CCSE JANUARY 2016 NEWSLETTER

This newsletter is compiled as a reflection of the individuals reporting their accomplishments and activities during the quarter.

**CCSE Faculty Work/Accomplishments:**

**Computer Science (CS) Department**

**CS – Selena (Jing) He**

**Active Research Grants:**
- PI, Interdisciplinary Research Opportunity Program (IDROP) grant funding award, College of Science and Mathematics, Kennesaw State University, August, 2013 – August, 2016.
- Project description: An ever-increasing amount of work across the natural and social sciences involves attempts to understand complex networks of interacting agents (e.g., ecological, intra-cellular, social, business, telecommunication, and gene networks). Graph theory has provided a rigorous mathematical framework for analyzing such networks, and facilitated cross-talk between disciplines which has allowed insights from one system to advance the study of another. It is increasingly apparent, however, that conventional graph theory alone is ill-suited to study many of the important questions in each of these fields. Pervasive feedback and inter-dependencies inherent in complex adaptive systems require frameworks better able to capture interactive effects of multiple entities on one another and on the wider network. The proposed work expands each PI’s research program to incorporate powerful tools for modeling complex adaptive networks (e.g., hyper-graphs) whose application to most fields thus far has been extremely limited. Working together to adapt these tools will allow each PI to ask compelling new questions in their study systems, and highlight new dimensions of interdisciplinary relevance for each PI’s research.

**Publications:**
- Harneet Kaur and Jing (Selena) He. “Blocking Negative Influential Node Set in Social Networks: From Host Perspective.” Accepted by Transactions on Emerging Telecommunications Technologies, December 2015.

**Graduate Student Projects:**
- Internet-of-Things based Smart Classroom Environment:
  - Graduate student: Amir Atabekov (System Design/Developer)
  - Project description: The management of classrooms, halls, offices, and public spaces and the efficient use of these resources in any organization are challenging problems. With the rise of Internet of Things (IoT), the management of these resources can be automated. The smart classroom system will be based on a network of connected sensors embedded on the physical chairs to automatically collect information. All collected real-time data are stored in cloud, which can be visually displayed on a mobile app. Through analyzing the big sensing data, the manager can make intelligent decision.

**Other Projects:**
• High School Student Intern Project: Internet-of-Things based health-care monitoring chair
  Student: Prit Shah (Wheeler Magnet High School)
  Project Description: People spend a lot of time sitting on a chair every day. The objective of the project is to apply Internet-of-Things technology to the chair so that the chair can monitor the people's health care status in real time. The monitored data are stored in the cloud, which can be accessed and analyzed by authorized users at anytime and anywhere.

CS - Chih-Cheng Hung

Publications:

CS – Dan Lo

Current grant:
- Collaborative Research: Enhancing Curriculum and Faculty Development on Information Assurance and Security through Real World Relevant Portable Laboratory
  Period: 9/1/2014 - 8/31/2017
  Funding source: NSF
  Southern Polytechnic State University (SPSU), and Tennessee State University (TSU) are jointly developing a new information assurance and security (IAS) teaching methodology and expand the capacity in IAS education. Curricular materials based on a portable lab will be developed and integrated in teaching Computer Science (CS) or Information Technology (IT) courses at the partnered universities, and disseminated via summer student and faculty development workshops, webinars, and pre-conference workshops. We plan to publish a lab manual that includes educational materials for studying the recent mobile application development skills and security issues with hands-on experience. One of the foci of this project is to infuse the IAS education in CS/IT programs without adding new courses for fostering the next generation of cyber security experts. SPSU is recognized by the National Security Agency (NSA) as Centers of Academic Excellence in Information Assurance Education (CAE/IAE). TSU is classified as a historically black university (HBCU) with its high ranking for the number of degrees (including doctoral) awarded to African Americans. SPSU has 31% minority students (African American and Hispanic), and a member of National Center for Women and Information Technology. The project has the following characteristics:
  1. Promotes and enhances IAS education for underrepresented groups
  2. Attracts and prepares a faculty body for offering IAS curriculum via workshops and webinars
  3. Promotes learning on IAS hands-on labs anytime anywhere
  4. Expands IAS education capacity and produces highly qualified personals for IAS workforce.

Pending NSF Grants:
• NSF Grant Proposal (DUE 1612369), 9/1/2016-8/31/2019, Novel, Portable, Affordable, Open Sourced, Real World Relevant Labware for Distributed Big Data Analysis Education. PI: Dan Lo, Co-PI: Kai Qian, Co-PI: Julia Fuller.

Publications:


Current Working Projects:
- Carlos Cepeda Mora, Big Data Malware Detection Using Improved Neural Network, Fall 2015.
- Shruthi Rejuri, Database Access Control in Securing Mobile Systems, Fall 2015.
- Chris Francis-Christie, Detecting Insider Attacks with Video Websites using Distributed Image Steganalysis, Fall 2015. Accepted in ACM SIGCSE 2016 Student Research Competition.
- Donna Young, Mobile Security via Reverse Tether, Fall 2015. Accepted in ACM SIGCSE 2016 Student Research Competition.
- James Foshee, Defensive Programming, Fall 2015.

Other Projects:
- Coaching the GMAC FLL team, partially sponsored by CCSE. The team won the regional championship and robot performance awards (out of 32 teams) in the East Cobb regional Tournament on Dec. 5, 2015.
- Outreach Research Webinar: Database Security, Dec. 4, 2015. The event is open to the public and is partially sponsored by NSF via grant number DGE-1438858.

CS – Kai Qian

Current NSF awards:
- NSF SFS grant award #1241651 (11/2012-10/2016) Co-PI: Collaborative Project: Capacity Building in Mobile Security Through Curriculum and Faculty Development
- NSF TUES #1244697 (09/2013-08/2016) Collaborative Research: Real World Relevant Security Labware for Mobile Threat Analysis and Protection Experience
- NSF SFS #1438858 (9/1/2014-8/31/2017) Collaborative Research: Enhancing Curriculum and Faculty development on Information Assurance and Security through Real World Relevant Portable Laboratory

Current NSF Proposals:
- Dr. Kuosheng Ma (PI) and Dr. Kai Qian (Co-PI) submitted an NSF IUSE (engineering track) proposal in 10/2015; DUE #1611725 Collaborative Research: Innovative Smart Phone Engaged Active (iSPEAc) Learning Method for Embedded Systems Education—Pending $197,868.00

Publications:
Other Projects:

- The CS department has initiated an action plan to promote CS graduate faculty research and enhance the external research fund efforts. Eight special interest groups (workforce groups) have been formed—Machine Vision & Dependable Computing, Internet of Things, Cloud Computing and Data Mining, Network Security, Concurrency and HPCC Modeling, Cybersecurity and Innovation on CSE, Big Data Analysis & Deep Learning, and finally Accessible Computing and CSE. Each group has both short term and long term research plans for a variety of areas including publications, industry, and state and federal external grant funding.

CS – Yong Shi

Publications:


Current Working Projects:

- Conducted research between 10/2015-12/2015 with GRA Swathi Ganji on data mining.

CS – Ying Xie

Active research grants:

- PI: Ying Xie; Co-PI: Ken Hoganson, HPCC and Hadoop Comparative Study, $80,000, funded by LexisNexis, 8/15/2016-12/15/2016

Publications:


Other Projects:

- US Patent:
  

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Information Technology (IT) Department

IT – Bob Brown

Other Projects:
• “The College of Computing and Software Engineering hosted Girl Scout Troop 14376 as they began work on their computer expert badges in October. The girls did animations with the Scratch programming language and used online sources for research. They’ll be back in February 2016 to complete the computer expert badges.”

IT – Richard Halstead-Nussloch

Publications:
About the conference: “This a conference sponsored by KSU CETL that draws national participation. It was a great opportunity for me to share my success in using Google tools in my online and classroom teaching and hear about other teachers’ successes and innovations. I learned more about plagiarism and what other faculty are doing to counteract it.”

Other Projects:
• Served on the Program Committee and was a session moderator at the 2015 Engineering Lean and Six-Sigma Conference sponsored by the Institute of Industrial Engineers in Atlanta, October 1-2. Lean and Six-Sigma are quality improvement approaches that are being effectively applied to improve IT, healthcare, logistics and other computing-intensive services.
• MSIT students in IT7833 IT Strategy Policy and Governance course in fall 2015 requested a guest presentation from a practicing expert on the subject matter of the course. Robert Woodruff, a Senior Strategic Planner with the Georgia Technology Authority (GTA), graciously agreed to come to the class on October 26, 2015 and also attend by Google Hangout on December 7, 2015. The students greatly appreciated hearing Woodruff describe how smart strategic planning with corresponding effective operational implementation and policies over the past ten years have moved the State of Georgia's IT enterprise from 38th in the USA to one of the top-five states in the USA for IT governance effectiveness and efficiency. Students were surprised and happy as taxpayers that GTA governance functions are funded by fees paid by companies and not taxes. In the net, Woodruff presented students with model best practices for the IT professional and served as a living example of many of the concepts and lessons covered in the course, its textbook and lectures.
IT – Svetlana Peltsverger

Current Research:
- Affordable Learning Textbook Transformation Grant Co-PI $30,000, January 2015 - May 2016
  The USG grant focuses on reducing the costs of textbooks for all Database courses offered by IT department.

Current NSF Proposals:
- Peltsverger, S. B. (Principal), Bailey, B. D. (Co-Principal), Shahriar, H. M. (Co-Principal), Zafar, H. (Co-Principal). “A Cybersecurity Digital Badge Ecosystem for Revolutionizing New Learning Models; Enrollment and Participation in STEM Disciplines.” Submitted 12/15/2015 $1,583,539.00

Publications:

Other Projects:

IT – Hossain Shahriar

Publications:

List of ongoing projects:
- Log data analytics (BSIT Capstone): Three BSIT students (Jeremy Fulbright, Patrick Hayde, Jeremy Miller) are currently working on log analytics projects where they will deploy an open source analytics tool named LogStash to perform log data analysis for security. The goal is to be able to visualize well known attacks over network (e.g., DoS) and through web applications (e.g., SQL Injection). The project is mentored by Dr. Shahriar and Dr. Zheng. We are expecting to send at least one BIST student to attend NCUR undergrad research conference (http://www.ncurproceedings.org/, first 50 KSU student travel to be supported by CETL) once we have some initial results.

Submitted Grant Proposals:


Co-PI (with Dr. Victor Clincy), Mitigation of Network Distributed Android Malware Based On Information Theoretic Metrics, Google Faculty Research Award, Requested Amount: $104,720, Submitted on October 15, 2015. Status: Under review.

Other Projects:
- **Interview with Cobb In Focus magazine (Nov/Dec issue) on “How to Keep Small Business Safe from Data Breach Security Threat?”** Available at: [https://web.kennesaw.edu/news/stories/](https://web.kennesaw.edu/news/stories/)
- **Contributed to KSU Media (Nov. 12, 2015) on “How to keep Ourselves Safe During Holiday Shopping Season?”** Available at: [https://kennesawstatehootfeed.wordpress.com/2015/11/12/dont-let-hackers-hijack-your-holiday-shopping](https://kennesawstatehootfeed.wordpress.com/2015/11/12/dont-let-hackers-hijack-your-holiday-shopping)

**IT – Dawn Tatum**

**Student Projects:**
- An MSIT student, Richard Rhodd, placed # 72 in the top 100 board for the Cyber Quest competition in November 2015.

**IT – Ming Yang**

**Current Research:**

**Publications:**

**IT – Chi Zhang**

**Current Research:**
- “Kennesaw State University FY 2017 Incentive Funding Awards for Scholarship & Creative Activity.” Funding Source: center for Excellence in Teaching and Learning, KSU Funding Period: 7/1/2016-6/30/2017
  Project: This project in an integration of research and education on open-source Electronic Health Record (OSEHR) systems. The goal of the project is to investigate, evaluate, select, implement, and
adopt OSEHR systems in the HER classes for Health Information Technology (HIT) students who otherwise lack access to them.

**Publications:**

**Student Projects:**
- MSIT students Jeff Watson and Mahbubul Islam teamed up to work on a week-long project for the HIT Hackathon Challenge Invitational in October 2015. The event, which was hosted by TAG, USG, and TCSG invited students to compete to solve healthcare’s most pressing problems.
- MSIT students Jeff Watson and Mahbubul Islam’s project “Software Robotic Process Automation: “AID” of Health Information Technology” was selected to be moved to the second stage of the 2015 HIT Leadership Summit Competition. They were the only team representing KSU at the summit competition which took place on Nov. 3rd, 2015.

**IT - Jack Zheng**

**Publications:**

+++++++++++++++++++++++++++ Software Engineering and Game Design (SWEGD) Department ++++++++++++++++++++++++++++ 

**SWEGD – Jeff Chastine**

**Current Research:**
- The Center for Applied Gaming and Media Arts (CAGMA) has partnered with Railserve to design and develop software systems, including educational games for rail yard safety. Railserve works closely with Kennesaw State University faculty and students throughout each phase of software development, and is currently investigating ways of expanding its relationship with KSU. The grant, which started in 08/2015, is funded at nearly $500,000 over a three-year period, lasting until 06/2018.

**SWEGD – Allan Fowler**

**Submitted Grant Proposals:**
- Submitted an NSF #15-593 grant proposal for the Advancing Informal STEM Learning (AISL), on the informal learning that takes place in Game Jams on 11/04/2015.

**SWEGD – Rongkai Guo**
Submitted Grant Proposals:
- Submitted an NSF grant proposal in December 2015; Proposal title: EXP: VIPER—Virtual and Interactive Physics Education Reality. Total amount of award: $549,995. Award Period: 7/1/2016-6/30/2019

SWEGD – Paola Spoletini

Current Research:
- Awarded a FY 16 OVPR Pilot/Seed Grant to Attract External Funding of $9,733.

Submitted Grant Proposals:

Other Projects:
- Will serve as a member of the followings PCs:
  2. RE@next 2016. More info at: http://re16.org/

CCSE In the News:
- US News and World Report ranked KSU’s online MS in Information Technology in “Best Online Programs” for 2016, we are 28th nationally!
  See the article here: https://web.kennesaw.edu/news/stories/kennesaw-state-university%E2%80%99s-online-degree-programs-ranked-us-news-world-report

- ComputerScienceOnline.org has ranked KSU’s online graduate programs in Information Technology and Software Engineering number 7 in the “2015-2016 Best Online Colleges for Computer Science Degrees” report!
  See the article here: https://web.kennesaw.edu/news/stories/kennesaw-state-university-ranked-among-top-nation-online-computer-science-programs

Past, Current and Upcoming Events in the College of Computing and Software Engineering:

2015 CCSE Graduate Reception
CCSE held its 10th annual graduation ceremony, with students from Computer Science, Information Technology, and Software Engineering and Game Development in attendance. The ceremony was led by Dr. Jeff Chastine, who gave an introductory speech with a few key pieces of advice for the recent graduates. Among other things, Dr. Chastine encouraged the graduates to keep in touch with KSU, so that they might see the way their time here helped to influence and grow the university.

After Dr. Chastine’s speech, awards were presented to an outstanding undergraduate and graduate student from each CCSE department. These students were hand-picked by the faculty of their respective departments. Dr. Ken Hoganson came forth to present awards for the CS department to Josh Sherman (undergraduate) and Pranahita Bulusu (graduate). Dr. Svetlana Peltzverger came forth to present the awards for the IT department to Diana Koch (undergraduate) and Neesha Salvankar (graduate).
Following the presentation of awards Mr. Marty Stephens, Senior Director of Infrastructure at LexisNexis Risk Solutions, came forward to give his keynote speech. Mr. Stephens provided a brief overview of what separates LexisNexis from other big data and technology companies, followed by a summarization of how the technology industry has grown, developed, and permeated our lives since the 1950s. Mr. Stephens then came to the focus of his speech, which was that graduates should “Be prepared!”—for life changes, the professional world, and a lifetime of learning.

The evening was concluded with the raffle of a Kindle Fire (provided by LexisNexis). One of the students who also won an outstanding student award, Josh Sherman, was very excited to also win a brand new Kindle Fire.
The College of Computing and Software Engineering would like to extend a special thanks to LexisNexis for their continued support throughout the years, and looks forward to collaborating with them in the future.

**CCSE Clubs/Groups:**

**ACM Student Chapter**
- Supported by Department of Computer Science Dr. Sarah North, Faculty Advisor
- Marcus Randall, Student President; E-mail: acm@kennesaw.edu; URL: [http://acm.kennesaw.edu](http://acm.kennesaw.edu)

**ACM Student Chapter Activities**

The ACM Student Chapter is dedicated in “community engagement” to encapsulate the various ways in which we connect with the community. This includes any significant connection between our fellow peers, faculty, staff, alumni, and retirees with the larger community through engaged teaching and learning, volunteering, outreach, community service or other means.

Currently, our ACM student Chapter is involved in the following community engagement endeavors:

- Website development for Freelance Fine Artist who specializes in pet art and landscapes. *Jacob Davidson, Website administrator developer for the ACM Student Chapter.*
- State Farm Insurance Company in Dunwoody, Georgia, provides IT analyst opportunities to our students. *March Randall, President of the ACM Student Chapter.*

**October**

- Workshop Series: for ACM- ICPC Programming Competition, preparation, Presentation by, David Van Brackle, Chief Judge of the Southeast USA region of the ACM ICPC, Friday, October 2, 2015, 5:00pm-6:00pm, Atrium J-152.
• Invited Speaker – Lockheed Martin at Marietta, Hiring Opportunity for CSE Students, Presentation by Ms. Jenna Shellhammer, Recruiter, Tuesday, October 6, 2015, 6:00pm-8:00pm, Atrium J-158.
• Invited Speaker – The Lancope Company, Hiring Opportunity for CSE Students, Presentation, TBD, Cohosted with UPE.

November
• Programming Competition - ACM-ICPC (Association for Computing Machinery-International Collegiate Programming Contest), The 2015 Southeast USA Regional Contest, Sponsor By IBM, Hosted by Georgia Tech, on Saturday, November 14, 2015, 8:00am-7:00pm. The ACM-ICPC has been the largest running computer programming contest in the world since the 1970s, and is a multi-tier, team-based, programming competition operating under the auspices of ACM headquartered at Baylor University. The contest is sponsored by IBM. This is 5th year that Kennesaw State University participating in this contest.
• Student Event - Greek Heritage Night - A long standing tradition at SPSU. There will be a movie, the geek world, gaming and socialize with your fellow CCSE students TBD, 8:00pm-10:00pm, Atrium, J-1202.

December
• Poster Session - Computer Science Student Exposition at Building A (student center) Ballrooms on the Marietta campus, is on Thursday, December 3, 2015, 5:00pm-8:00pm. Link to Spring 2015 poster session.
  Each Semester, Computer Science Students featuring poster session of their research projects from Kennesaw State’s undergraduate and graduate programs. KSU continues to grow and mature in significance with outstanding research from students and faculty. This Event is support by ACM student Chapter.

AITP Student Chapter:
Supported by Department of Information Technology, Dawn Tatum, Faculty Advisor
Felipe Spinolo, Student President, E-mail: fspinolo@students.kennesaw.edu.
AITP Happenings...Geeks Giving Back!

November
• West Cobb Senior Center – Nov. 3, 2015:
  Students from the Association of Information Technology Professionals in the College of Computing and Software Engineering presented a workshop on "How to Download Music on your Mobile Device" to the seniors at West Cobb Senior Center in Marietta, Georgia. Following the presentation, students worked one on one with seniors to configure their individual devices and answer questions. This event is a quarterly commitment that started in March 2015. The next event is an open troubleshooting event for all mobile devices when seniors will be challenged to “Stump the Geek” which is scheduled for March of this year.
• PowerMyLearning – Nov. 11, 2015:
  Students from the Association of Information Technology Professionals in the College of Computing and Software Engineering participated in a civic engagement project on November 11th at the PowerMyLearning warehouse. The group also reached out to the students from Chattahoochee Technical College to join in the fun. The group helped refurbish donated equipment and prepare the computer images with educational software. They participated in imaging, troubleshooting Operating System issues, and basic cleanup of the systems. PowerMyLearning will use the refurbished equipment in workshops to supply students in partnered Title I qualified schools the ability to participate in technology in the classroom and at home.

PowerMyLearning is a national non-profit organization committed to ensuring that all children are able to power their learning through a combination of technology and the people who matter most to their success – parents and teachers. They partner with schools serving low-income communities and provide professional development for educators and family engagement services. They also operate PowerMyLearning Connect, their award-winning free digital platform that already has register users in more than 40% of public school communities across the nation and is growing fast. More information can be found at www.powermylearning.org. Students from our college have been volunteering 2 to 3 times a year since the fall semester of 2013.

• Marietta Center for Advanced Academics – Nov. 13, 2015:
  The Information Technology (IT) Department in the College of Computing and Software Engineering participated in a career day at the Marietta Center for Advanced Academics (MCAA). MCAA is a magnet elementary (grades 3-5) school in the Marietta City School District. The students experience an accelerated curriculum that emphasizes science, technology, engineering and mathematics (STEM) in a one-to-one computing environment. The program emphasizes building the problem solvers of tomorrow while using engineering concepts as the common thread
throughout all subjects. Students learn through an interdisciplinary approach in a project based learning environment.

An undergraduate student, Desiree Smokes, along with Dawn Tatum (IT faculty) and Svetlana Peltzverger (Associate Dean) participated in the Career Day and Job Fair. The MCAA fifth graders presented resumes and discussed their future career interests. They spent time talking about their favorite projects and asked questions about careers and college opportunities. Students from the 3rd and 4th grades toured the career fair and asked questions to learn more about different career possibilities. This is an annual event.

- Aventis Systems, Inc. Warehouse Tour and Competition – Nov. 14, 2015: Students from the Association of Information Technology Professionals (AITP) in the College of Computing and Software Engineering toured the warehouse of Aventis Systems, Inc. to learn more about the process of refurbishing systems. Students from the AITP chapter at Chattahoochee Technical College were also invited to join in the tour. Aventis Systems, Inc. is an organization founded by alumni from the Southern Polytechnic School of Computing. They are strong supporters of the KSU College of Computing and Software Engineering students and employ many of our students in part time and full time positions.

The tour was followed by a friendly server rebuild competition, commonly referred to as the “Doomsday Competition”. The students were separated into groups of 2-3 students and given the parts to successfully build the server, boot the operating system and connect to the internet. Of course, there were also plenty of extraneous unnecessary parts available to confuse. All teams successfully met the challenge (some with a little guidance) and it was a great learning experience and a lot of fun. Aventis Systems, Inc. presented prizes to the winning team members. This is an annual event.
**GDC Student Chapter**
Supported by Department of Software Engineering and Game Development, Faculty Advisor, Dr. Jeff Chastine.

**SRAG (Software Research Advancement Group Meeting)**
SRAG is a research group founded by a group of professors to promote research among our students. The group has grown over the year and it now includes 7 faculty members (Sheryl Duggins, Rongkai Guo, Lei Li, Dan Lo, Paola Spoletini, Frank Tsui, Chi Zhang), 10-15 undergraduate students and few graduate students.

**December**
- Some of the undergraduate students in SRAG submitted the abstract of their work (and got them accepted) to NCUR30. This is a great accomplishment for our students considering that the group is very young! Here is the list of the students, together with the title of their abstracts and their advisor name:
  1. “Understanding the Use of Virtual Reality Technology to Increase Self-Confidence for People with Visual Impairments”—Jerome Lester (Rongkai Guo)
  3. "Gathering Requirements for Motion-Based Game Development to Support the Elderly"—Wyatt Shaffer, Shaluvi Gautam, Jared Gibson (Paola Spoletini)
  4. "An Empirical Study: Understanding a Novel Scheme for Software Reuse through Classification"—Dejan Ahmetovic, Miles Sakmar, William Wilson (Frank Tsui)
  5. "Implementation and Evaluation of open-source Electronic Health Records (EHR) Software Packages"—Sam Solaimani (Chi Zhang)