Hu, chairman of the department, made the announcement.

This scholarship is sponsored by the National Center for Women & Information Technology (NCWIT) for the project “Recruiting and Retaining Females in Computing through Community and Leadership Building” proposed by Karen Thessing, Yu Sun, and Chenyi Hu. This year only five projects were selected across the nation.

The Computer Science Female Scholarship will be awarded each semester. To apply for the spring 2013 award, visit: http://uca.edu/computerscience.
Joining the Department in fall 2012 as a new tenure-track Assistant Professor, Dr. Halic has been working actively in establishing his Virtual Reality, Simulation, Imaging and Modeling (ViRaSIM) Lab. The vision of ViRaSIM is to develop and utilize technology to enhance the quality of human life. ViRaSIM mission is to develop seamless and effective solutions to major research problems in the field to realize this vision.

The ViRaSIM Lab research focuses include but not limited to the solutions to the problems that are associated to virtual reality, augmented and mixed reality based surgical simulation design and development for medical practitioners ranging from medical students to surgeons in practice. The goal is to provide risk-free and low cost, highly realistic, 3D virtual environment which can be used for practicing, teaching and assessment for various surgical techniques. In addition to development of state-of-art surgical simulation, ViRaSIM Lab aims at developing advanced technology to help medical practitioners by assisting them in medical practice such as disease diagnosis.

Dr. Halic’s position is partially funded by Acxiom. His research work is currently partially supported by DoD. To find more about the ongoing research activities, please visit ViRaSIM web page located at http://sun0.cs.uca.edu/~thalic/research.html and http://sun0.cs.uca.edu/~thalic/VIRASIMLAB.html

**Congratulations December Graduates**

Jordan Loney and Cody Sanders are receiving their Bachelor of Science degree in Computer Science. Both of them have accepted their job offer and will continue to pursue their Master’s degree in Applied Computing.

Priyatham Anisetty is receiving his Master of Science degree in Applied Computing. His Master’s project titled “Adding Semantic Web Technology to the Object-Oriented Method for Interoperability (OOMI)” is directed by Dr. Paul Young.
Dr. Yu Sun has received a grant from NASA EPSCoR (Experimental Program to Stimulate Competitive Research) as a co-PI. The funded research, entitled “New Computer Vision Methods for NASA Robotic Planetary Exploration”, is a multi-disciplinary collaborative project among UALR, UCA and UA-Fayetteville. The total amount of the award is $750,000 for the duration of 36 months. The goal of NASA EPSCoR is to enable jurisdictions to develop an academic research enterprise directed toward long-term, self-sustaining, nationally-competitive capabilities in aerospace-related research.

In this project, the multi-campus research teams will collaboratively devise innovative computer vision methods based on a new class of 3D imaging and camera sensor to support autonomous robotic operation in NASA’s future missions. The proposed methods are expected to revolutionize robotic autonomy and advance NASA’s robotic technology. In addition to the great economic benefit to the state of Arkansas, this project will also have significant educational impact in providing highly trained undergraduates and graduates in the state to support the growth of the knowledge-based industry.

The ACM International Collegiate Programming Contest (ICPC) is a multitier, team-based, programming competition operating under the auspices of Association for Computing Machinery (ACM). The 2012 Mid-Central Regional contest was held on Saturday, November 3, 2012, at University of Arkansas at Little Rock.

One team consisting of three students from UCA CS Department participated in the contest: David Coyne, Alex Loney and Ben Tackett. A total of 14 teams from eight universities across Arkansas competed in the Regional contest. UCA Team was placed sixth and was one problem short from being placed second. Dr. Vamsi Paruchuri is the Coach of the UCA Team.
The proposed project is to develop novel techniques of utilizing repeated noisy labels for classification. It will provide an excellent learning opportunity for our students. It will help reinforce concepts of data mining, especially noisy learning and information fusion, and help them better grasp aims and results from the proposed research. These skills learned will include information fusion, noisy handling, and uncertainty learning. The REU supplement will be important in providing research experience, instilling confidence, and should help to make the students more competitive in their future academic endeavors.

**Dr. Victor Sheng receives $16,000 supplemental award from NSF.**

The 2012 Python Arkansas Conference on October, 27 is a great success. More than 150 people, including IT professionals, students from UCA and other universities and high schools, participated in the conference this year.

With the collective efforts of the community, the conference has grown rapidly during the last several years. Our space in the department area is no longer sufficient and the 2012 pyArkansas was held at the Brewer-Hegeman Conference Center at UCA. Dr. Hu presented a two-hour introductory tutorial on Python.

Undergraduate students are working in the being established Biomedical High Performance Computing Lab. Drs. Chen and Kockara are the co-directors of the Lab. The initial funding for the Biomedical HPC Lab is from NSF.
Drs. Chenyi Hu, Vamsi Paruchuri, and Victor Sheng served on three different panels of the National Science Foundation (NSF), Directorate for Computer & Information Science & Engineering (CISE) at the NSF headquarters in Washington D.C. They reviewed proposals submitted by colleges and universities with other panel members and then make funding recommendations to NSF. “As a panelist, I can see how the review process within NSF. It also provides an opportunity to interact with several NSF Program Directors and know about active funding opportunities for us at UCA,” said Dr. Paruchuri.

Accepting the invitation, Drs. Bernard Chen and Sinan Kockara visited Yunnan University, China in May, 2012. They shared their research work and discussed opportunities of continuous collaboration with the School of Software at Yunnan University.

Invited by the Institute for Computing in Science, Dr. Chenyi Hu joined a selected group of scientists to assess the state-of-the-art in scientific computing and try to identify the fields where there might be sufficient interest for a program in the coming years at the Future of the Field Workshop in Park City, Utah from August 4-11, 2012.

Dr. Tansel Halic gave a talk on design and development of a Framework for Multimodal Interactive Applications in Computer Science-Information Science-Systems Engineering joint colloquium at University of Arkansas at Little Rock (UALR) on October 16, 2012. Specifically, his talk is about the framework that he has been working on which aims at developing real-time, highly realistic 3D virtual reality and haptic (tactile feedback) based applications especially virtual reality surgical simulators.

Recent publications

**M. Ercan, B. Lee, and S. Kockara**: Mobile Melanoma Monitoring with Fast Density Based Lesion Detection (FDBLD), The 6th International Conference on Bioinformatics and Biomedical Engineering (iCBBE 2012), Shanghai, China, 2012.

**B. Chen, B. Nordin** and **C. Hu**: Discovering Protein Sequence Motifs by the Improved FGK Model, the 6th International Conference on Bioinformatics and Biomedical Engineering (iCBBE 2012), Shanghai, China, 2012.


Three papers of Dr. **Tansel Halic** has been accepted by Medicine Meets Virtual Reality (MMVR) conference that will be held in San Diego, California on February 20 - 23, 2013. Two of the publications are related to the development of VBLaST® (Virtual Basic Laparoscopic Skill Trainer) tasks; Pattern cutting (see Figure-1) and ligation loop tasks. The third publication is related to the Performance Optimization of Web-Based Medical Simulation.

**Benjamine Nordin** received his Master’s degree in Applied Computing in May, 2012. His master’s project "Interval-Valued Centroids in K-Means Algorithms" directed by Dr. Chenyi Hu has been accepted for publication as a short paper at the 11th International Conference on Machine Learning and Applications. The committee members Drs. Bernard Chen and Victor Sheng are co-authors of the article.
CS4HS (Computer Science for High School) is an initiative sponsored by Google to promote Computer Science and Computational Thinking in high school and middle school curricula.

Led by Dr. Chenyi Hu, this year the department received the award from Google again and hosted the second CS4HS workshop on campus from July 9 – 11, 2012. Fifteen current and future teachers from Arkansas schools participated in the workshop this year. At the workshop, Karen Thessing talked about the importance and current status of computing in middle and high schools; Bernard Chen introduced Programming in Python; Chenyi Hu presented some interesting image processing projects; Michael Nooner and Sinan Kockara worked with participants on web programming and interactive game development interactively; and Mark Smith demonstrated mobile app development.

Google provided the department a non-restrictive gift in the amount of $13,500 to support this year's workshop.
2012 REU Workshop

Ten students from Arkansas, Illinois, Mississippi, New Mexico, Tennessee, and Washington participated in the 2012 9-week NSF program on Health Information Technology at UCA.

RESEARCH PROJECTS

“Clustering Clinical Trial Eligibility Criteria”
Jarrod Feagin, JaCarri Tollette, & Thomas Stovall
Faculty Mentors: Drs. Sinan Kockara and Umit Topaloglu

“FLOMs and translators and bears, OOM! Validating an object-based model for interoperability”
Cody Hudson, Kaitlin Howle, and Erica Sheff
Faculty Mentor: Dr. Paul Young

“Predicting High Risk Fetuses”
Benajamin Castro and Daniel Retherford
Graduate Mentor – Aaron Crawford
Faculty Mentor: Dr. Victor Sheng

“RxKeeper: Using Smartphones to Make Hospital Visits Safer”
Josh Hawkins, Michael Turney, and Yassin Faal
Faculty Mentor: Michael Nooner

“Implementation of Dynamic Time Warping Algorithm”
Aaron Crawford and Lauren McKim
Faculty Mentor: Dr. Victor Sheng
2nd Annual Game Development Camp (GDC) was arranged by Drs. Sinan Kockara and Bernard Chen of Computer Science Department, July 11 – 13, 2012. GDC offered invaluable hands-on practice to students in the area of computer science and provided educational enrichment activities to K12 students, in an effort to attract and retain more students in computer science related fields. GDC allows students to experiment with game development in a short time period with lots of fun. The program consisted of lectures on text based game programming with Python programming language, 2D game development with Gamemaker, and 3D first person shooter game creation from scratch. GDC was designed for students to accomplish necessary tasks throughout the lecture time and also have fun by using these tasks to improve their own games. At the end of the program students mentioned that a career in Computer Science has proven to be fun, rewarding, and lucrative.

Acxiom Corporation and the University of Central Arkansas sponsored the IT Careers Camp on Wednesday, June 27rd to Saturday, June 30th, 2012. The IT Careers Camp is designed to heighten students’ interest in a career in Information Technology-working with computers and related technology. The camp is designed to educate students about IT careers and to encourage them to continue their education beyond high school. Students will be part of a group comprised of some of Arkansas’ brightest students as they learn about interesting and rewarding careers in IT.

This year was the biggest camp yet, with 55 students attending. The Computer Science department now has two of its members to act as coordinators for the camp. Dr. Paul Young agreed to act as a coordinator for the first time this summer.

This year was also the first year that the camp was split into two tracks. The new track was offered to returning students and to students who had a more advanced IT background. This new track gave the students a broader (and possibly nerdier) experience in the IT world. In first track students were introduced to basic web development by the MIS department. In the second track, students were taught to develop a game using the Construct 2 game engine. The camp is made possible by the generosity of Acxiom Corporation. I would also like to thank our two student helpers, David Coyne and Reema Taneja, who were an enormous help in making the camp successful.