College Leadership

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College of Computing and Software Engineering Annual Report 2016-2017
This Annual Report is published by the College of Computing and Software Engineering at Kennesaw State University to showcase the achievements of our students, faculty, staff, and alumni.

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Kennesaw State alumni can update their address information at http://alumni.kennesaw.edu/updateinfo.php

The Bachelor of Science in Information Technology, Computer Science, and Computer Game Design and Development undergraduate programs are accredited by the Computing Accreditation Commission, and the Bachelor of Science in Software Engineering is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.
TABLE OF CONTENTS

Dean's Letter ................................................................................................................4
Points Of Pride .............................................................................................................5
CCSE By The Numbers ...............................................................................................6
Ranked Among The Nation’s Elite ............................................................................8
A Year Of Accomplishments ......................................................................................10
Cybersecurity Degree Adds To KSU’s Technology and Security Offerings ..........11
Capstones ...................................................................................................................12
Technology Driven ......................................................................................................14
Study Buddy ................................................................................................................16
Getting Out There .......................................................................................................17
CCSE Events Highlight Student Success and Excellence ......................................22
CCSE Faculty and Expertise .......................................................................................24
Drone Delivery ............................................................................................................26
2016-2017 Scholarship and Research Activities .....................................................28
Virtual Reality For The Visually Impaired ...............................................................30
2016-2017 Grants .......................................................................................................31
Guiding Girls Toward Technology .........................................................................32
CCSE Partnerships Produce Real-World Benefits For Students and Organizations ...34
Beyond The Everyday: Continuing to Improve Labs and Equipment ..................36
Developer’s Delight ....................................................................................................36
CCSE Sponsors and Partner Listing .........................................................................37
CCSE Advisory Board Helps Shape Direction and Future of CCSE .....................38
Internships & Co-Ops Ready Students For Workforce ...........................................40
Partnership With LexisNexis® Serves Students, Addresses Talent Gap in Technology ..............................................................................................................................................................................41
Railserve Inc. Provides New Scholarship Endowment ............................................42

2016-2017 Annual Report 3
The College of Computing and Software Engineering (CCSE) at Kennesaw State University is dedicated to fostering the success of our students and partners by combining theoretical and practical aspects of computing. I’m delighted to share this report that highlights our recent accomplishments with you.

Now in its third year since being elevated from departmental and school designations, the College of Computing and Software Engineering continues to reflect how computing impacts so many areas of our lives. In all of our rigorous programs of study, students are challenged to deepen their understanding of computing and to apply their learning beyond the classroom. Our faculty are active in research and scholarship, and they bring this innovation into the classroom, keeping our courses current and relevant. Reflecting our core ideals of stewardship and partnership, CCSE is actively engaged in service-based learning with local nonprofits, student clubs, K-12 schools, and area businesses.

In this upcoming year, we will continue to impress upon students that excellence in their studies should translate to active engagement outside of the classroom. CCSE continually creates such opportunities. For some, this means participating in a computing club or teaching others how to effectively use technology; for others, this means participating in a game jam or hackathon weekend; for others still, it means an internship/co-op with a business or exploring research or entrepreneurship for an innovation they’ve developed. Whatever their passion, we want our students to embrace their potential and take ownership of their educational experience within CCSE and within KSU.

I am grateful for your continued commitment and dedication to CCSE. It is a pleasure to work alongside you in service to our students, and I look forward to all of the great things we will accomplish together in the future. I hope to hear from each of you regarding how to make CCSE even better.

Jon A. Preston
Interim Dean, College of Computing and Software Engineering
During the 2016-2017 year, the College of Computing and Software Engineering has achieved:

Incredible growth and national recognition of our world-class academic programs.

Innovations in theoretical and applied computing research.

Stronger connections and collaborations with our industry partners.

Increased resources to empower our students, faculty and staff.
Data about the College of Computing and Software Engineering

Total Enrollment
Total enrollment has increased by 85% since Fall 2012 and by more than 16% in the past year.

Total enrollment includes undergraduate, graduate and certificate students.

Declared Undergraduate Majors
All of our programs continue to grow and expand as we welcome new students to CCSE - with each major attracting a significantly larger number of students over the past years. Further, the addition of the BA in Applied Computer Science offers choice for students interested in Computer Science.

Declared Graduate Majors and Certificates
The Master of Science in Information Technology, with 219 graduate majors in Fall 2016, is the largest graduate program at Kennesaw State University. It generated 18% of all graduate hours at Kennesaw State in 2016.
Undergraduate Degrees Awarded

CCSE awarded 292 undergraduate degrees in FY 2016, a 91% increase from 2012. Each program continues a healthy number of graduates, and the Bachelor of Science in Computer Science continues to be the largest producing program.

*FY, fiscal year, includes consecutive summer, fall and spring terms.*

Graduates Per Fiscal Year

Graduate Degrees and Certificates Awarded

CCSE awarded 147 graduate degrees or certificates in FY 2016, which represents a 61.5% increase during the past five years.

Total Credit Hours

CCSE generated 37,026 credit hours in Spring and Fall 2016.
The number of rankings of higher education institutions and their academic programs by external organizations has risen in recent years, enabling prospective students to make comparisons and well-informed decisions about colleges and their academic programs.

While the rankings each have their own methodology to measure and monitor higher education institutions, Kennesaw State’s College of Computing and Software Engineering is being named among some of the nation’s top rankings.

“Rankings matter to our programs because they demonstrate that an independent third party has examined our programs and what we’re doing and determined that we’re competitive nationally and internationally in the academic quality and experiences we provide for our students,” said Jon Preston, interim dean of the College. “Rankings are also a way we can improve. We can see other institutions ranked higher and can incorporate some of their best practices into our programs.”

He added that these rankings may help prospective students find KSU when considering various academic programs and give potential employers insight on the quality of our programs and graduates.
U.S. News & World Report ranked Kennesaw State 38th in its 2017 Best Online Graduate Information Technology programs. For the second consecutive year, Princeton Review has named Kennesaw State among the Top 50 Undergraduate Schools to Study Game Design. Ranked 37th, KSU is one of only 20 public universities selected in the annual ranking.

**BestColleges.com** ranked Kennesaw State among the 10 best in the country – 9th nationally and 1st in Georgia – in their 2017 Best Online Colleges ranking. Their ranking of best online bachelor’s degree programs named the University’s Information Technology program 2nd and Cybersecurity 8th nationally.

**AffordableCollegesOnline.org** named two of the College’s programs among their 2017 Best Online Master’s Degrees: Software Engineering ranked 15th and Information Technology ranked 40th.

**Top 50 Best Value Online Graduate IT Programs** for 2017 by **ValueColleges.com**, an online guide for prospective students, ranked the College’s Master’s of Science in Information Technology 29th overall.

The Community for Accredited Online Schools at **AccreditedSchoolsOnline.org** recognized Kennesaw State for higher education excellence in nine different rankings, with two rankings for the CCSE: Best Online Master’s in Information Technology – No. 15 and Best Online Master’s in Software Engineering – No. 16.

The online Information Technology bachelor’s degree was ranked No. 7 in the U.S. as part of **OnlineColleges.net** ranking of online IT bachelor’s degrees.

The College’s Information Technology and Software Engineering degrees were ranked 7th in the country, in the 2017 Best Online Colleges for Computer Science Degrees by **ComputerScienceOnline.org**. Kennesaw State also was identified nationally among the top 50 overall in the annual ranking.

**BestMastersDegrees.com** ranked the College’s MSIT as No. 2 in affordability from among the nearly 120 accredited institutions that offer online master’s degree programs in information technology, information systems or other closely related degrees.

The College’s Software Engineering degree was ranked second in the nation in the **GuidetoOnlineSchools.com**’s Best Value Rankings for 2017. As part of the rankings, Kennesaw State was ranked No. 19 in the nation among its Top Online Colleges.
A YEAR OF ACCOMPLISHMENTS

The College’s numerous accomplishments over the past year are a true measure of our success. From innovative courses to high-tech facilities and cutting-edge research, the College is embracing new industry partnerships and planning activities that benefit students academically and professionally.

• College enrollment grew by 16% from 2016 to 2017
• New faculty were hired and course offerings expanded to support the growing student body.
• A student success manager was added to coordinate advising within the College.
• New innovative courses were developed in the Internet of Things, virtual and augmented reality (AR/VR), high-performance computing, undergraduate research, machine learning, and bioinformatics.
• Students traveled to Montepulciano, Italy, for the College’s first study-abroad opportunity in the spring of 2017.
• More than 150 students demonstrated hundreds of projects to industry partners during the College’s Capstone Days.
• The first CCSE Hackathon is planned for October 2017, with more than five industry-sponsored threads in security, data analytics, AR/VR, consumer support, and insurance domains.
• The College’s first endowed scholarships – from LexisNexis and Railserve – will provide financial assistance for computing students.
• More than $200,000 in supplemental instruction support and $400,000 in student-facing lab hardware and software was invested to improve the facilities and learning in the College.
• Two new labs opened in August 2017: a visualization and high-performance computing lab and a virtual reality/augmented reality lab.
• New high-performance computing (HPC) equipment was installed for student and faculty research.
• Research activity in CCSE increased by 60 percent over the previous year, with 151 published papers, articles, proceedings, talks, and presentations given by CCSE faculty and students in 2016.
• A pre-awards grants manager was added to support faculty writing grant proposals and research papers.
• The College has established new industry partnerships and reformed its CCSE Industry Advisory Board.
• An external ABET team will evaluate the College’s IT, CS and CGDD programs – as part of ABET reaccreditation – during an on-site visit in October 2017.
A new online interdisciplinary Bachelor of Science in Cybersecurity program will begin this fall, adding to Kennesaw State’s portfolio of technology and security programs.

The cybersecurity major includes elements of information security and assurance, information technology, and criminal justice, giving students a combination of technical knowledge and information security management skills. Students will concentrate on one of three tracks – systems security, network security, or cybercrime.

“The new degree will combine various strengths from each program, providing a unique experience for students choosing this major,” said Becky Rutherfoord, chair of the Department of Information Technology.

The online degree is the first initiative for the University’s new Institute for Cybersecurity Workforce Development, which is helping meet the increasing demand for qualified professionals in the cybersecurity field.

“The Bachelor of Science in Cybersecurity is an opportunity to offer something unique, by building on past excellence and delivering a one-of-a-kind experience for students,” Kennesaw State President Sam Olens said. “This interdisciplinary degree will solidify the University as a leader in producing cybersecurity professionals who are much-needed in the Southeast and across the country.”

A combined effort of three KSU colleges – the College of Computing and Software Engineering, Coles College of Business and College of Humanities and Social Sciences – the Institute will conduct applied and academic research to push faculty and student knowledge beyond textbooks and further cybersecurity proficiency.

The Institute is currently pursuing community and industry partnerships in endeavors such as executive education programs, cybersecurity roundtables and fundraising efforts.

For more information, see kennesaw.edu/cybersecurity
The last semester of college is often a favorite for CCSE students, who spend their final academic courses completing capstone projects to showcase their computing prowess.

For this semester-long assignment, students worked collaboratively in small teams to develop a project or prototype that solves a complex problem or unveils a new solution for an industry client. The goal for students is to produce a product that a client wants, while learning valuable project planning and management skills in a team environment.

Some capstone projects partnered with corporate or nonprofit organizations that supplied real-world problems and challenges for student groups to scrutinize. In return, students provided fresh solutions for these local companies.

Railserve, Inc., a company that provides rail switching services, railcar loading and track maintenance, turned to Kennesaw State for expertise in converting their manual processes to a digital format. Students were asked to develop an online maintenance system that helps the company schedule preventative maintenance to their tracks and railcars.

“It was stressful, but it was a great experience in developing a software prototype for a client,” said Daniel Brown, a computer science major who led one student group that designed both a database and webpage with mobile capability for Railserve.

Students showed off their capstone projects during the College’s end-of-semester C-Day.

Alpharetta-based nonprofit, Make a Miracle, provides funding to help needy Peruvians attend college or start a new business. Founder Carolyn Canouse hired KSU computer science student Yasin Hussain as an intern while she searched for ways to build an online database management system to track students, mentors, and scholarships.

“We brainstormed and explored low-cost and free options to implement to meet the organization’s needs,” said Hussain, who suggested his team could build the system as part of their senior capstone. “For our work to be translated to an everyday use for the organization is priceless.”

The team worked with new frameworks, languages and software to create a robust website for the two-year-old nonprofit.
Canouse added, “We can now go from helping 17 people to helping 1,700.”

Some of the student capstone projects were created out of curiosity rather than practicality.

A SmartMirror, a new type of technology-embedded décor often found in lavish hotels, inspired one group to build its own. Using multiple sensors and API calls to extract data, the SmartMirror is a wood-framed monitor that relays weather, time, and news to the user.

Raiden Stiegel, the team’s project manager, said that their system also installed a motion detector to sense a heated body nearby, as well as indoor temperature and humidity sensors. The team built their prototype for less than $150.

Another team developed an app, called FaceSNATCH, to survey emotions in real time. This mobile app analyzes a person’s facial expression through the app’s camera and, within seconds, can identify the person’s emotions using the inbuilt database image collection.

C-Day Judges strapped on the Vive virtual reality headset to try out one capstone project that allows both a virtual reality player and a PC player to play in the same game. This requires the PC player to join along in a space designed and led by the VR player, helping to control motion sickness from high-intensity game play in an augmented reality space.

“This is their grand finale,” said Interim Dean Jon Preston about C-Day showcase. “This truly shows the students’ authentic experience and combines everything they’ve learned in their previous courses to a real-world application that benefits the students and customers.”

For more information about the next C-Day, see ccse.kennesaw.edu/C-Day
Computer Science student earns coveted Google and SMART Scholarships

Earning a prestigious scholarship from one of the most influential companies in your profession is a notable honor, but earning two top scholarships is an impressive feat.
Déjà Tyla Jackson, a computer science student in the College of Computing and Software Engineering, is one of only 20 female college students selected for this year’s Women Techmakers Scholars, a Google for Education program designed to create gender equality in the field of computer science, and encourage women in tech to become active role models and leaders in the field.

“To be recognized as a scholar by such a reputable company is amazing and it is a real honor to be granted this award,” said Jackson, who was acknowledged with the $10,000 scholarship for her academic record, exemplary leadership and demonstrated passion to increase the involvement of women in computer science.

“I tried for this scholarship because I wanted to push myself and not be scared of possible rejection,” she added.

Since arriving at Kennesaw State in 2015, Jackson has been involved in several undergraduate research opportunities, such as creating block programming language for students with disabilities and Java applications for conference organizers to keep track of guests. Last summer, Jackson conducted research involving classified information for Georgia Tech’s Industrial Engineering department. This summer, she will work for the Department of Defense in Maryland as part of a 12-week internship.

Jackson also earned a Science, Mathematics and Research for Transformation (SMART) Scholarship, part of the National Defense Education Program and supported by the American Society for Engineering Education. The Department of Defense’s scholarship-for-service program selects students who have a demonstrated ability and special aptitude for excelling in STEM fields and want to continue research in civilian jobs in DoD laboratories and agencies after graduation.

The $25,000 SMART scholarship is awarded annually and is renewable for multiple years until degree completion. Upon graduation, scholarship recipients are required to conduct research at a DoD facility for the same number of years that they earned the scholarship.

“This money can help fund my education and grant me more time to focus on my education and success than constantly working,” she said. “I generally have at least two jobs at once.”

Jackson also has been active in several KSU student organizations, serving in leadership roles for three of the groups. Jackson is vice president of the Object-Oriented Owls, an organization that promotes interest and retention among women studying computer science.

“For me, the key to a great college experience is to get involved. It may be stressful for four years, but there is a huge benefit,” Jackson said, who is also a National Merit Scholar, sponsored by FedEx, and a Zell Miller Scholarship recipient.

A junior, Jackson serves as the College’s representative to the Student Government Association, in which she communicates the concerns of CCSE students to the SGA. She is a member of the Association of Computing Machinery (ACM) and Epsilon Pi Upsilon, an international honor society for computing and information disciplines, and serves on the business team for KSU’s Electric Vehicle Team.

“At the end of the day, I do everything I do because it feels great to make a difference and a real contribution to something,” she said. “As a college student, you are often handed amazing opportunities that you may feel you aren’t always qualified for, but you can learn anything you put your mind to with enough practice and dedication.” The 19-year-old hopes to work in the area of cybersecurity.
Students usually know what they need most, especially when it comes to their study habits.

So when Michael Williams, a computer game design and development student, and Jared Breedlove, a software engineering student, were asked last summer to further develop a mobile app that would help students organize study groups around campus, they enthusiastically agreed to help.

They liked the idea of shaping a new app into something that they, as students, would want to use. The app, called Study Buddy, began in 2012 as the brainchild of Mark Anderson, dean of the College of Science and Mathematics.

“In the sciences, we encourage students to work collaboratively in groups, then they leave class and go off to study in isolation,” Anderson said. “With smartphones and GPS technology, there had to be a way to develop spontaneous study groups for students.”

As a scientist, Anderson needed expertise from students - the very users of the app - as well as those with an aptitude for mobile application development, so he tapped Jon Preston, interim dean of the College of Computing and Software Engineering for help.

With the original code and Anderson’s articulated idea, Breedlove and Williams began brainstorming new concepts, integrating better mapping features and determining how to pull from the University’s course scheduling system in real time.

“We looked at better hierarchies and wanted to embed better functionality for the user,” Williams said.

The interface offers a map where students create a study group and electronically pin their group location, with each pin color-coded based on a specific class or subject area. The working prototype gives students a quick visual glance at what courses, and specific course sections, have study groups going on at any given time.

As a result of focus group feedback from students, the team extended the original intent of the app - a study group organizer - to also provide a forum to ask questions about classes.

“We found that students also want a space where they can talk about what’s going on,” Williams said. “As a commuter student, if I have a question for a class, I can lean on my classmates to ask them.”

The developers built in more of a social media component by adding a messaging feature - a detail that will help to straddle the ways in which students want to connect with their classmates.

With the beta-testing phase set for fall 2017, the app will provide an easy mechanism for students to make connections and develop relationships earlier in their academic careers, according to Anderson, especially as many students attend lecture courses where they cannot connect with others as easily.

The Kennesaw State University Research and Service Foundation (KSURSF) played a significant role in managing all of the developments of the apps since its inception in 2012. The app has undergone several versions, and KSURSF obtained the copyright for the app and holds the trademark on the app’s name, Study Buddy.
College of Computing and Software Engineering students are continually encouraged to “get out there” to use their skills and knowledge, gain practical experience, enrich their resumes, and expand their networks through discipline-specific extracurricular activities. In addition, community engagement is a major College goal. Students volunteer through CCSE clubs and as part of CCSE service-learning courses. Capstone teams work with local nonprofit organizations, and Computer Game Design and Development teams work with local elementary schools to promote STEM and teach Georgia Learning Standards.

Nine student organizations give motivated students opportunities to build experiences and make themselves stand out in the hiring process. Students are encouraged to take part in discipline-related organizations, which include:

- Association for Computing Machinery (ACM)
- Association of Information Technology Professionals (AITP)
- College of Computing Club (3C)
- Georgia Game Developers Association (GGDA)
- IEEE Computer Society (IEEE-CS)
- International Game Developers Association (IGDA)
- Object-Oriented Owls (OOO)
- Robotics & Automation Society (RAS)
- Women in Technology (WIT)
STUDENT ORGANIZATION HIGHLIGHTS FROM 2016-2017

Take a look at just some of their activities and see how their members have put their skills into action.

AITP: Missouri Bound!
During Spring Break, April 5-9, 2017, ten students from the College of Computing and Software Engineering traveled to St. Louis, Missouri, to compete in the Association of Information Technology Professions (AITP) National Collegiate Conference (NCC). The students competed in Microsoft Office Solutions, Business Analytics, Enterprise Systems, Java Developer, Mobile Application Development, PC Troubleshooting, and Security.

AITP PowerMyLearning Events
Students have partnered with PowerMyLearning, a national nonprofit organization that improves learning through a combination of technology and parents and teachers. CCSE students volunteered with schools serving low-income communities and provided professional development for educators and family engagement services.
2nd Place in Software Competition
KSU Computer Science students won second place in the Open Software Competition during IEEE Southeast Conference in Charlotte, North Carolina, from March 30 to April 2, 2017.

School Volunteers
IEEE Computer Society Student Chapter, including students from CCSE, EE, and other disciplines, volunteered at Smitha Middle School, on March 24, 2017. The event was supported by Lockheed Martin in support of STEM Civic Service Leaders for Viva Technovation 2017, to motivate and mentor/inspire the middle school students to choose a STEM field of study.

Robotics & Automation Society Demonstrates Drones and Robot Exhibitions
During the College’s annual Showcase for prospective students and their parents on March 11, 2017, the Robotics & Automation Society entertained and informed the visitors with a robot and drone presentation. They also gave a robot demo during Hightower Trail High School’s Showcase on March 17, 2017.

Object-Oriented Owls Provide Year-Long Support to Girls Inc.
OOO began working with Girls Inc., a national organization that empowers girls to succeed, in the summer of 2016. With $10,000 from Google’s IgniteCS initiative, the team of computer science majors spent four weeks teaching young girls about computer programming to encourage them to pursue technology-focused careers. As mentors and volunteers, the college students hoped to show the many sides of computing and inspire the young girls. The computer science sessions continued throughout into the academic year as an after-school program.

Students Inducted into Upsilon Pi Epsilon Honor Society
The Honor Society for Computing and Information Disciplines inducted 41 undergraduate and graduate students on April 11, 2017. UPI exists to promote the computing and information disciplines and to encourage their members to contribute to the enhancement of knowledge.
Not all outreach efforts are conducted by student organizations. Activities and accomplishments highlighted here reflect several of the other CCSE outreach projects from the 2016-2017 year.

Education Games Built by Serious and Educational Game Design Students
In 2016, CCSE collaborated with the Marietta Center for Advanced Academics and Dunleith Elementary School to design nine educational games for the elementary school kids. All participating teachers, kids, and their parents were invited to the Campus for a showcase event. This year, five elementary or middle schools are part of the collaboration. The Atlanta Journal-Constitution highlighted CCSE students Michael Williams and Drew Savas and their work with Dunleith Elementary and the Marietta Center for Advanced Academics in May 2016. Fifth-graders worked with the pair to develop the “Lemonade Stand” game, which teaches basic economics, such as supply, inventory, cost and pricing. By sharing the inner workings of the game with the class from week to week, the pair also taught the students programming basics.

IN HER OWN WORDS
Thinking Outside the Box and Making Loads of Memories

The AITP event was truly an information fest with multiple conferences, competitions, and certifications happening simultaneously. Armed with our laptops, we excitedly enrolled ourselves for various competitions ready to compete and learn from this experience... The competitions really taught us how to think out of the box and to apply classroom knowledge to real world solutions.

We represented Kennesaw State University proudly amongst a sea of colleges intermingling with different students, professors, and sponsors. We also visited the career fair, exchanged contact information and resumes with employers, got valuable tips, and networked amongst the industry representatives.

Our trip was marked by fun, laughter, and lot of camaraderie and teamwork. In our free time, we explored the city and soaked in the culture of St. Louis. I feel really fortunate to be given an opportunity to represent Kennesaw State University at national level, and this feeling was magnified when we screamed energetically to our University name at the conference.

I am carrying loads of memories, experiences, joyful moments with teammates that adorn my precious time at KSU. I’m extremely thankful to the university to give me this opportunity to mingle with the best in the industry and rub shoulders with the finest scholars from all over the country. (MSIT): Preeti Aggarwal.

Game Design Boot Camp
Collaborations with CDC and HHS, and Georgia Game Developers Association
With well-equipped facilities, the CGDD program has hosted some of the largest game development gatherings in the nation and has partnered with the Centers for Disease Control and Prevention and the Department of Health and Human Services to develop programs focused on smoking cessation, food-borne illnesses and HIV awareness. The CGDD program also works with the Georgia Game Developers Association to promote STEM and game development studies among high school students.

IT Students Visit Vaughan Elementary School
At Vaughan Elementary School, on April 12, 2017, IT students worked with third graders to teach the binary number system using flash cards. Second-graders also learned to write a “program” to instruct a robot to stack paper cups.

Global Game Jams
Over the past few years, the gaming faculty has organized five game jams, both local and global. The local game jams hosted an average of 150-200 students while the global game jams hosted about 250-350 students.

CCSE Hackathon
UpStart Venture Partners hosted a Hackathon at the CCSE on March 23, 2017. The event involved networking, sponsors presentation, team formation, and selection of business problems to solve during the hackathon.

Game Design Boot Camp
With an Xbox controller, a computer, and coding software, a few dozen fourth and fifth grade girls learned to code and design games as part of a new Game Design Boot Camp hosted by CCSE in June of 2017. Camp organizer, Allan Fowler, KSU assistant professor of software engineering and game development, said the boot camp provided a “safe space for girls to learn and develop their confidence.”

The girls created “worlds” by individually designing a planet’s virtual terrain, choosing different types of rock, and then programming a rover to explore and scan the planet to identify the rock samples. The camp, offered for two weeks, was funded by internal grants from the KSU Office of the President and the College of Computing and Software Engineering.
Computing Showcase (C-Day) is a biannual event at the end of fall and spring semesters where students showcase some of the richest activity within CCSE. As students prepare for graduation, they present posters highlighting their achievements within internships, team projects, capstone, and theses work.

Fall 2016 sponsors included ADP, HPCC SYSTEMS, INTELLITEACH, and Shaw Industries. Shaw returned as a sponsor for the Spring 2017 event.

Twice a year, in both spring and summer semesters, CCSE hosts companies and 150-plus students eager to learn more and connect. Companies who attend are pleased to find top talent for internships, part-time, and full-time positions, and students appreciate the opportunity to build their resumes with valuable experience and new jobs.

This spring open house is held for undergraduate students and their parents and includes information sessions, a student organization fair and lab, classroom and housing tours. Prospective students also talk with faculty and students to learn more about what CCSE and KSU offers. Approximately 83 prospective students and their family members attended the March 11, 2017, event.
Though the College of Computing and Software Engineering is large, with more than 3,000 students and 100 faculty and staff, the personal touch is still valued. Every semester, a reception is held for graduates and their parents or spouses. The program acknowledges the graduates’ hard work and the support provided by their families, friends, faculty and staff. An outstanding undergraduate and graduate student from each of seven CCSE programs is named, and the Pledge of the Computing Professional, which promotes and recognizes ethical and moral behavior, is recited. The fall 2016 and spring and summer 2017 receptions were sponsored by HPCC SYSTEMS.
Computer Science

Patrick Bobbie – Ph.D., University of Southwestern Louisiana
Operating systems, distributed computing, computer architecture

Victor Clincy – D.Eng., Southern Methodist University
Systems engineering, operations research, computer architecture, networking

Joseph Eyles – Ph.D., University of Texas – Austin
Data structures

Abdullah Faruque – Ph.D., Clarkson University
Computer architecture

Jose Garrido – Ph.D., George Mason University
Real-time systems, computational modeling, discrete-event simulation

Dick Gayler – Ph.D., Florida State University
High-performance computing, computer science education, parallel programming

Hisham Haddad – Ph.D., Oklahoma State University
Computer security, risk assessment, security vulnerability, denial of service attacks

Jing (Selena) He – Ph.D., Georgia State University
Graph theory/algorithms, wireless sensor networks, internet of things

Ken Hoganson – Ph.D., Auburn University
Computing education

Tulin Kilinc – M.S., Kennesaw State University
Programming languages

Chi-Cheng Hung – Ph.D., University of Alabama
Image processing, algorithms, computer architecture, artificial intelligence

Ed Jung – Ph.D., University of Minnesota
Computer architecture, networks, theory of computation, real-time systems

Mington Kang – Ph.D., Texas A&M University-Commerce
Big data analytics, deep learning, bioinformatics

Dong-Hyun Kim – Ph.D., The University of Texas
Computational security, wireless networks, algorithms, ad hoc networks, computer communications

Dan Lo – Ph.D., Illinois Institute of Technology
Mobile security, information assurance and security, big data analysis, computer architecture, parallel programming

Sarah North – Ed.D., Clark Atlanta University
Virtual reality, mobile application development and security, database

Tejaswini Nalamothu
Programming languages

Eun K. Park – Ph.D., Northwestern University
Information, big data and knowledge management, computer communications and networks

Apeksha Ponna
Programming Languages, Web Design, Software Engineering

Kai Qian – Ph.D., University of Nebraska
Database systems, security, and design; mobile threat analysis, courseware development, computer systems

Shrunthi Rajuri
Computer Architecture, Programming Languages, Databases, Big Data

Alan Shaw – Ph.D., Massachusetts Institute of Technology
Access and capacity building in computing education, digital game design

Yong Shi – Ph.D., SUNY Buffalo
Computer security, data mining, cloud computing

Monisha Verma – MBA, Bentley University, M.S., University of Pune
Data warehousing, data mining

Xiaohua Xu – Ph.D., Illinois Institute of Technology
Wireless networking, wireless sensor networks, mobile and ad hoc networks

Joseph Yan – Ph.D., North Carolina State University
Computer System Organizations, Databases, Software Engineering

Software Engineering and Game Development

Jeff Chastine – Ph.D., Georgia State University
Augmented and virtual reality, mobile software development, game design and development

Manijeh Mona Chavoshi – M.S., Southern Polytechnic State University
Programming, database, and professional practices and ethics

Sheryl Duggins – Ph.D., University of Florida
Professor Emeritus of Software Engineering

Mike Franklin – Ph.D. in Computer Science, Georgia State University
Artificial intelligence, machine learning, robotics, multi-agent systems, gaming, media arts, and both human computer interaction and human robot interaction

Allan Fowler – Ph.D., Auckland University of Technology
Using technology to engage people in learning, benefits Game Jams

Richard Gesick – M.S., Southern Polytechnic State University
Object-oriented development and game engines

Rongkai Guo – Ph.D., University of Texas San Antonio
Serious gaming, computer/mobile gaming, virtual reality (VR), VR for rehabilitation

Wenhua Hu – Ph.D. in Computer Science with emphasis in Software Engineering, University of Alabama
Empirical Software Engineering, Human Factors in Software Engineering, Computer Science Education

Sandra Jones – MBA, Mercer University; M.S., Columbus State University
Game design and development, information technology
Chao Mei - Ph.D., University of Texas San Antonio
Human-computer interaction, accessible technologies, virtual reality (VR)/augmented reality (AR), gaming and software engineering

Reza Parizi - Ph.D. in Software Engineering, Universiti Putra Malaysia

Pat Pierce - M.S., Southern Polytechnic State University
Introduction to programming

Hassan Pournaghshband - Ph.D., University of Oklahoma
Software architecture, software project management, software quality assurance and testing, database management systems, and programming language design and compilers

Jon Preston - Ph.D., Georgia State University
Real-time concurrent editing systems, game development, educational technology, human-computer interaction, serious/educational game design

Jim Rutherfoord - M.S., Indiana State University
Software engineering, discrete structures

Paola Spoletini - Ph.D., Politecnico di Milano
Software engineering, formal methods, requirement analysis, and specification languages, theory of computation

Information Technology

Bob Brown - Ph.D., Nova Southeastern University
Applications of cellular automata; computer security and information assurance

Richard Halstead-Nussloch - Ph.D., University of Michigan
Human-computer interaction; healthcare information technology (IT) innovation and improvement, adult learning; IT capability maturity; IT curriculum innovation; computational science and empirical computing; electronic government and electronic citizenship

Lei Li - Ph.D., Georgia State University
Social media data analytics, information security, web information management, IT education

Hyesung Park - Ph.D., University of Nebraska - Lincoln
Databases and programming

Svetlana Pelsverger - Ph.D., Institute of System Analysis of Russian Academy of Sciences
Cybersecurity, data privacy, computing education

Rebecca Rutherfoord - Ed.D., Indiana State University
Database, adult learners, online learning

Hossain Shahriar - Ph.D., Queen’s University
Secure software development, intrusion detection system development, mitigation of vulnerabilities in web and mobile application, risk assessment

Dawn Tatum - M.S., Southern Polytechnic State University
Cybersecurity

Susan VandeVen - M.S., Georgia Institute of Technology
Programming

Ying Xie - Ph.D., Wright State University
Deep learning, big data, artificial intelligence, internet of things

Ming Yang - Ph.D., Wright State University
Security vulnerabilities

Chi Zhang - Ph.D., University of Nebraska - Omaha
Health data analytics, open-source electronic health record (EHR) systems and applications development, IT education

Guangzhi (Jack) Zheng - Ph.D., Georgia State University
Business intelligence, data visualization, mobile/web applications, information seeking, user interface design

Part-Time Faculty

Jeff Adkisson
Yinka Akinwusi
Lynda Brown
David Busse
Stephen Cavanaugh
Richard Garrett
Jonathan Higgins
Jonathan “Wes” Hogarth
Balakrishna Inamdar
Kirk Inman
Ferosh Jacob
Orlando Karam
Gennady Kemelmakher
Moazzam Khan
Ramesh Kuruba
Chad Leverenez
Zhigang Li
Ermlas Mamo
Carla McManus
Carlos A. Cepeda Mora
Stephen Ndiritu
Qingquan Nie
Hesom Parhizkar
Sharon Perry
Steve Prettyman
Sailaja Pydimarri
Diana Rabah
Legrant (Tres) Scott
Junggab Son
David Stabler
Vadim Stanovski
Enda Sullivan
Chad Teat
Robert Thompson
Ishan Vaidya
John Vande Ven
Richard Windland
When delivery companies like FedEx, Amazon, and UPS launch drones to deliver packages in the near future, one Kennesaw State computer science professor may be at the crux of solving one of its most complicated problems.

Donghyun (David) Kim, assistant professor of computer science and an expert in computer algorithm optimization, is designing a fast-running algorithm to tackle simultaneous coordination problems among multiple delivery trucks and the drones launched from them.

Kim’s study involves multiple robotic drone trajectory planning to figure out how best to distribute a given set of packages, by drone and truck, as they move concurrently. These trajectories have to be optimized simultaneously to avoid overlapping the delivery paths of multiple trucks and drones, according to Kim. The problem becomes extremely complicated when trying to consider which truck should deliver which package by drone, and how that drone will return to a moving vehicle, he added.
"A simplified form of this problem can be easily proven to be NP-hard. This means that when the input size of the problem is too big, it is unlikely to find an optimal solution within a practical time even using a state-of-the-art computer," Kim said.

The development of his approximation algorithm, which he calls “a sub-optimal fast-running algorithm with a mathematically proven worst-case performance guarantee,” will help courier companies coordinate their efforts and save both time and money when operating multiple drone-assisted truck delivery systems.

“This research aims to develop a travel plan for multiple drones to perform a given surveillance task with minimum delay,” Kim said. “Drone technology is shaped by computer science in every aspect.”

Kim is using mathematical models within computer science and mathematics to find a solution, an offshoot of the traveling salesman problem, or TSP, a well-known computational issue related to vehicle routing issues. Kim presented his first result of this complex problem with drone delivery at IEEE INFOCOM, the nation’s premier computer communications conference, in 2012.

“Around that time, I observed many researchers who did not notice the complexity of this problem and used a very rough planning strategy to operate multiple robotic vehicles,” said Kim, who has been conducting research on aerial robotic technology since 2012.

Kim said he believes his latest research is a major revelation in the area of optimization. His new development will enable coordinated drone delivery and may apply to any industry where multiple drones must effectively communicate while performing tasks simultaneously.

2016


2017


Gaming professor and students develop training tools using VR technology

For the visually impaired, navigating a fresh environment usually takes repeat practice to comprehend the layout, so to reduce safety issues, new virtual reality technology is now able to provide a safer, more flexible practice environment.

To help them, assistant professor of gaming Rongkai Guo is adapting game development technology to create innovative and immersive simulation training.

“Imagine being able to use virtual reality to instantly map a room with technology sensors that could warn individuals about where furniture is positioned,” said Guo.

The virtual reality exercises, developed by Guo and his team of student researchers, will expand sensory experiences and build strong mental representations to help the visually impaired in coping with daily challenges.

The team’s research stretches into the area called Head-Related Transfer Function (HRTF), which is how the ear receives sound from a point in space. Using two earphones, the HRTF becomes prominent in sensing sound differentiation at a position in virtual environments.

For the past year, Guo has been working with the Center for the Visually Impaired in Atlanta to understand the needs of those with visual disabilities. He analyzes behavior and movement to create real-world adaptations in virtual reality.

“Using virtual reality for vision rehabilitation is exciting, especially to see how the application of this training will enhance their mobility, and how it enables them to practice in a safe, yet realistic environment,” said Anisio Correia, vice president of programming at the Center for the Visually Impaired.

According to the Center, the majority of visually impaired lose their eyesight later in life as adults, due to illness or injury.

“The life skills they’ve come to expect as normal now have to be relearned in a new way,” Guo explained. These include crossing a street or making their way around a room.

Visually impaired individuals use guide dogs and white canes to assist them in managing life’s daily events by providing real-time, and nearly continuous, feedback. Guide dogs provide a reaction when something is not safe, and white canes provide instant audio feedback, depending on the environment of the cane’s tapping area.

“We developed our virtual reality technology to have a similar focus, which is providing continuous feedback,” Guo said. “The virtual reality practice helps individuals focus more using their auditory senses, which helps them master certain skills before encountering those daily experiences in real situations.”
The research portfolio of CCSE faculty continues to increase year over year. Since 2015, CCSE has received more than $939,000 in six federally funded grants and currently has over $2,818,113 in grants and contracts either pending or under review. As of June 2017, CCSE faculty were awarded $50,500 of OVPR (Office of the Vice President of Research) start-up grants. In addition, $385,690 of sustained funding from grants and contracts allows our faculty to continue their exceptional work.

CCSE has collaborative relationships within the KSU and University System of Georgia, colleges and universities across the U.S., local and national industry partners as well as state and federal sponsors.

Mike Franklin, “Implementing the SiMAMT Framework for Energy Research and Optimization”  
- Contract; UT-Battelle Oak Ridge National Laboratory; 5/3-9/30/2017; $15,114

Alan Shaw, Ken Hoganson, and Sarah North, “Incorporating Computer Programming into Middle School Mathematics Curricula to Enhance Learning for Low Performing, Underserved Students,” National Science Foundation Award Number:1651092; 10/01/2016 to 9/30/2017; Award Amount: $294,098.

Lo, D. C., Qian, K., and Wei Chen, “Collaborative Research: Enhancing Curriculum and Faculty Development on Information Assurance and Security through Real World Relevant Portable Laboratory,” Sponsored by National Science Foundation, Federal, NSF DGE grant award #1438858 (09/01/2014-08/31/2017), $261,323 ($159,104 to KSU, $102,219 to Tennessee State University), NSF DGE grant award #1623724.


Xu, X., “Incentivize device to device communications for 5G networks,” Sponsored by FY 17 OVPR Pilot/Seed Grant to Attract External Funding (“OVPR Grant”), Kennesaw State University, $12,600. (July 1, 2016 - June 30, 2017).


Berkemeier, G., He, J., “Internet-of-Things based Blended Learning Supported Model on STEAM Education at Wheeler Magnet High School,” Sponsored by The Governor’s Office of Student Achievement (GOSA), State, $10,000. (December 2016 - December 2017).


With only 25 percent of professional computing occupations held by women, Kennesaw State computer science students are hoping to grow that number by reaching out to the next generation of young girls and sharing their own passion for technology.

Beginning last summer, 12 student members of the Object-Oriented Owls, a female computing organization at KSU, have been volunteering their time at Girls Inc., a national organization that empowers girls to succeed.

With $10,000 from Google’s igniteCS initiative, the team of computer science majors spent four weeks during the summer teaching young girls about computer programming to encourage them to pursue technology-focused careers. They continued during the academic year, meeting with the girls after school once a month.

“Our student organization wants to teach girls to translate their ideas and use their creativity through code,” said Kate Zelaya, president of Object-Oriented Owls and a computer science major.

As mentors and volunteers, the college students hope to show the many sides of computing and inspire the young girls. The Object-Oriented Owls hope to spark girls’ interest and see their volunteer work as one way to help close the gender gap in computer science.

“When young girls have the skills, knowledge and resources of computer science, they are able to invent all sorts of cool things and have no limitations as to what they can do,” Zelaya said.


Guo, R., FY 17 OVPR Pilot/Seed Grant to Attract External Funding (“OVPR Grant”) “Promote inquiry-based math and CS conceptual learning using mobile devices with collaborative augmented reality,” Sponsored by Kennesaw State University, $11,752 (August 2016 – August 2017)


Li, L., Qian, K., “Collaborative Research: Capacity Building through Curriculum and Faculty Development on Emerging Database Security,” Sponsored by Office of the Vice President for Research (OVPR) FY 17 Seed Grant, Kennesaw State University, $6,000. (July 2016 - July 2017).

He, J., “Implementing the cloud services of Internet-of-Things based Learning Framework to Transform Kennesaw State University (KSU) Science, Technology, Engineering, Arts, and Mathematics (STEAM) Undergraduate Education,” Sponsored by OVPR, Kennesaw State University, $150,000. (June 2016 - June 2017).


PARTNERSHIPS PRODUCE REAL-WORLD BENEFITS FOR STUDENTS AND ORGANIZATIONS

The College of Computing and Software Engineering (CCSE) at Kennesaw State University is a place where the future is being built. Students experience a hands-on, practical education that prepares them to enter the workplace ready to meet today’s challenges, problem-solve, and think creatively. CCSE faculty members not only prepare students for careers in technology, they are also constantly researching new ways to advance and better understand the possibilities of computing. Exposure to real-world problems in technology is an essential part of the student experience at CCSE, and the College is always looking for new problems to solve in collaboration with companies and institutions.

This culture of discovery and creative thinking has attracted many of the College’s corporate partners, said CCSE Interim Dean Jon A. Preston. “Our students and faculty constantly push the envelope and discover new approaches to problems. This is a perfect match for our industry partners who appreciate the fresh perspective of our students in capstone and internships projects and is an excellent way for companies to maintain their competitive advantage and develop a strong workforce.”

“Partnerships typically arise when an individual, organization or corporation has a specific issue they want to explore or problem to solve,” said Michael Lindsay, CCSE Director of Development. “Through the process of partnering with CCSE, corporations have access to faculty with hundreds of years of combined industry and academic experience and students with the freshest perspectives about how to address challenges.”

Lindsay works closely with Preston and CCSE faculty to maximize the benefits for both the students and the business or organization. They consider options like a class project, a semester-long individual or group research project called a capstone, an internship or a co-op position, and each assignment reflects the unique needs and interests of that organization.
Recent innovative CCSE assignments include:

- video games to more effectively train employees in safe workplace practices;
- mobile device applications to prevent injury or death; and
- technology to facilitate access to buildings for people with disabilities.

While working on these projects, students gain valuable perspective and experience.

“This work is especially important in building a student’s portfolio of work as they transition into the workforce,” Lindsay said.

Preston said faculty guidance also plays a role in each project’s success.

“Faculty members work with student teams as liaisons with industry sponsors,” he said. “They also guide student teams to apply best practices and design patterns to new problems and ensure productivity. Faculty expert guidance, coupled with the passion and drive of the students, is a perfect combination for successful CCSE-industry projects.”

Lindsay explained that partnerships remain adaptable and responsive as needs and interests change.

“We, as a College, engage partners wherever they feel most comfortable and let the relationship grow organically,” he said. “We match talented students and faculty experts with companies that want to augment processes, find new ways of working, or have a more open-ended, exploratory attitude toward finding greater success and innovation. From the origination point, students, faculty, and staff work to continue mutually beneficial projects. This flexibility allows our corporate partners to expand areas of engagement, deepen relationships and awareness among students, and find greater success with recruiting top CCSE talent for full-time employment.”

CCSE students and faculty have worked with a wide range of organizations and individuals. A non-exhaustive roll of companies with which CCSE has recently been engaged is on page 29.

“This list highlights our activity and interest in any market or area of inquiry and shows our willingness to work with established companies and start-ups alike,” Lindsay said.

If there is an area of inquiry in which you or your organization would like to see change, or if you believe in the importance of providing students with opportunities to work on current issues in technology, CCSE is ready to work with you. For more information, please contact Michael Lindsay, Director of Development (470)578-2194; mlinda7@kennesaw.edu.

Dr. Dan Lo outlines the partnership and collaboration opportunities for the CCSE Advisory Board. The group had its first meeting on March 30, 2017.
The College of Computing and Software Engineering has invested in the tools and support that students need to succeed in the modern computing workforce. To promote excellence in the classroom, we provide cutting-edge software and laboratory space.

**Collaboration with Sony**
Kennesaw State is one of only a few universities in the U.S. that is outfitted with a Sony PlayStation 4 laboratory, which gives students ready access to technology for PS4 development.

**Motion Capturing Lab**
In 2016, led by Dr. Rongkai Guo, a whole body motion capturing lab was built. The G.U.I.T.A.R. Lab, which stands for Games, User-Interactions, Tangible, Animations & Realities, allows students to record animations and do real-time tracking. Recently, the whole body motion capturing was extended to add face expression recognition, which readies the lab for media production, as well.

**Microsoft’s HoloLens**
In summer 2016, Dr. Allan Fowler was selected as one of the first in the U.S. to receive Microsoft’s HoloLens, a virtual reality system that enables users to interact with high-definition holograms in the physical world. Fowler applied for the developer’s edition, which was available by request in the U.S. only, and was selected during Phase One of Microsoft’s development rollout. Kennesaw State colleague Rongkai Guo, assistant professor of gaming, has been selected for Phase Two.

In total, in the past year, CCSE has invested over $200,000 in supplemental instruction and more than $400,000 in student-facing lab hardware and software, including:

- New lab PCs and virtual machine (VM) server infrastructure;
- EEG hardware/software for biofeedback to detect system vulnerabilities;
- Motion capture hardware/software;
- Robotics hardware for real-time embedded systems and interaction;
- Usability equipment for teaching efficacy;
- Internet-of-Things hardware and software tools;
- Mobile platforms (tablets and phones) for development; and
- High performance computing (HPC) and visualization cluster PCs

**DEVELOPER’S DELIGHT**
Gaming professor selected to experiment with Microsoft’s new virtual reality system

Peek into Allan Fowler’s office and you might find him surrounded by his high-tech gear, but his latest addition has the Kennesaw State gaming professor smiling.

Fowler was selected in 2016 as one of the first in the U.S. to receive Microsoft’s HoloLens, a virtual reality system that enables users to interact with high-definition holograms in the physical world.

It’s the newest technology tool added to Fowler’s ensemble of virtual reality devices. With the $3,000 HoloLens’ developer’s edition, he is experimenting with gaming applications for the new system.

“I don’t play a lot of games. I spend most of my time making them,” said Fowler, who joined Kennesaw State’s Computer Game Design and Development faculty last year as an assistant professor of game design and software engineering.

The HoloLens is different from its competition, according to Fowler. The wireless headset, although a bit heavy, is transparent, allowing users to see their physical surroundings and have a peripheral perspective not found in other VR systems. He said the new design could reduce vertigo and motion sickness felt when using a virtual reality system that encloses a user’s vision entirely.

Fowler has been making games for more than 30 years and is excited about the possibilities that holograms bring to game development.
Industry Partners

CCSE students and faculty partner with a broad range of companies through internships, co-ops, capstone projects, and funded research.

Some of the companies that employ our students and with whom we are working include:

- Accenture
- ADP
- Anthem
- AT&T
- CareerBuilder
- CTS
- EY
- Fiserv
- FORTINET
- General Motors
- Georgia Tech Research Institute
- Georgia-Pacific
- HA&W
- Hewlett Packard Corporation
- Hi-Rez Studios
- Honeywell
- IBM
- InComm
- Intel
- IntelliTeach
- Kiz Studios
- LexisNexis
- Lockheed Martin
- Macy’s
- Mckenney’s
- NCR Corporation
- Object Frontier
- OnePath LLC
- Pega Systems
- Printpack, Inc.
- ProArch
- Publix Supermarkets
- Railserve, Inc.
- RelayHealth
- Savant
- Shaw Industries
- Slalom
- State Farm
- SunTrust
- Tata Consulting
- TekStream
- The Coca-Cola Company
- The Home Depot
- Tilted Wheel Interactive LLC
- TravelPort
- Turner Broadcasting Systems
- upStart Venture Partners

CCSE Event Sponsors

Administrators, faculty, and staff of the College of Computing and Software Engineering thank the sponsors of the milestone events during the 2016-2017 year. Those sponsors include:

- **ADP** - C-Day: Fall 2016
- **INTELLITEACH** - C-Day: Fall 2016
- **HPCC SYSTEMS** - Graduation Receptions: Spring and Fall 2016, Spring 2017; C-Day: Fall 2016;
- **Shaw** - C-Day: Fall 2016, Spring 2017
**CCSE ADVISORY BOARD HELPS SHAPE DIRECTION AND FUTURE OF CCSE**

The CCSE Advisory Board includes representatives from companies and organizations that sponsor CCSE students through internships, scholarships, and other efforts. As leaders in the metro Atlanta region, they help shape the direction and future of CCSE and work with our faculty to ensure that our students are competitive in the workforce while studying at KSU and upon graduation.

**CCSE ADVISORY BOARD MEMBERS:**

Tim Benjamin, *Railserve, Inc.*
Andrew Greenberg, *Georgia Game Developers Association*
Charles Chidi Igwilo, *upStart Venture Partners*
Rob Jansen, *TekStream Solutions, LLC*
Tommie Mack, *Shaw Industries Group, Inc.*
Dean Matthews, *InComm*
Trish McCall, *LexisNexis Risk Solutions HPCC Systems*
Keith McGreggor, *Georgia Institute of Technology*
Glenn Newman, *Travelport*
Monica O’Neal, *Anthem, Inc.*
Billy Olden, *Kiz Studios*
Sharon Perry, *Green Wave Technology*
Bruce Skillin, *Georgia-Pacific*
Wade Smith, *State Farm*
Peter Vennel, *Safe-Guard Products International, LLC*
Flavio Villanustre, *LexisNexis Risk Solutions*
Frank Ziller, *Intelliteach*
A WIN-WIN

CCSE students and faculty partner with a broad range of companies through internships, co-ops, capstone projects, hackathons, and funded research. It is through our mutually valuable partnerships that we gain positive synergies for our students, faculty, and partners that are only possible through collaborative and open relationships.

BENEFITS FOR OUR PARTNERS

- Recruit and cost-effectively source a diverse future workforce
- Develop a flexible, cost-effective workforce without requiring a long-term commitment
- Reduce new-hire turnover and build bench strength as students adapt to company culture and processes during internships or co-ops
- Advertise career opportunities at no cost through our career services center
- Participate in student-focused CCSE events including STEM Career Fair, Capstone Presentation events, and Computing Showcase Day
- Bring new perspective to old problems through students’ insights
- Contribute to overall student achievement and enhance the student experience
- Recognized publicly as a Partner on the CCSE website
- Promote your community image and share expertise
- Provide long-lasting and impactful corporate philanthropy

BENEFITS FOR OUR STUDENTS

- Connect workforce skills learned and skill gaps that need to be filled
- Complete authentic and engaging projects based on industry feedback
- Build career readiness through real-world experiences and applications
- Discover students’ passions
- Create networking and professional mentoring relationships

TO BECOME A CORPORATE PARTNER

There are endless possibilities for engagement at CCSE, and we seek to create unique, responsive, collaborative, and customized interactions between the College community and those interested in what happens on campus.

If you, your corporation, or other organizations with which you are affiliated are interested in partnering with the College of Computing and Software Engineering (CCSE) or are looking for ways to broaden an existing relationship with the College, please contact Michael Lindsay, Director of Development (470-578-2194 or mlindsa7@kennesaw.edu).
Internships and Co-ops Ready Students for Workforce

Two weeks into his 10-week internship at Macy’s Systems and Technology, Malcolm Frank is savoring his first taste of corporate America. As a senior software engineering major, Frank was assigned to work in data stage development, where he works on the backend of the Macy’s website.

“We are the brains behind the aesthetic,” he said. Frank works with the marketing team on the backend processes that promote customer engagement and retention to reinforce the Macy’s brand.

With 20 interns in his department – seven from Kennesaw State and others from MIT, Georgia Tech, and Florida State – the interns are split into two teams and are tasked with creating a universal web application for managers and employees for Macy’s warehouse department.

“It’s exciting to know if we complete the project correctly, the company can use it – and there is a good chance of that – and that I can look back and know that I really made a difference,” Frank said. He is taking on a project manager role, leading the interns through the software development cycle.

Growing students’ knowledge base and allowing them to grow professionally is an important part of the internship program at Kennesaw State, explained Dawn Tatum, lecturer of Information Technology, who oversees the College’s internship and co-op program for course credit.

“Thousands of students in the state of Georgia graduate every semester with a technology-related degree, and they all look very similar on paper to a potential employer,” Tatum said. “I hear from industry professionals that students need to excel in the classroom and also set themselves apart by what they do outside of the classroom.”

GTRI has been hiring students as interns or co-ops for decades, and “they are an invaluable part of what we do across all of GTRI.” Hogarth said that of the 21 personnel who support more than 500 employees in the Electronic Systems Laboratory, nine are either co-ops or interns.

About one-fourth of GTRI employees participated in the GTRI co-op program while in college. “It is long-term ROI for both the student and the employer,” Hogarth added.
To find internship opportunities, Kennesaw State’s College of Computing and Software Engineering, in partnership with the University’s Career Planning and Development department, sponsors a CCSE Internship Networking twice a year. Each semester, more than 100 students meet with about 15 different employers who attend this “speed networking” event where groups of students move from table to table, allotting employers a short amount of time for each networking round.

“Companies who attend are pleased to find top talent for internships, and students appreciate the opportunity to communicate with industry professionals,” Tatum said. “We have found that students are less intimidated to talk about who they are when in a group or at a networking event.”

InComm, a leader in prepaid and payments technology, has a shorter history of hiring Kennesaw State students as interns but has been attending the biannual CCSE Internship Networking event for two years.

With 25 interns in their IT department at InComm, Dean Matthews, senior director of learning and development, says the program is designed for students to work 20 hours a week year round until graduation. In May, the company hired its first KSU graduate who had completed the internship at InComm.

Two interns will graduate in December 2017 and are expected to be hired full-time once they fulfill their academic commitments at KSU, Matthews explained. Since May 2014, when InComm’s first interns completed the program, 25 former interns have accepted jobs at InComm.

“KSU CCSE gives great effort to engage the business community to ensure their student have opportunities in the workplace,” said Matthews, who serves as a judge at the College’s annual C-Day event and frequently speaks at student organization meetings.

For Frank, he hopes the expanded professional network will help him to land a job after graduation.

“This internship gave me real-world experience, and I can apply what I’ve learned in school, but I also was able to network through the company,” he said. “I want to do excellent work because people are greatly affected by the technology we produce.”

PARTNERSHIP WITH LEXISNEXIS® SERVES STUDENTS, ADDRESSES TALENT GAP IN TECHNOLOGY

A flourishing three-year relationship with a global industry leader has spawned another opportunity for Kennesaw State students. A $30,000 gift from LexisNexis® Risk Solutions – the first endowment for the College - provides scholarships for computing students.

“As part of our corporate responsibility program, we are committed to giving back to our communities, and this endowment is a tangible way to make this commitment a reality,” said Flavio Villanustre, LexisNexis Risk Solutions VP Technology and Information Security. “We believe an effective way to address the current talent gap in technology and data analytics is to help develop the talent pool throughout the academic years of these professionals. This endowment is a good way to help alleviate the financial burden on great students who otherwise could be dissuaded or distracted from their main goals of becoming the best in their fields.”

This gift exemplifies the financial and professional contributions LexisNexis Risk Solutions has made to support the University. This mutually beneficial partnership has attracted a larger talent pool for LexisNexis, fostered groundbreaking opportunities in big data analytics research, and forged an educational collaboration to advance the field of computer science, data analytics, and information technology.

In 2015, LexisNexis Risk Solutions provided its first gift to the College, which established the HPCC Systems Open Lab, a collaborative space for computing students to work in groups.

While the College and the University have enjoyed the generous contributions from LexisNexis Risk Solutions, the company is also eager to identify and attract new talent from Kennesaw State for internships, contract positions, and full-time employment. Each semester, LexisNexis sponsors and participates in the University’s career fairs, where they seek high-caliber students to join their company and develop lifelong careers.

“Through our collaboration with KSU, we have seen many success stories with research projects and classroom initiatives and are fortunate to now count many KSU alumni among our employees,” Villanustre said.
Railserve, Inc. provides new scholarship endowment

The College of Computing and Software Engineering will soon offer a new scholarship for computing students, courtesy of Railserve, Inc., a company that provides rail switching services, railcar loading, and track maintenance.

“Railserve has been an excellent partner with our College for many years,” said Jon Preston, interim dean. “This two-way partnership allows students to gain real-world development and team management skills and build their resumes, and it allows Railserve to run research and development on potential products and identify student talent to hire. Our faculty have also benefitted by working on funded research projects to help improve safety for workers at Railserve.”

For the past several years, Railserve has sponsored University capstone projects for graduating students, in both the computing and engineering colleges, which provide strong experiential learning opportunities. Computing students have created a virtual training game for Railserve that helps to teach and test knowledge of skills to improve safety in an industry where safety is paramount, and engineering students have created an innovative device for safely removing railroad spikes.

“We have been impressed with the creativity and quality of the work products delivered, and we desire to sustain this relationship with both the professors and students,” said Tim Benjamin, president of Railserve, Inc. “Although the students have benefitted from their participation in these projects by having received practical experience and significant points for their resume, Railserve wanted to provide a more substantial token of our appreciation to the University through this donation.”

The endowed scholarship will assist full-time undergraduate students in the College, and is the second endowed gift to the College since its founding in 2015.
THE COLLEGE OF COMPUTING AND SOFTWARE ENGINEERING OFFERS:

- Lucrative, High Demand Career Opportunities
- Internships, Co-ops and Real-World Projects that Lead to Job Offers
- Respected Rankings
- Expert Faculty
- Affordable Tuition and Top Return on Investment
- Convenient and Flexible Class Options and Resources

PROGRAM OFFERINGS

**COMPUTER SCIENCE**
- B.S. in Computer Science
- B.A. in Applied Computer Science
- Minor in Computer Science
- Undergraduate Certificate in High Performance Cluster Computing, HPCC
- M.S. in Computer Science
- Graduate Certificate in Computer Science Foundations
- Graduate Certificate in High Performance Cluster Computing, HPCC

**INFORMATION TECHNOLOGY**
- B.S. in Information Technology
- Bachelor of Applied Science in Information Technology
- Minor in Information Technology
- Undergraduate Certificate in Health Information Technology
- M.S. in Information Technology
- Graduate Certificate in Health Information Technology
- Graduate Certificate in IT Foundations
- Graduate Certificate in IT Security
- Graduate Certificate in Data Management and Analytics

**SOFTWARE ENGINEERING AND GAME DEVELOPMENT**
- B.S. in Software Engineering
- Minor in Software Engineering
- B.S. in Computer Game Design and Development
- Minor in Computer Game Design and Development
- M.S. in Software Engineering
- Graduate Certificate in Software Engineering
- Graduate Certificate in Software Engineering Foundations

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The College of Computing and Software Engineering at Kennesaw State University is home to more than 3,200 students studying Computer Science, Software Engineering, Computer Game Design and Development, and Information Technology within six undergraduate, three master's, ten certificate, and four minor programs. With emphasis on theory and practice, students have experiential learning opportunities and partner with companies through internships, co-ops, sponsored capstone projects, and theoretical and applied research. Our faculty are experts in a wide range of cutting-edge topics, including usability, requirements elicitation, health informatics, cybersecurity, robotics, simulation and modeling, virtual and augmented reality, and high performance computing.

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