The National Center for Women & Information Technology awarded $10,000 to Computer Science Department

On January 10, 2012, the National Center for Women & Information Technology (NCWIT) and Microsoft Research announced the winners of the most recent NCWIT Academic Alliance Seed Fund, which provides U.S. academic institutions with start-up funds to develop and implement initiatives that recruit and retain women in computing and technology fields of study. UCA is among the five winners together with Claremont Graduate University, Fisk University, Union College, and the University of Virginia. This round of the NCWIT Academic Alliance Seed Fund will provide $10,000 to each of the five institutions.

The project proposed by Karen Thessing, Yu Sun, and Chenyi Hu, faculty of the Department of Computer Science, will build a female-friendly environment for computing majors by recruiting a first-year cohort of women and retaining them with opportunities for learning, research, service, and leadership. Women currently earn more than half of all undergraduate degrees in the U.S., including 45% of math degrees and 38% of chemical engineering degrees, but they earn only 11% of computing degrees. To fill the deep gender gap in CS, the Department of Computer Science has joined the NCWIT Academic Alliance in 2010. Karen Thessing and Yu Sun are the department representatives in the NCWIT.

About NCWIT: NCWIT is a national coalition of over 300 prominent corporations, academic institutions, government agencies, and non-profits working to increase the participation of women in technology and computing. NCWIT’s work connects efforts to increase women’s participation in technology along the entire pipeline, from K-12 and higher education through industry, academic, and entrepreneurial careers.

The NCWIT Academic Alliance brings together more than 400 representatives from computer science and IT departments at colleges and universities across the country – spanning research universities, community colleges, women’s colleges, and minority-serving institutions – to work towards gender equity, diversity, and institutional change in computing higher education. Find out more at www.ncwit.org.
Fort-Smith based Data-Tronics Corporation made another $500 contribution to the Computer Science Scholarship fund for the spring semester of 2012. Data-Tronics has continuously employed graduates from UCA Computer Science Department. In his letter dated December 15, 2011, Mr. Lee Easley, the manager of Data-Tronics Corp. Information System division, wrote “We appreciate your work at UCA”. Mr. Easley has been a member of the Advisory Board of Computer Science Department.

Spring 2012 Outstanding Student Awards

Cody Hudson and Brendan Lee received the spring 2012 outstanding student awards. This department has many outstanding students. It was very difficult to select only two.

Science Nights at Local Schools

For the third year in a row, the College of Natural Sciences and Mathematics has attended the St. Joseph and Mayflower Science Nights. A fantastic turnout of children/parents enjoyed all the hands-on demonstrations presented.

Mrs. Karen Thessing of this department led computer science graduate and undergraduate students working enthusiastically with participants on computer games.
Maoyuan Yan, Mentor Dr. Vamsi Paruchuri “A Robot Librarian”

Cody Hudson, Aaron Crawford, Mentor Dr. Victor Sheng, “Novel Approaches for Multi-Label Learning”

Jarrod Feagin, JaCarri Tollett, Mentor Dr. Sinan Kockara “Clustering Clinical Trial Eligibility Criteria”
Dr. Vamsi Paruchuri received his tenure and promoted to Associate Professor of Computer Science at the end of the spring semester. Congratulations!

A reception was held for Lev Igolnikov this semester. After 11 years of teaching for Computer Science Lev retired from the university. We wish him the best.

In February 2012, Dr. Yu Sun from the Computer Science Dept., and her student, published a journal paper in *The Institution of Engineering and Technology (IET) Image Processing*, a reputable journal on Image/Video Processing in the world. The student author Jin Yang, co-advised by Dr. Sun, is a Ph.D. student at the University of Electronic Science and Engineering Technology of China. In this research, with the objective to deliver the optimal visual quality and accurate rate regulation for wireless video applications, they propose a novel joint H.264/SVC-MIMO rate control (RC) scheme algorithm for video compression and transmission over MIMO systems. Experimental results demonstrate that their proposed algorithm achieves accurate bitrate control, reduces frame skipping, decreases PSNR fluctuation; thereby, improves overall video quality for MIMO wireless video transmissions.

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.
Using the winter break, Professor Chenyi Hu, the chairperson of the Computer Science Department accepted the invitations and visited Yunnan University and his alma mater, Anhui University, where he received his undergraduate education and met his wife in the 1970s. Hu’s visit is completely funded by the Chinese side.

During his visit, in addition to sharing his research work, Hu introduced the quality education programs at UCA and encouraged students there to consider UCA for pursuing advanced studies. At Yunnan University, Hu followed-up the collaboration initiatives created during Dr. Runge’s visit to that university in March, 2011. Further collaboration details between the Department of Computer Science and the Chinese National Pilot School of Software at Yunnan University were developed.
2012 REU Workshop

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

RESEARCH PROJECTS

“Clustering Clinical Trial Eligibility Criteria”
Jarrod Feagin, JaCarri Tollette, & Thomas Stovall
Faulty 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
The Computer Science Club at the University of Central Arkansas hosted The Big Game, March 9, 2012. An annual competition that involves three games of computer savvy and skill. The first game that was hosted was Tech Jeopardy, where teams were pitted against each other in a battle of wits, to determine which team knows the most technology related trivia. The second game was a semi-programming competition. Teams of three competed against each other to solve the most programming problems, touching topics from Algorithms, Operating Systems, General Programming, Mathematics, and Trivia. The last competition was a First Person Shooter, pitting everyone against each other. Many great prizes were offered, including flash drives, earbuds, various DVDs, and many other prizes. If you have the chance to attend the next Big Game, don't miss out, it is a great time to get together with your fellow students and have a great time. By Alex Loney

Dr. Victor Sheng receives $16,000 supplemental award from NSF. 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, assistant professor of the Computer Science Department, recently served as a panelist on an NSF panel. At the beginning of the panel meeting, each panelist had an opportunity to introduce themselves to the panel. Taking this opportunity, Dr. Sheng briefly introduced the Computer Science Department, the College of Nature Sciences and Mathematics, and the University of Central Arkansas to other panelists, coming from top research oriented universities. The program officer invited Dr. Sheng to apply for supplements for his on-going NSF funded project. Dr. Sheng felt this experience is invaluable, especially in preparing future funding proposals. Dr. Sheng is also willing to share his experience with colleagues.
Brett Beam, Joel Doyle, Muhyeddin Edcan, Cody Hudson, Daniel Macha, Benjamin Nordin, Bryan Schardt, Mark Vander Ligt, and Kelley Young


Cody Hudson was awarded the undergraduate thesis award by the Advancement of Undergraduate Research in the Sciences Endowment. Title of Thesis “Predicting Protein 3D Structure via the Adaptively-Branching FGK-DF Model”, Mentor: Dr. Bernard Chen
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.
REU Cookout
Summer Research Experience for Undergraduates in Applied Research in Health Information Technology

**REU: HIT @ UCA**

May 20 – July 21st

Ten selected applicants will receive a grant through the summer weeks to participate in Applied Research in HIT in the Computer Science Department at the University of Central Arkansas. The program will provide undergraduate students with competitive research experience to tackle a variety of significant HIT problems.

**IT ACADEMY**

June 27 – 30th

IT Academy is a one week summer camp offered jointly by the Computer Science and Management Information Systems departments. The academy will host 50 high-school students who will learn about exciting potential IT careers. During the camp students will stay at a dorm and experience life on campus. During the day they will gain valuable technical skills and even take a tour of Acxiom, a top employer of IT professionals in the area.

**TEACHER WORKSHOP**

July 9 – 11th

CS4HS is a primarily sponsored summer workshop that will prepare teachers for bringing computer science to Arkansas high schools. The theme of this year’s workshop will be Computing is Cool and Fun! We will emphasize the core aspects of computer science using an entertaining and dynamic set of hands on exercises. These exercises will be packaged in such a way that you can then take them back to your classroom for your students to enjoy.

**GAME PROGRAMMING CAMP**

July 11 – 13th

Students from local schools are chosen to complete at 3 day Game Development Camp. Students successfully develop their own 2-D and 3-D interactive game.