School of Computing and Information Sciences

Year in Review 2016

Visualizing Multidisciplinary Research

FIU Engineering & Computing

Director's Message

S. S. Iyengar

The School of Computing and Information Sciences (SCIS) is a leading research school and prolific producer of computing talent in the state of Florida. SCIS has one of the largest computing programs in the country, as enrollments have doubled over the last seven years. According to the 2015 edition of American Society for Engineering Education (ASEE) Profiles of Engineering & Engineering Technology Colleges, the School awarded the fourth most Computer Science degrees (inside Colleges of Engineering) in the United States – our school has ranked in the top 10 in the nation for the past five years.

Our 28 year-old-school is a well-respected computer science and information technology research and education program. Over the last 5 years we have built a highly engaged and focused multidisciplinary research community at one of the largest state universities in the US. Our students, faculty, and alumni had significant accomplishments in the last five years including prestigious national awards such as NSA Best Cybersecurity Paper, IEEE Fellow, AAAS Fellow, NAI Fellow, and ACM SIGCSE Award for Outstanding Contribution to Computer Science Education.

The School generates a very high level of external funding, surpassing $4M of funding from contracts, grants, donations, and auxiliary/miscellaneous revenue for the 8th straight year. Our school is ranked 39th based on NSF Research expenditures (see the list of current research funding at the end of this publication). FIU was ranked #1 in the State University System by the Florida Board of Governors in the area of Information Technology for a two-year study period resulting in a $7.5M award from the State's Information Technology Performance Funding program. We continued a collaboration with UCF and USF via a $4.9M Targeted Educational Attainment (TEAm) grant awarded by the Florida Board of Governors and have led the effort to leverage that collaboration into a $5M NSF S-STEM award that will provide 777 scholarship-years to high-performing computing students with financial need at FIU, UCF, and USF. In the Florida State University System (SUS), we are the only university that offers both a BS and MS in both CS and IT. We are a leader in the nation for training Hispanic Ph.D. students.

Since 2011, we have hired eleven tenure-track assistant professors from top 20 programs such as CMU, MIT, UIUC, Cornell, Georgia Tech, UCLA, Brown, and Purdue. Our early career faculty members won two NSF CAREER awards and two NSF CISE CRII awards. Our faculty members are also leaders of large-scale funded projects such as an $11.2M USDoT award, a $4M NSF III-Large collaboration led by FIU with partners at Brown, UIC, and Northwestern, a $5M NSF CREST award, and the $5M NSF S-STEM Scholarship award mentioned above.

SCIS faculty and staff have been extremely active in entrepreneurship and technology transfer activities, including start-up efforts, outreach efforts, and efforts to translate basic research into services and products that benefit society. Our school's success is exemplified by the research and teaching excellence awards earned by our faculty members, the diverse, outstanding students our programs produce, the state-of-the-art technologies and innovation our labs are developing, and our global collaborations with government, industry and academia.

TOP 10 Producer of Computing Talent in the Nation

#1 IT Program in Florida

11

Tenure-track assistant professors hired recently from top 20 programs

Features

Degree Programs

Undergraduate

Computer Science
- Computer Science Track
- Software Design and Development Track
- Combined BS/MS in CS (4+1)
- Combined BS in CS / MS in Engineering Management
- Minor in Computer Science

Information Technology
- Information Technology Track
- Software Track
- Second Major in IT (BA)
- Combined BS in IT/MS in Engineering Mgmt

Graduate

Computer Science
- Master of Science in CS
- Accelerated Master of Science in CS
- Doctor of Philosophy in CS

Information Technology
- Master of Science in IT
- Professional Master of Science in IT

Telecommunications and Networking
- Master of Science in Telecommunications and Networking
- 5 Year Accelerated Combined BS in Electrical Engineering / MS in Telecommunications

Cybersecurity
- Master of Science in Cybersecurity

For more information, please visit **cis.fiu.edu/advising**

FIU Computer Science Ranked 39th In NSF HERD Report

In a memo to the University on Nov. 29, Provost Kenneth Furton and VP Andres Gil announced that "For the first time, we have reached top 100 ranking in five STEM categories (a BOG Pre-eminence criterion), with Computer Science ranked 39th, Psychology ranked 44th, Environmental Sciences 77th, Engineering ranked 83rd, and Social Sciences ranked 86th", according to the NSF Higher Education Research and Development (HERD) Survey released this past November 17 for fiscal year 2015. The announcement was made as part of the launch of a new initiative called the Faculty Research Incentives Program (FRIP).

Dr. Shu-Ching Chen Elected Fellow of AAAS

In Oct. 2016, the American Association for the Advancement of Science elected Dr. Shu-Ching Chen as a Fellow of the AAAS. Election as a Fellow recognizes efforts to impact science or its applications in service to society. Members are elected by their peers. Dr. Chen is the Director of the Distributed Multimedia Information Systems Laboratory (DMIS) and the Co-Director of the Integrated Computer Augmented Virtual Environment (ICAVE). His main research interests include multimedia big data, content-based image/video retrieval, multimedia data mining, multimedia systems, and Disaster Information Management.

Witherspoon Sisters Pursue Graduate Program at FIU

Information technology majors, identical twins, Shonda and Shalisha Witherspoon, graduated last summer sharing top honors in their graduating class at Florida International University. With matching 3.95 GPAs and becoming the first in their family to graduate from college these ambitious sisters were challenged by an undergraduate research opportunity. As student assistants in Professor Naphtali Rishe's High-Performance Database Research Center, the sisters developed programs that process images, geographically coded data and real-estate and census information.

School Highlights

Science Without Borders Program Explores Robotics at FIU Discovery Lab

In an effort to expand STEM education opportunities, the Brazilian government funded undergraduate college students' stay at the School of Computing and Information Science last summer. As part of Science Without Borders, six Brazilian students worked at SCIS's Discovery Lab."The program is designed to give them a research experience, where they actually have hands-on use of tools, equipment, and can put their innovative ideas into practice," said Jerry Miller, Director of the Discovery Lab.

Computer Science Graduates Scoop Up Jobs In Florida

Addressing the technology workforce needs of Florida is a top priority of the University. The school tracks employment outcomes for recent graduates as part of a University wide 2020 Strategic Goals initiative. A recent survey conducted by SCIS found that 87% of our Spring 2016 BS in Computer Science graduates were employed within 6 months of graduation and earn between $50-$60K per year. Further, 88% of these recent hires were in Florida supporting high-tech and key local industries such as healthcare, finance, logistics and tourism.

SCIS Alumni Building Tools To Help Residents in Flint

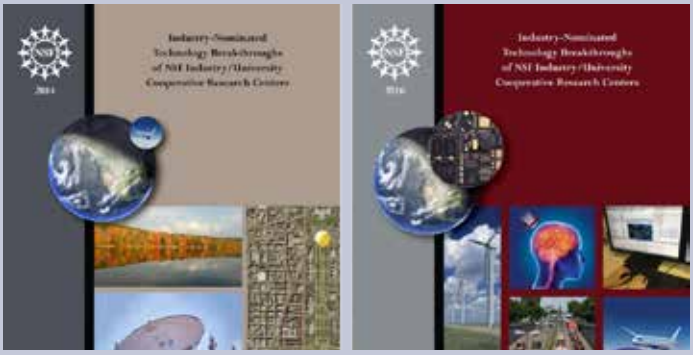
Researchers introduced a mobile application and a website to help residents of Flint, Michigan easily find water crisis information. Mywater-Flint is an Android application and website, Mywater-Flint.com, developed by Dr. Mark Allison, a former PhD student who is now Assistant Professor at the University of Michigan, and other researchers from Ann Arbor campuses and funded by Google.org. Residents can access information regarding the water crisis, including a city-wide map showing where lead has been found in drinking water and where crews are working.

2017 IEEE Taylor L. Booth Award Recipient Dr. Mark Weiss

Dr. Weiss has been named the 2017 recipient of the IEEE Computer Society Taylor L. Booth Education Award, "For outstanding books, contributions to the Advanced Placement program, and their impact in the teaching of data structures and programming." This will follow his many accomplishments, including ACM SIGCSE Award for Outstanding Contribution to Computer Science Education (awarded to a single individual worldwide annually since 1981), AAAS Fellow, FIU Top Scholar, ACM Distinguished Educator. The award will be presented at a dinner and ceremony to be held on 14 June 2017 in Phoenix, Arizona.

Students Receive Google igniteCS Awards

Google igniteCS, an outreach program led by members of Upsilon Pi Epsilon and Women in Computer Science, were recently awarded with funding from Google. The group received an $8,000 award from Google to fund its outreach initiatives. All igniteCS mentors also received scholarships from Google. Jose Maldonado, UPE Vice-President and Discovery Lab Researcher, received a $6,000 award from the company for his contributions to the community as well. The igniteCS program promotes computer science education in the community by teaching children how to code.



Prolific Number of Breakthroughs Published in NSF I/UCRC Compendium

Every two years NSF publishes a Compendium of Technology Breakthroughs of NSF I/UCRC Centers, a book to advise U.S. Congress and the Public on the state of science and technology. The 2016 NSF Compendium recently published showcases six articles about breakthroughs of the Center for Advanced Knowledge Enablement (CAKE), more than any other NSF I/UCRC center in any discipline in the country. The center was also featured in the 2014 compendium.

& Accomplishments

Technical Workshops Attract Hundreds of Students

As part of UPE's Software & Hardware Development Program, technical workshops on a variety of different subjects were hosted in the past year. These include workshops on web development, database mgmt, mobile development, hardware, game development, and more. The goal of these workshops is for students to gain knowledge and acquire new skills to work on projects and boost their resumes. Students have shown great interest and support of these workshops, with turnouts of over a hundred students per workshop. UPE hosts them every Friday.

Upsilon Pi Epsilon Earns Outstanding Chapter Award

The FIU chapter of Upsilon Pi Epsilon (UPE) had an incredibly successful year, establishing itself as the premier organization for students majoring in the computing and information disciplines. As the only honor society in these fields of study, UPE's mission is to provide these students with a community that recognizes their academic achievements and promotes career development. The Outstanding Chapter Award, given by UPE National, is presented to the top UPE chapter in the nation. Led by Chapter President Cesar Villa-Garcia, FIU's chapter was chosen out of over 200 chapters.

Mango Hacks Brings Students From Multiple Universities

Mango Hacks is FIU's student run hackathon which attracted students from multiple universities in Florida and beyond. The three day spring event challenges students to collaborate on complex problems and taps into FIU's strong ecosystem of social innovation and entrepreneurship. Hackathons in particular have become more popular lately as an avenue for uniting students of different backgrounds, mentors and entrepreneurs for what's essentially a three-day, round the clock, coding and building marathon.

Applied Research & Technology Transfer

Our school is leading the effort to create the Informed Traveler Program and Applications (ITPA), part of the US DOT's $11.4M TIGER award to FIU. The ITPA are advanced consumer-oriented, predictive, and multimodal transportation management software and technology systems being developed by Florida International University's High Performance Database Research Center (HPDRC) and partners under the umbrella of the National Science Foundation's Industry-University Cooperative Research Center for Advanced Knowledge Enablement at FIU (NSF I/UCRC CAKE).

It will provide customized real-time and predictive information to individual ITPA users about multimodal and intermodal transportation conditions and options in the UniversityCity region. It will also make available innovative decision support for parking and transportation providers. This customer-oriented and robust analytic system will support large-scale transportation demand management and provide useful information allowing travelers to make informed decisions regarding: time of travel; mode of travel; and alternative non-direct multimodal routes.

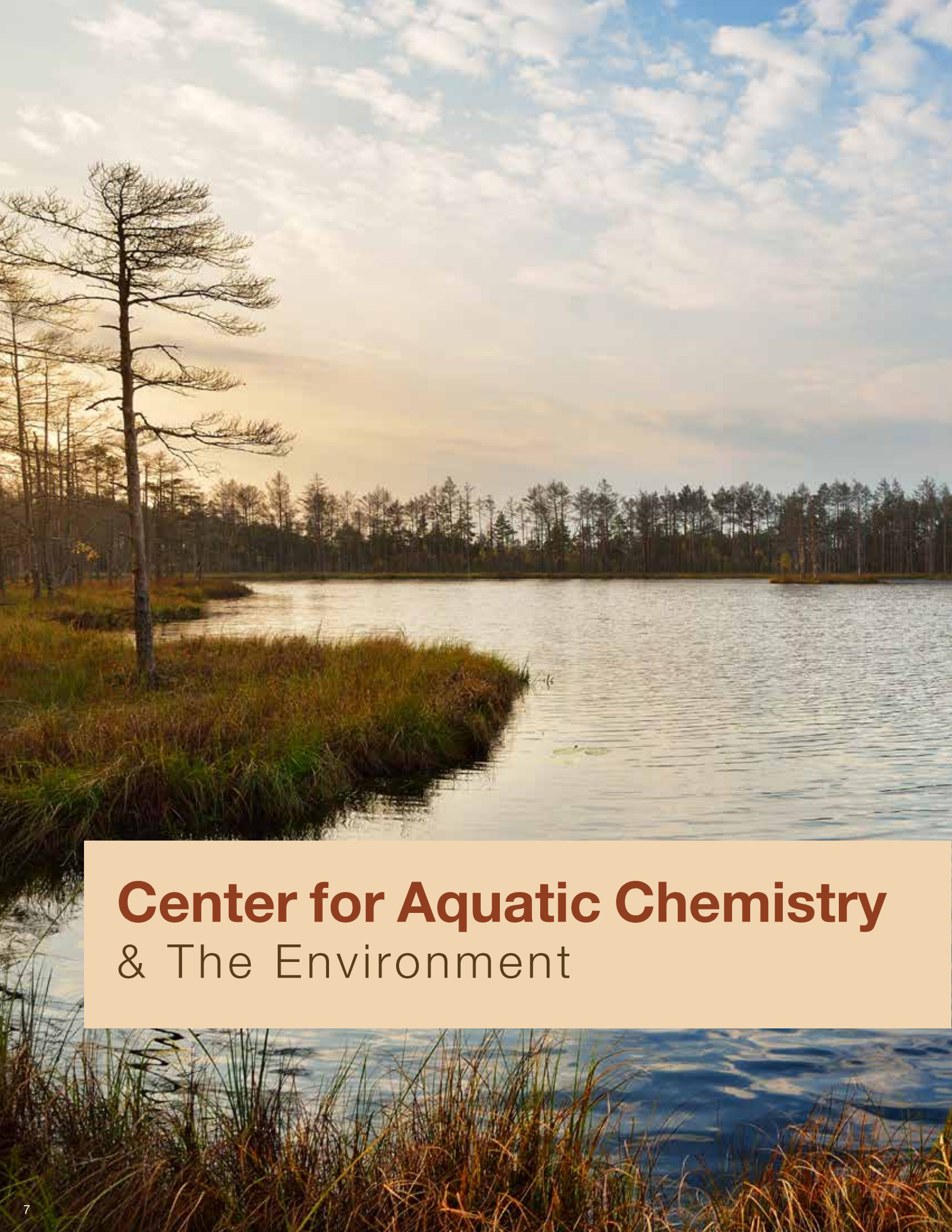
ITPA will enable the individual user to make optimum route and mode choices and will enable the service providers to efficiently manage individual traffic, transit and parking more effectively as a large-scale transportation demand management system.

By this means, ITPA will provide travel advice that helps to distribute ITPA users in time and space and by mode in order to optimize: individual ITPA customer trips, the selection of activities that may be undertaken when trips are delayed; and multimodal transportation system capacities. In TIGER-funded Phase 1 efforts, the ITPA software will provide to users highly customized real-time and predictive information about multimodal and intermodal conditions as well as defined transport options and recommendations to optimize:

- Specific parking decisions at FIU and Sweetwater
- Specific travel decisions related to transit vehicles operating within FIU and Sweetwater and those express buses arriving at or departing from UniversityCity with stops at Miami Intermodal Center (MIC), Miami International Airport (MIA) and Metrorail's Palmetto Station or other destinations (i.e., UniversityCity region)

ITPA mobile application showing the many features of the system and the navigation map for the UniversityCity region.

Informed Traveler
Program and Applications



Center for Aquatic Chemistry
& The Environment

NSF-Funded Multidisciplinary Research

The CREST Center for Aquatic Chemistry & the Environment (CAChE) at Florida International University (FIU) will transform the institution by integrating discrete campus-wide programs across 10 departments and 4 colleges in fields from environmental chemistry through computer intensive data analysis and visualization, in order to tackle one of the regions most complex challenges: environmental contamination. CAChE will create innovative opportunities for students, especially encouraging those from underrepresented minorities (URM), to participate in authentic research and foster their development as future STEM professionals.

High-resolution data acquisition, data mining, computer modeling, and data visualization will enable scientists and the public to address the many challenges of protecting environmental resources while providing a sufficient and safe water supply. Dr. Scott Graham will act as one of the Center's Associate Directors, helping to ensure that FIU's prior successful CREST's lessons learned are integrated into this new CREST's programs and activities.

Dr. Shu-Ching Chen (one of the award's Co-PIs) and Dr. Tao Li are leading a research thrust that aims to develop data analytic methods to enable synthesis across large, complex data sets to allow holistic effects assessment for understanding South Florida's aquatic ecosystem. "Big Data analytic techniques will help scientists understand links between the data and predict the effects of policy or environmental changes," said Dr. Chen.

Using a data-intensive approach, CAChE researchers will be able to: 1) provide detailed characterization and measurement of the environmental pollutants, 2) improve predictive abilities on effects of pollutants and address future water quality issues, 3) explore, manipulate and visualize data thus collaborate more effectively for risk assessment, 4) conduct literature mining on the nature of contaminants and access relevant environmental information rapidly, and 5) communicate more effectively with decision makers and other stakeholders. The ultimate goal of this project is to support data-intensive research on aquatic chemistry and the environment by developing transformative and scalable methods.

Conducting this research entails collection of large volumes of data from various heterogeneous sources such as data from analytical chemistry techniques and data from biogeochemical cycles used to determine how natural processes affect ecosystems.

As the scale and complexity of these data types increase exponentially, it becomes challenging to effectively model the increasing volumes of data, discover useful information, and provide data analytics capability to support effective and accurate assessment and decision-making capability for the scientists and their partners. To address these challenges, the CREST center will provide a suite of data analytics algorithms, including computation modeling, data mining, and visualization tools. The computation-modeling component provides the computational and system support for diverse data analytics and decision making tasks based on novel multi-tiered data analysis architecture.

ICAVE

Enabling 3D Virtualization for Science & the Arts

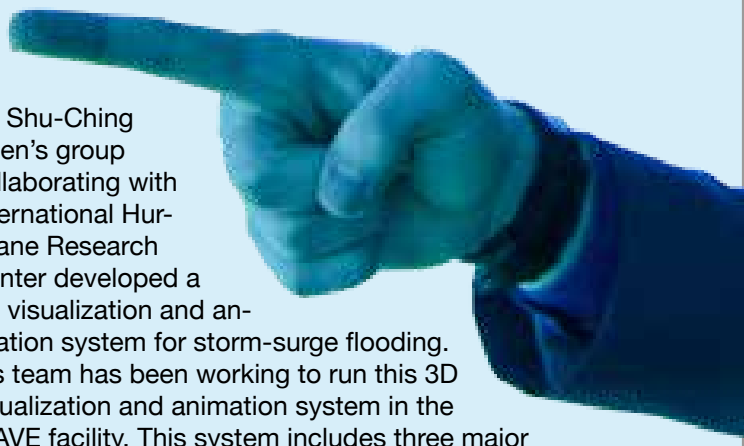
The Integrated Computer Augmented Virtual Environment (ICAVE), an instructional and research visualization facility located in the ECS building of FIU's Modesto Maidique Campus was inaugurated in January 2016 as a collaboration between the School of Computing and Information Sciences and the College of Communications, Architecture + The Arts using FIU Technology Fee funding. This facility can be used for both undergraduate and graduate instruction in a variety of fields across the natural and social sciences, humanities and professional programs.

The ICAVE provides new opportunities for students and faculty for research, creative projects, learning exploration, and data visualization.

The benefit for users is tremendous as this virtual environment provides for 2-D and 3-D visualizations of scalable data, a completely immersive experience of a virtual space, and the capacity to explore new ideas, places or objects in a dynamic and interactive visual environment. What's more, the navigation is much easier in the ICAVE environment since it offers walkthrough navigation.

The key to providing 3-D visualizations of scalable data lies on Quadro Sync embedded in ICAVE's architecture. NVIDIA Quadro Sync brings new levels of flexibility and scalability to ultra-high resolution displays and visualization clusters. Increasing the density of GPUs and displays per system reduces the total number of systems in a visualization cluster and minimizes operational complexity.

ICAVE can keep multi-projector systems or video walls free of imaging artifacts without impacting performance. Meanwhile, it aligns inputs for multi-input display devices like 4K projectors or panels and keeps stereoscopic 3D displaying properly across multiple systems. Rendering is the process of generating an image from a 2D or 3D model. A scene file usually contains geometry, viewpoint, texture, lighting, shading information, and so on. The data contained in the scene file will be passed to the rendering program to be processed and then output to a digital image or raster graphics image file.

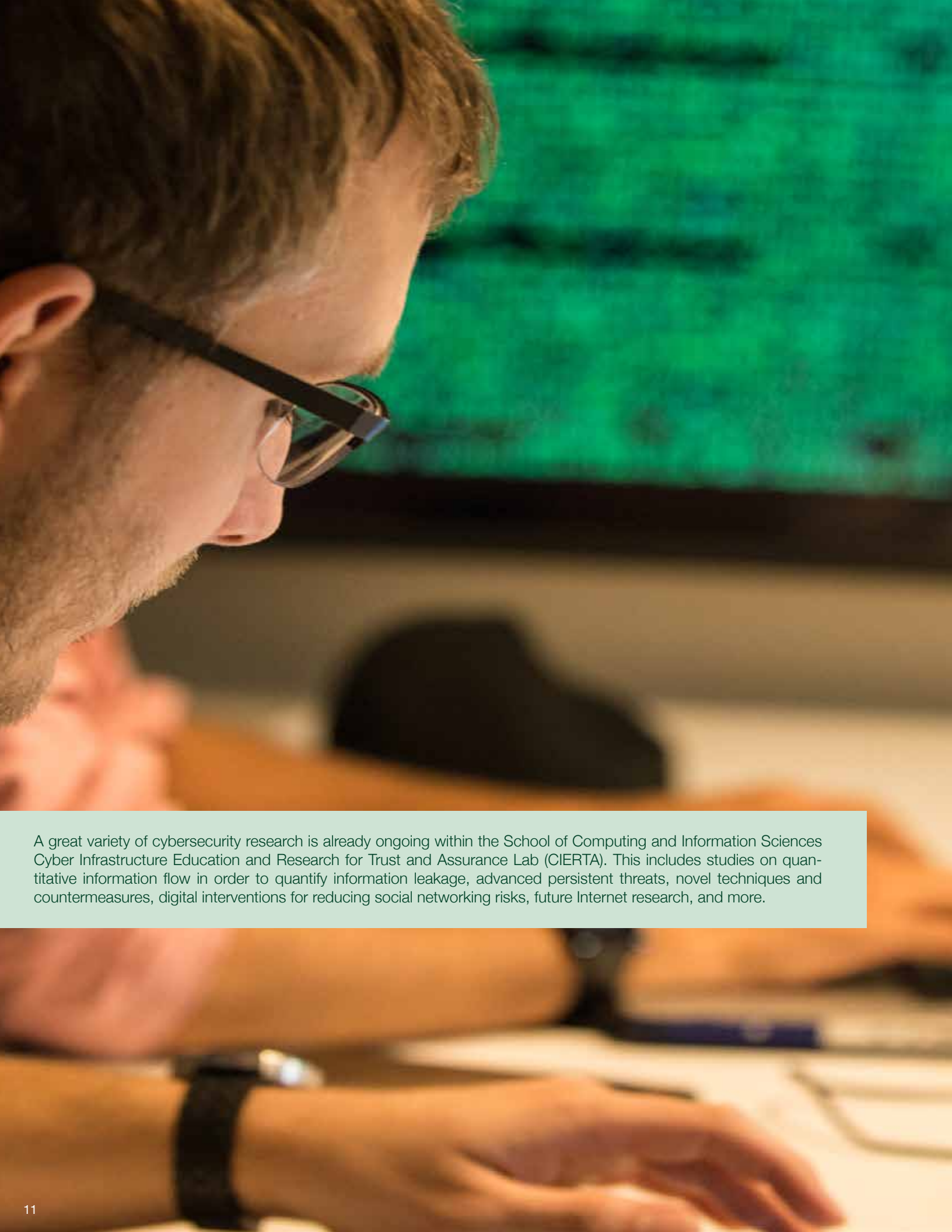


Dr. Shu-Ching Chen's group collaborating with International Hurricane Research Center developed a 3D visualization and animation system for storm-surge flooding. His team has been working to run this 3D visualization and animation system in the ICAVE facility. This system includes three major components:

- a 3D synthetic visualization environment representing terrain, buildings, roads, vegetation, and the sea
- a module for animating surge flooding and waves
- a high-resolution storm-surge model to serve as an engine to drive the animation of flooding

Attendees to the ICAVE's inauguration check out the facility and get a test drive of its first application.

The ICAVE's inaugural application was The First Folio, which brought Shakespeare's London to life. The stylized representation of Early Modern London created a virtual reality experience of what it may have been like to see a play at The Globe Theater. The First Folio was a collaborative student project by students from English, Computer Science, Architecture, Theater, Fine Arts and Modern Languages. Pictured right, FIU President Mark Rosenberg experiences Globe Theater.



A great variety of cybersecurity research is already ongoing within the School of Computing and Information Sciences Cyber Infrastructure Education and Research for Trust and Assurance Lab (CIERTA). This includes studies on quantitative information flow in order to quantify information leakage, advanced persistent threats, novel techniques and countermeasures, digital interventions for reducing social networking risks, future Internet research, and more.

CYBER SECURITY

Advanced Research & Training Opportunities

The College of Engineering and Computing (CEC), through the School of Computing and Information Sciences (SCIS) with support from the Department of Electrical and Computer Engineering (ECE), Department of Biomedical Engineering, and the Applied Research Center (ARC) is developing an FIU Cybersecurity Program, aligned with the University's Strategic Plan, FIU Beyond Possible 2020 metrics.

Enhancements in the fields of cybersecurity, cyberinfrastructure, cyber analytics, critical infrastructure protection, Cyber-Physical Systems (CPS), Internet-of-Things (IoT) will be driven by the proposed Cybersecurity Program as it fosters deeper collaborations with the Departments of Electrical and Computer Engineering (ECE) and Biomedical Engineering by leveraging their expertise in Cybersecurity or by performing research that will lead to more effective security measures for infrastructure, medical health, medical records, and medical implant devices.

Healthy functioning of Cyberspace is essential for the proper operation of numerous critical infrastructures, such as telecommunication, energy, and transportation.

It is also necessary to support the ever-expanding business infrastructure, including commerce and banking. The Cybersecurity Program will collaborate with the School of International and Public Affairs (SIPA), the College of Business, the College of Law, and with the College of Arts and Sciences, in particular the School of Integrated Science and Humanity and the International Forensic Research Institute (IFRI). This will result in additional student productivity/opportunity, research productivity, and technology transfer.

This research is funded by NSF, Raytheon, the state of Florida, Environmental Protection Agency, US Army Research Office, DOD, and other agencies and private organizations. Research funding in this cybersecurity program alone totals more than $2.2 million. Our faculty members and researchers have been successful in starting collaborations with other state universities through the Florida Center for Cybersecurity's seed funding program; we expect these relationships to expand into federally funded research projects as they mature.

SCIS has established two NSF Research Experience for Undergraduates (REU) sites and a Research Experience for Teachers (RET) site related to cybersecurity. We have submitted, or are planning submission, of several other proposals within the theme of Cybersecurity in collaboration with other researchers at FIU and beyond.

Dr. Geoff Smith (SCIS), along with five collaborators, recently received the NSA's Best Cybersecurity Paper Award, demonstrating one area of FIU's research excellence and leadership in the cybersecurity domain, as well as FIU's international prominence, as the paper was presented at the IEEE Computer Security Foundations Symposium in Vienna.

We have been working with FIU Office of Research and Economic Development (ORED) and StartUP FIU to host Cyber-related workshops and seminars on innovation and startup topics to stimulate our cyber community, and have developed a team of industry advisors/mentors to assist our cyber community for commercialization planning and strategy. We are also planning to expand our industry ecosystem to partner on opportunities such as SBIR and STTR.

Cybersecurity Program will enable us to significantly increase this figure through development of additional multidisciplinary, collaborative programs in cybersecurity, including expansion of the "Cyber Fellows" workforce development program, recruitment of key cyber researchers and educators through cluster hiring to increase our educational and research opportunities for students, and expansion of innovation leading to increased IP/patents and creation of new startup companies related to FIU.

The Ultimate Software Academy for Computer Science Education at FIU inspires and cultivates the advancement of a community of K-12 teachers and students who continuously rediscover computing and apply its principles to creatively solve problems and engender innovation. It is supported by a $1M 10-year grant from Ultimate Software, in Weston Florida.

The Academy directors appreciate that an improved pipeline from middle school to college is of value to all stakeholders, including K-12 students, teachers, college students and professors, the local technology industry, as well as proponents of commercialization and innovation. The different activities of the academy target different populations: high school students, middle school students, college (FIU) students, and K-12 school teachers. Finally, we are happy to note that the Academy is an approved entity for offering free professional development to K-12 teachers from both Dade and Broward Counties.

Academy workshops and events have been attended by approximately 435 Students and 140 teachers during the past 9 months. We expect another 200 teachers and students to attend our complement of workshops during Summer 2016.

Executives from Ultimate Software join the University on the day of the Tech Station inauguration, welcoming students to the new Innovation Showcase room.

Ultimate SOFTWARE

Academy for **Computer Science Education**

Students use the facilities at Tech Station, home to the Academy for Computer Science Education. This is a state of the art environment where students can work on projects.

The Academy held the following workshops and training sessions during the 2015-2016 academic year:

- The 11th Annual FIU High School Programming Competition in April 2016 for 100 high school students and 15 teachers from high schools in Dade, Broward, Sarasota, and Orlando.
- Two FIU programming team qualifier competitions for FIU students in September 2015 and January 2016. Approximately 40 students participated in at least one of these qualifiers.
- Five research-oriented workshops for talented high school students, taught by Dr. Radu Jianu and Dr. Leonardo Bobadilla, FIU faculty.
- Eight competition problem solving workshops for high school programming students, taught by Kip Irvine and members of the FIU programming team.
- Five workshops on Introducing Game Programming with Python, taught by Ruben Balmaceda, a former FIU programming team member and professional software engineer.

FLIT-PATH

A National Science Foundation S-STEM Program

Led by FIU's School of Computing and Information Sciences, the National Science Foundation S-STEM program awarded The Florida Metropolitan University Consortium (FIU, UCF, and USF) a 5 million dollar, 5-year award to provide scholarships to top performing students who are burdened with financial challenges. The Florida IT Pathways (Flit-Path) program will impact 453 students who are pursing degrees in Computer Science, Information Technology and Electrical Engineering. Funds from the grant will support each institution's ongoing efforts to align degrees with the state's workforce needs.

"This grant will support our commitment to those students at risk of dropping out of college when they are within striking distance of graduation," said Mark Weiss, the principal investigator of the grant. The program builds on the previously awarded TEAm Grant from the Florida Board of Governors that focused on recruiting and retaining students to pursue and obtain information technology degrees.

Benefits to the students include an average scholarship of $5,000 a year for four years, exposure to faculty research or industry mentoring, and other beyond-the-classroom activites.

Historically, science, technology, engineering and mathematics – or STEM – degrees take longer to finish than other majors. In some cases, students run out of financial aid before they are able to graduate. With this in mind, some of the scholarships are aimed at preventing students who are close to completing their degrees from being derailed by financial pressures. Computer science has been positioned as an emerging critical discipline for American students. Last year, there were more than 600,000 high-paying tech jobs in the United States and not enough people to fill them. By 2018, it's projected that 51 percent of all STEM jobs will be in computer science-related fields.

"This grant will allow us to empower students to pursue computer science degrees and help prepare them for careers in these high-demand areas," said co-principal investigator Zahra Hazari of the STEM Transformation Institute and Department of Teaching and Learning in the FIU College of Arts, Sciences & Education. STEM is an important part of FIU's contribution to workforce preparation, innovation and research for Florida and the nation.

Jeanely Guzman, FLIT-Path Advisor discussing career options with student participants

FLIT-Path students engaged in peer mentoring session at Tech Station.

Distinguished Lecture Series

Dr. Lori Clarke — 08 / 26 / 16
Professor Emerita, University of Massachusetts, Amherst

Fellow of the ACM, IEEE
Using Process Modeling and Analysis Techniques to Reduce Errors in Healthcare

Dr. Asad Madni — 09 / 30 / 16
Distinguished Adjunct Professor/Distinguished Scientist, UCLA

Member of the NAE, Fellow of the NAI, Recipient of IEEE Millennium and IET JJ Thomson Medals
Convergence of Emerging Technologies to Address the Challenges of the 21st Century

Dr. Tracy Camp — 11 / 04 / 16
Professor and Division Director of Computer Science, Colorado School of Mines

Fellow of the ACM, IEEE, and ACM Distinguished Lecturer
SmartGeo: Toward the Development of Intelligent Geosystems

Dr. Bir Bhanu — 12 / 02 / 16
Bourns Presidential Chair, Distinguished Professor of Electrical and Computer Engineering, UC Riverside

Fellow of the AAAS, IEEE
Intelligent Video Systems

01 / 18 / 17

Dr. Alan Willner
Steven and Kathryn Sample Chaired Professor in Engineering, USC

Fellow of the AAAS, IEEE, Guggenheim, Member of NAE, Recipient of IET JJ Thomson Medal
High-Capacity Optical Communications using Multiplexing of Orbital-Angular-Momentum Beams

02 / 10 / 17

Dr. Ayanna Howard
Professor and Chair in the School of Electrical and Computer Engineering, Georgia Tech

NSBE Educator of the Year
Socially Interactive Robots for Pediatric Therapy

03 / 03 / 17

Dr. Albert Pisano
Dean of the Jacobs School of Engineering and the Walter J. Zable Chair in Engineering, UCSD

Fellow of the ASME and Member of the NAE
Trillion Sensors Technology: Research, Commercialization, and Education

04 / 17 / 17

Dr. Frank Chang
Distinguished Professor and Wintek Chair in Electrical Engineering, UCLA

Fellow of the IEEE, NAI, and Member of the NAE
Terahertz Systems-on-Chip Based on Nanotechnologies

Faculty Profiles

S. S. Iyengar, Ph.D. (MSU)

Ryder Professor and Director

Dr. S.S. Iyengar is currently the Ryder Professor of Computer Science and Director of the School of Computing and Information Sciences at Florida International University. He is also the founding director of the Discovery Lab. Prior to joining FIU, Dr. Iyengar was the Roy Paul Daniel's Distinguished Professor and Chairman of the Computer Science department for over 20 years. He has also worked as a visiting scientist at Oak Ridge National Lab, Jet propulsion Lab, Satish Dhawan Professor at IISc and Homi Bhabha Professor at IGCAR, Kalpakkam and University of Paris and visited Tsinghua University, Korea Advanced Institute of Science and Technology (KAIST) etc. His research interests include High-Performance Algorithms, Biomedical Computing, Sensor Fusion, and Intelligent Systems. His research has been funded by the National Science Foundation (NSF), Defense Advanced Research Projects Agency (DARPA), Multi-University Research Initiative (MURI Program), Office of Naval Research (ONR), Department of Energy / Oak Ridge National Laboratory (DOE/ORNL), Naval Research Laboratory (NRL), National Aeronautics and Space Administration (NASA), US Army Research Office (URO), and various other agencies.

Dr. Iyengar is a Member of the European Academy of Sciences, a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), a Fellow of the Association of Computing Machinery (ACM), a Fellow of the American Association for the Advancement of Science (AAAS), and Fellow of the Society for Design and Process Science (SDPS), a Fellow of National Academy of Inventors (NAI). He has served on the US National Science Foundation and National Institute of Health Panels to review proposals in various aspects of Computational Science and has been involved as an external evaluator (ABET-accreditation) for several Computer Science and Engineering Departments across the country and the world. Dr. Iyengar has also served as a research proposal evaluator for the National Academy of Engineering. He is developing computational measures for predicting DNA mutations during cancer evolution, using wavelet analysis in cancer genome research, and designing smart biomarkers for bioremediation. His inventions have significantly impacted biomedical engineering and medicine. He recently patented a simple, low-cost device for early intervention in glaucoma, and was involved in early detection of lung cancer by developing a 4D motion model jointly with Southwestern Medical School.

During the last four decades, he has supervised over 55 Ph.D. students, 100 Master's students, and many undergraduate students who are now faculty at major universities or scientists or engineers at national labs/industries around the world. He has published more than 500 research papers, has authored/co-authored and edited 22 books. Dr. Iyengar has been elected to the 2017 Class of the College of Fellows of the American Institute of Biological and Medical Engineering.

Mark Allen Weiss, Ph.D. (Princeton)

Associate Director & Professor

Dr. Mark Allen Weiss is an Eminent Scholar Chaired Professor and Associate Director in the School of Computing and Information Sciences at Florida International University in Miami, Florida and also serves as the Undergraduate Program Director. He received his Bachelor's Degree in Electrical Engineering from The Cooper Union in 1983, and his Ph.D. in Computer Science from Princeton University in 1987, working under Bob Sedgewick. He has been at FIU since 1987, and was promoted to Professor in 1996.

His interests include data structures, algorithms, and education, and he is most well-known for his highly-acclaimed Data Structures textbooks, which have been used at hundreds of universities worldwide. From 1997-2004 he served as a member of the Advanced Placement Computer Science Development Committee, chairing the committee from 2000-2004 and currently serves as a member of the ACM Education Council. Dr. Weiss is an ACM Distinguished Educator, AAAS Fellow, and the recipient of the 2017 IEEE Computer Society Taylor L. Booth Education Award and the 2015 SIGCSE Award for Outstanding Contribution to Computer Science Education.

Shu-Ching Chen, Ph.D. (Purdue)

Professor

Dr. Shu-Ching Chen is an Eminent Scholar Chaired Professor in the School of Computing and Information Sciences (SCIS), Florida International University (FIU), Miami. He has been a Full Professor since August 2009 in SCIS at FIU. Prior to that, he was an Assistant/Associate Professor in SCIS at FIU from 1999. He received his Ph.D. degree in Electrical and Computer Engineering in 1998, and Master's degrees in Computer Science, Electrical Engineering, and Civil Engineering in 1992, 1995, and 1996, respectively, all from Purdue University, West Lafayette, IN, USA.

He is the Director of Distributed Multimedia Information Systems Laboratory (DMIS) and the Co-Director of the Integrated Computer Augmented Virtual Environment (ICAVE). His main research interests include content-based image/video retrieval, distributed multimedia database management systems, multimedia data mining, multimedia systems, and Disaster Information Management. Dr. Chen has authored and coauthored more than 300 research papers in journals, refereed conference/symposium/workshop proceedings, book chapters, and four books.

Dr. Chen was named a 2011 recipient of the ACM Distinguished Scientist Award. He received the best paper awards from 2006 IEEE International Symposium on Multimedia and 2016 IEEE International Conference on Information Reuse and Integration. He was awarded the IEEE Systems, Man, and Cybernetics (SMC) Society's Outstanding Contribution Award in 2005 and was the co-recipient of the IEEE Most Active SMC Technical Committee Award in 2006. He was also awarded the Inaugural Excellence in Graduate Mentorship Award from FIU in 2006, the University Outstanding Faculty Research Award from FIU in 2004, the Excellence in Mentorship Award from SCIS in 2010, the Outstanding Faculty Service Award from SCIS in 2004 and 2014, and the Outstanding Faculty Research Award from SCIS in 2002 and 2012. He is a fellow of IEEE and SIRI.

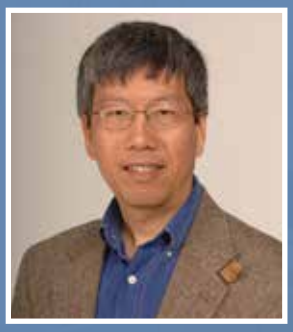
Abraham Kandel, Ph.D. (UNM)

Visiting Professor

Dr. Abraham Kandel received a B.Sc., Technion-Israel Institute of Technology, a M.S., University of California, both in Electrical Engineering, and a Ph.D. in Electrical Engineering and Computer Science, University of New Mexico. Dr. Kandel, a Distinguished University Research Emeritus Professor and Endowed Eminent Scholar in Computer Science and Engineering at the University of South Florida (Chairman 1991-2003), is the Executive Director of the National Institute for Applied Computational Intelligence, Founding Chairman of the Computer Science Department at Florida State University (1978-1991), Director of the Institute of Expert Systems and Robotics, and Director of the State University System Center for Artificial Intelligence at FSU.

He is Editor of the Fuzzy Track-IEEE MICRO; Area Editor on Fuzzy Hardware for "Fuzzy Sets and Systems", Associate editor of "IEEE Transactions on Systems, Man, and Cybernetics", "Control Engineering Practice", and "International Journal of Pattern Recognition and Artificial Intelligence" (IJPRAI). Dr. Kandel has published over 500 research papers and is author, co-author, editor or co-editor of 46 text books and research monographs in the field. Dr. Kandel is a Fellow of: ACM, IEEE, New York Academy of Sciences, AAAS, IFSA, and a member of NAFIPS, IAPR, ASEE, and Sigma-Xi.

Dr. Kandel was awarded the College of Engineering Outstanding Research Award, USF (1993-94); Sigma-Xi Outstanding Faculty Researcher Award (1995); Theodore and Venette-Askounes Ashford Distinguished Scholar Award, USF (1995); MOISIL International Foundation Gold Medal for Lifetime Achievements (1996); Distinguished Researcher Award, USF (1997); Professional Excellence Program Award, USF (1997); Medalist of the Year, Florida Academy of Sciences (1999); Honorary Scientific Advisor, Romanian Academy of Sciences (2000); President's Award for Faculty Excellence, USF, (2002); Fulbright Senior Research Fellow Award at Tel-Aviv University, (2003-2004); and Fulbright Senior Specialist, 2005.



Xudong He, Ph.D. (Virginia Tech)

Professor

Dr. He received his BS and MS degrees in computer science from Nanjing University, China in 1982 and 1984 respectively; and his Ph.D. degree in computer science from Virginia Tech in 1989. He has joined FIU in 2000 after spending 10 years on the faculty at North Dakota State University. Dr. He's research interests are in software engineering, especially formal methods. He is an internationally known expert on Petri nets. He has published 150 papers in international journals and conferences, and served on more than 80 international conference committees. His research has been funded several major federal agencies including NSF, NASA, ONR, AFRL, and DOE. Dr. He has been a major adviser of 14 Ph.D. and 36 MS graduates.

Tao Li, Ph.D. (University of Rochester)

Professor

Dr. Tao Li received his Ph.D. in computer science from the Department of Computer Science, University of Rochester in July 2004. His research interests are in data mining, machine learning, information retrieval, and bioinformatics. He is the recipient of NSF CAREER Award (2006-2011), multiple IBM Faculty Research Awards (2005, 2007 & 2008), and Xerox Research Awards (2005-2008 & 2011-2014). He has published prolifically in top journals and conferences and has served on the program committees of many international conferences.

Giri Narasimhan, Ph.D. (University of Wisconsin)

Professor

Dr. Narasimhan is a professor in the School of Computing and Information Sciences (SCIS) at Florida International University (FIU) and is an expert in the area of Algorithms, Bioinformatics, and Data Science. He recently served as the Associate Dean for Research and Graduate Studies in the College of Engineering and Computing. Dr. Narasimhan received a B.Tech. in electrical engineering from the Indian Institute of Technology in Bombay. In 1989 he was awarded a Ph.D. in computer science from the University of Wisconsin, Madison. After being on the faculty in the Department of Mathematical Sciences at the University of Memphis, he joined Florida International University as an associate professor in 2001 and was promoted to full professor in 2004.

He heads the Bioinformatics Research Group (BioRG) in SCIS, and is involved in interdisciplinary research collaborating with diverse groups form different disciplines. He has twice won the Excellence in Research Award from SCIS and also the Excellence in Research Award from FIU. He is on the steering committee of the Biomolecular Sciences Institute.

Jainendra K. Navlakha, Ph.D. (Case Western)

Professor

Dr. Jai Navlakha received his Ph.D. in Computer Engineering and Information Sciences from Case Western Reserve University in Cleveland, Ohio in December 1977. Since then, he has been employed at Florida International University, where he was promoted to the position of Full Professor in September 1987. He served as the Director of the School of Computer Science in three stints: August 1988 to August 1992, August 1999 to August 2002, and July 2009 to August 2011. From July 2006 to June 2009, he was the Associate Dean of Graduate Studies and the Director of Corporate & Global Programs in the College of Engineering & Computing. His research; in the areas of Program Verification, Analysis of Algorithms, Expert Systems, Neural Network Applications, and Disaster Management; has been extensively published in reputed archival Journals and International Conferences.

Niki Pissinou, Ph.D. (USC)

Eminent Scholar Chair Professor & Director of Telecommunications and Information Technology Institute

Dr. Pissinou has published over two hundred and fifty research papers in peer reviewed journals, conference proceedings and books chapters on networking, telecommunications, distributed systems, mobile computing, security and aspects of nontraditional data management including co-editing over four texts in the area of mobile and wireless networking and systems and over fourteen IEEE and ACM conference volumes. Widely cited in books and research papers, her research has been funded by NSF, DHS, NASA, DOT, DoD, state governments and industry. She has graduated over nineteen Ph.D. students who now hold positions in academia, federal government and industry.

Naphtali Rishe, Ph.D. (Tel Aviv)

Professor

Dr. Rishe has authored 5 books and edited 7 books on database management, location-based data, health informatics, and high performance computing. He is the inventor of 5 U.S. patents on database querying, semantic database performance, Internet data extraction, and computer medicine. Rishe has authored 300 papers in journals and proceedings on databases, software engineering, Geographic Information Systems, Internet, and life sciences. He was awarded over $55 million in research grants by Government and Industry, including NSF, NASA, IBM, DoI, DHS, USGS.

Dr. Rishe is the Founder and Director of the High Performance Database Research Center at FIU (HPDRC) and of the NSF International FIU-FAU-Dubna Industry-University Cooperative Research Center for Advanced Knowledge Enablement (I/UCRC). Rishe is the inaugural FIU Outstanding University Professor and Eminent Chair Professor in Computer Science. Rishe's TerraFly project has been extensively covered by worldwide press, including the New York Times, USA Today, NPR, Science and Nature journals, and FOX TV News. Rishe's principal projects are TerraFly (a 50 TB database of aerial imagery and Web-based GIS) and Medical Informatics.

Geoffrey Smith, Ph.D. (Cornell)

Professor

Dr. Geoffrey Smith's current research interests are centered on the foundations of computer security. For the past 20 years he has been particularly interested in techniques for controlling the leakage of sensitive information by computer systems. Notable accomplishments include the first type systems for guaranteeing noninterference, quantitative leakage bounds for timing attacks against cryptography, and the g-leakage model of quantitative information flow. He completed his Ph.D. in Computer Science at Cornell University in 1991. Since 1994, he has been at Florida International University, where he is a Professor in the School of Computing and Information Sciences.

He has held recent visiting appointments at the École Polytechnique (France), IMDEA Software (Spain), and Macquarie University (Australia), and he is a member of IFIP Working Group 1.7. He was named an ACM Distinguished Scientist in 2013, and he is an author of the 2014 paper "Additive and multiplicative notions of leakage, and their capacities", which was named the winner of the NSA's third annual Best Scientific Cybersecurity Paper Competition.

Peter J. Clarke, Ph.D. (Clemson)

Associate Professor

Dr. Peter J. Clarke received his BSc. degree in Computer Science and Mathematics from the University of the West Indies (Cave Hill) in 1987, MS degree from SUNY Binghamton University in 1996 and PhD in Computer Science from Clemson University in 2003. His research interests are in the areas of software testing, software metrics, model-driven software development, domain-specific modeling languages and computer science education. He has published over 75 research papers and is the PI on several NSF grants. He is a member of: ACM (SIGSOFT, SIGCSE, and SIGAPP); IEEE Computer Society; and the Association for Software Testing.

Masoud Milani, Ph.D. (UCF)

Associate Professor

Dr. Milani joined Florida International University after receiving his Ph.D. in computer science from the University of Central Florida in 1985. Since that time he has been a faculty at the School of Computing and Information Sciences and has served the University in different roles, including Director of the Center for Diversity in Engineering and Computing, Director of the Office of Student Access and Success, Associate Dean of the School of Computing and Information Sciences, Director of the Information Technology Program, and Director of External Programs.

Christine Lisetti, Ph.D. (FIU)

Associate Professor

Dr. Christine Lisetti is an Associate Professor in the School of Computing and Information Sciences at Florida International University, and the director of the Affective Social Computing Laboratory (ascl.cs.fiu.edu). She received her Ph.D. in computer science from Florida International University in 1995, and in 1996 she was awarded the Individual Research Award from the National Institute of Health (NIH) to conduct her Post-Doctoral Fellowship at Stanford University, jointly in computer science and psychology. She joined FIU from ENST/Sophia, France where she was a professor, and was previously an assistant professor in the Computer Science Department at the University of Central Florida.

Dr. Lisetti's work on affective social computing aims at creating digital and engaging socially intelligent agents that can interact naturally with humans via expressive multi-modalities in a variety of contexts involving socio-emotional content. Her interests involve research on virtual characters for healthcommunication and behavior change. While in Europe, her research was supported by grants from the European Commission (EC), EUREKA Information Technology for European Advancement (ITEA), the Provence-Alpes Cote d'Azur (PACA) Regional R&D Program, and ST Microelectronics. Dr. Lisetti has received funding from Interval Research Corporation, Intel Corporation, Vcom3D, as well as from Federal funding agencies including the Office of Naval Research (ONR), US Army STRICOM, NASA Ames, the National Institute of Health (NIH), and the National Science Foundation (NSF).

Christine Lisetti is on the Editorial Board of the IEEE Transactions on Affective Computing, the first journal in her field of research which launched in 2010. She is the recipient of the 2000 AAAI Nils Nilsson Award, and the author of numerous scientific articles. She has served on various program committees of international conferences, she has co-chaired several international events on affective computing, and has been an invited speaker at international conferences. Dr. Lisetti has served as a research expert for the National Science Foundation (USA), for the "Agence Nationale de la Recherche" (FRANCE), for the "Fonds de Recherche sur la Nature et les Technologies" (CANADA), and for the European Commission (BELGIUM).

Jason Liu, Ph.D. (Dartmouth)

Associate Professor

Dr. Jason Liu is currently an associate professor at Florida International University. He received a B.A. in computer science from Beijing University of Technology in China in 1993, an M.S. in Computer Science from College of William and Mary in 2000, and a Ph.D. in Computer Science from Dartmouth College in 2003. His research interests include parallel discrete-event simulation, high-performance modeling and simulation of communication networks and computer systems. His current research focuses on applying real-time computation techniques for adaptive network simulation modeling, designing and building scalable emulation infrastructure for large-scale network experiments.

Dr. Liu currently serves as a steering committee member for the PADS conference and as an associate editor for the SIMULATIONS journal. He was the general chair for MASCOTS'10 and SIMUTools'11, and the program chair for SIMUTools'10 and PADS'08. He served on the technical committees for many conferences. In 2006, he received an NSF CAREER Award.

Deng Pan, Ph.D. (Stony Brook University)

Associate Professor & Graduate Program Director

Dr. Deng Pan received his Ph.D. degree in computer science from State University of New York at Stony Brook in 2007. His research interests are generally in high performance switch design and high speed networking. His current research focuses on network function virtualization, data center networking, and energy efficient networking. He has published over fifty peer-reviewed papers in leading refereed journals and conferences, including the IEEE Transactions on Computers, IEEE Transactions on Communications, IEEE INFOCOM, and IEEE International Parallel and Distributed Processing Symposium. He has served as local arrangement co-chair or technical program committee member in many international conferences.

Alexander Pelin, Ph.D. (Penn)

Associate Professor

Dr. Alex Pelin was awarded a B.S. in computer science and engineering from the University of Pennsylvania in 1973, an M.S. in computer and information sciences in 1974 and a Ph.D. in computer and information sciences in 1977, also from the University of Pennsylvania. After eight years on faculty at Temple University, Dr. Pelin joined the School of Computing and Information Sciences at Florida International University in 1985.

Raju Rangaswami, Ph.D. (UCSB)

Associate Professor

Dr. Raju Rangaswami received a B.Tech. degree in Computer Science from the Indian Institute of Technology, Kharagpur, India. He obtained M.S. and Ph.D. degrees in Computer Science from the University of California at Santa Barbara where he was the recipient of the Dean's Fellowship and the Dissertation Fellowship. Raju is currently an Associate Professor of Computer Science at Florida International University where he directs the Systems Research Laboratory. His research interests include operating systems, storage systems, persistent memory, virtualization, and security. He is a recipient of the NSF CAREER award, Department of Energy Early CAREER Principal Investigator (ECPI) award, IBM Faculty Award 2011, Intel ISRA award, NetApp Faculty Fellowship 2011, and the FIU Faculty Award for Excellence in Research and Creative Activities 2011.

Nagarajan Prabakar, Ph.D. (UQ)

Associate Professor

Dr. Prabakar developed a scheme to access vast amount of spatial data from a semantic database and flyover the data in real-time – this emerged as TerraFly software from High Performance Database Research Center, FIU. He has also designed dynamic mosaicking algorithms for spatial images and integrated vector GIS data with spatial data sets. Towards external funding, seven grant proposals were funded for a total amount of $2.3M with Dr. Prabakar's role in these proposals as Principal Investigator, Co-Investigator, or Senior Investigator. Currently, Dr. Prabakar is working with a team of his colleagues on a fault-tolerant distributed computing grid with large number of sensors.

S. Masoud Sadjadi, Ph.D. (Michigan State University)

Associate Professor

Dr. Masoud Sadjadi received the B.S. degree in Hardware Engineering in 1995, the M.S. degree in Software Engineering in 1999, and the Ph.D. degree in Computer Science from Michigan State University in 2004. Dr. Sadjadi is currently an Associate Professor in the School of Computing and Information Sciences at Florida International University, where he has been on the faculty since 2004. He is the Director of the Center of Partnership for International Research & Education (PIRE) funded by the National Science Foundation for $2.3 million. He is also the Director of the Autonomic Cloud Research Laboratory (ACRL) and leads several projects under the Latin American Grid initiative.

He has extensive experience in software development and leading large scale software engineering projects both in industry and in academia. Currently, he is collaborating with top researchers in 8 countries and is leading several international collaborative research projects. He is serving as a General Chair of SEKE 2012 and has served as the Program Chair, Co-Chair, and Committee Member of several top-tier international conferences and workshops of his field. He has served as a referee for several IEEE and SP&E journals and as a referee and panelist for several funding agencies including National Science Foundation (NSF), Luxembourg National Research Fund (FNR), and Florida Sea Grant. His current research interests include Distributed Systems, Software Engineering, Autonomic Computing, High-Performance Computing, Grid Computing, Cloud Computing, Pervasive Systems, and Mobile Computing. He has more than 80 refereed publications and is PI or Co-PI of 17 grants from NSF, IBM, Kaseya, TeraGrid, and FIU for a total of about $6 million. He is a member of the IEEE and can be reached at sadjadi@cs.fiu.edu and http://www.cs.fiu.edu/~sadjadi/.

Leonardo Bobadilla, Ph.D. (UIUC)

Assistant Professor

Dr. Leonardo Bobadilla is interested in understanding the information requirements for solving fundamental robotics tasks like navigation, patrolling, tracking, and motion safety. He received his Ph.D. degree in Computer Science from UIUC. He has received several awards and has published in major conferences and journals in robotics, automation, and sensor networks. His research has been sponsored by the Army Research Office and the Ware Foundation.

Bogdan Carbunar, Ph.D. (Purdue)

Assistant Professor

Dr. Bogdan Carbunar works at the intersection of security, privacy, and distributed systems, with a focus on mobile and social networks. His work was awarded the Nicolas D. Georganas Best Paper Award in 2014 for his article in ACM Transactions on Multimedia Computing Communications and Applications (TOMM), the best student paper award in the SIAM International Conference on Data Mining (SDM) 2014, and the best paper award in the IEEE International Workshop on Hot Topics in Peer-to-peer Computing and Online Social Networking (HotPOST) 2013. He received his Ph.D. in computer science from Purdue University in 2005 and has held various research positions in Motorola Labs. He joined FIU in 2011.

Ruogu Fang, Ph.D. (Cornell)

Assistant Professor

Dr. Ruogu Fang is an Assistant Professor of the School of Computing and Information Sciences at Florida International University in Miami, FL. Dr. Fang received her Ph.D. degree in Electrical and Computer Engineering from Cornell University in 2014 working under Tsuhan Chen, and Bachelor's degree from Zhejiang University with the highest honor in 2009. Dr. Fang's research interests focus on big medical data, brain dynamics, health informatics, machine learning and data mining.

She is the recipient of numerous grants, honors and awards, including NSF CRII (pre-CAREER) award as PI, ORAU's Ralph Lowe Young Faculty Enhancement Award, Robin Sidhu Memorial Young Scientist Award from Society of Brain Mapping and Therapeutics, Best Paper Award at IEEE International Conference on Image Processing, Hottest Paper in Medical Image Analysis, Hsien Wu and Daisy Yen Wu Memorial Award and Irwin and Joan Jacobs Fellowship, to name a few. She has published over 30 peer-reviewed articles, including flagship journals such as IEEE Transaction on Medical Imaging, Medical Image Analysis, ACM Computing Survey, etc. She served as the Co-Chair of the International Workshop on Sparsity Techniques in Medical Imaging, and the Guest Editor of the Journal Computerized Medical Imaging and Graphics. Prof. Fang's Smart Medical Informatics Learning and Evaluation (SMILE) Lab aims to explore intelligent approaches to bridge the data and medical informatics in the era of big medical data.

Mark Finlayson, Ph.D. (MIT)

Assistant Professor

Dr. Finlayson received his Ph.D. in Computer Science in 2012 and M.S. in Electrical Engineering in 2001 from MIT, and his B.S. in Electrical Engineering in 1998 from the University of Michigan, Ann Arbor. From 2012-2014 he was a Research Scientist in MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL). His research focuses on representing, extracting, and using higher-order semantic patterns in natural language, especially focusing on narrative. His work intersects artificial intelligence, computational linguistics, and cognitive science. He is general chair of the Computational Models of Narrative Workshop Series.

Sam Ganzfried, Ph.D. (CMU)

Assistant Professor

Dr. Sam Ganzfried received a PhD in computer science from Carnegie Mellon University in 2015 for his dissertation "Computing Strong Game-Theoretic Strategies and Exploiting Suboptimal Opponents in Large Games'" and holds an A.B. in math from Harvard University. His research interests include artificial intelligence, game theory, multiagent systems, multiagent learning, large-scale optimization, large-scale data analysis and analytics, and knowledge representation. He created two-player no-limit Texas hold 'em agent Claudico that competed in the inaugural 2015 Brains vs. Artificial Intelligence competition against the strongest human specialists in the world (it lost by an amount that was not statistically significant at the 95% confidence level). He also created two-player no-limit Texas hold 'em agent Tartanian7 that won the 2014 Annual Computer Poker Competition, beating each opposing agent with statistical significance. He organized the AAAI Workshop on Computer Poker and Imperfect Information in 2014 and 2015, and the first tutorial on Computer Poker at the 2016 Conference on Economics and Computation.

Liting Hu, Ph.D. (Georgia Tech)

Assistant Professor

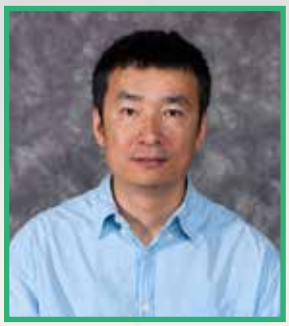
Dr. Liting Hu received her PhD degree in Computer Science at Georgia Institute of Technology. Before that, she completed her undergraduate degree in Computer Science at Huazhong University of Science and Technology in China. Her research is in the general area of distributed systems and its intersection with big data analytics, resource management, power management and system virtualization. She spent summers interning at IBM T.J. Watson Research Center, Intel Science and Technology Center for Cloud Computing, Microsoft Research Asia, VMware, and has been working closely with them. Her work was published at top conferences like USENIX ATC 2014, SOCC 2013, ICDCS 2012, ICAC 2012 and Cluster 2008.

Monique Ross, Ph.D. (Purdue)

Assistant Professor

Dr. Monique Ross joins the team with a diverse and integrated background. She holds a doctoral degree in Engineering Education from Purdue University. She has a Bachelor's degree in Computer Engineering from Elizabethtown College, a Master's degree in Computer Science and Software Engineering from Auburn University, eleven years of experience in industry as a software engineer, and three years as a full-time faculty in the departments of computer science and engineering.

Her interests focus on broadening participation in engineering through the exploration of: 1) race, gender, and identity in the engineering workplace; 2) discipline-based education research (with a focus on computer science and computer engineering courses) in order to inform pedagogical practices that garner interest and retain women and minorities in computer-related engineering fields. Dr. Ross also has a joint appointment in FIU's preeminent STEM Transformation Institute where she leverages the inherent interdisciplinary nature of computer science to collaborate with her peer across the STEM disciplines.



Ning Xie, Ph.D. (MIT)

Assistant Professor

Dr. Ning Xie received his Ph.D. in Computer Science in 2012 from MIT. His research interests are in many aspects of algorithmic and complexity theory, including property testing, local computation algorithms, Fourier analysis of Boolean functions, circuit complexity and coding theory. His research has been supported by NSF and U.S. Air Force Research Lab Summer Faculty Fellowship Program.

Wei Zeng, Ph.D. (Chinese Academy of Sciences)

Assistant Professor

Dr. Zeng received her Ph.D. from Chinese Academy of Sciences in 2008 and had her post-doctoral training at Stony Brook University in 2010-2012. She also worked at Microsoft Research Asia and Stony Brook University during her graduate study. Her Ph.D. thesis was titled "Computational Conformal Geometry Based Shape Analysis". She has published numerous papers in peer-reviewed journals (e.g., IEEE TPAMI, IEEE TVCG, IJCV) and conferences (e.g., ICCV, ECCV, CVPR, VIS, SPM, IPMI, MICCAI, INFOCOM, IPSN) and a book by Springer, won a Best paper award in CAD/CAM (IJCC 2009), and has two U.S. patents on virtual colonoscopy techniques.

Kip Irvine, Ph.D. (UM)

Senior Instructor

Dr. Kip Irvine earned Bachelors, Masters, and Doctoral degrees in Music during (1975-82), and a Master of Computer Science degree in 1995. He was a full-time faculty member in the Computer Information Systems Department at Miami-Dade College from 1983 to 2000, rising to the rank of Full Professor. He has been at FIU since 2000 as a full-time Instructor and was promoted to Senior Instructor in 2011. He taught undergraduate courses in eight different programming languages. He also taught Human-Computer Interaction, Component-Based Software Development, Fundamentals of Computer Systems, and Data Structures. He taught all undergraduate levels and developed three courses for FIU.

He was awarded both the Excellence in Teaching award (2010) and the Excellence in Service award (2008, 2012, and 2016) by the School of Computing and Information Sciences. He won the College of Engineering and Computing Service award for 2013. He is the author and co-author of five college textbooks in computer programming, where two of the books dominate their fields. He is a Senior Member of Association for Computing Machinery.

Tim Downey, M.S. (Albany, SUNY)

Senior Instructor

Tim Downey earned Master's degrees in mathematics and computer science. He has been teaching at FIU since 2001. In that time, he has earned three University wide teaching awards (2007, 2002, 1997), one College teaching award (2007) and two School teaching awards (2006, 2002). He is the author of a book on web design and has attended many conferences on computer science education. These conferences have stimulated his teaching style over the years. He is always open to learning new ways to enhance the learning process.

Norman D. Pestaina, M.S. (PSU)

Senior Instructor

Norman Pestaina joined FIU as a Visiting instructor in the Department of Mathematical Sciences in August 1984. He holds the B.S. in Mathematics from the University of the West Indies, and an MS in Computer Science from the Pennsylvania State University. Mr. Pestaina was previously a Lecturer at the Cave Hill campus of the UWI, Assistant Staff member of the MIT Lincoln Laboratory. Mr. Pestaina has taught several courses at FIU and has been recognized for excellence in teaching including an inaugural Teaching Incentive Program award.

He has been an SCIS Undergraduate Committee member and undergraduate advisor for many years, often representing the SCIS on College Curriculum Committees. A principal architect of the SCIS program assessment processes, Mr. Pestaina has been the SCIS Assessments Coordinator and has led the BS-CS ABET re-accreditation efforts in 2004 and 2010. He has been a Reader or Question Leader of the College Board's Advanced Placement Computer Science Exam since 2000.

Joslyn Smith, M.S. (UNB)

Senior Instructor

Joslyn Smith joined the School of Computing and Information Sciences in 1997. Joslyn came to FIU with fourteen years of teaching experience from the University of the West Indies, as a lecturer in computer science, in the undergraduate program. Mr. Smith holds an M.S and a B.S in mathematics both from Central Connecticut State University, CT. He earned an M.S degree in computer science from the University of New Brunswick Canada, and a non-degree Certificate in computer science from Clarke University, Massachusetts.

Mr. Smith also holds a professional certificate in teacher education from the Mico University College, Jamaica. At FIU, Mr. Smith's major focus in programming language is the object oriented paradigm. Over the years he has attended many conferences on computer science education. He has served as reviewer for the SIGCSE Technical Symposium on Computer Science Education and has reviewed several manuscripts for major publishers such as McGraw Hill and Prentice Hall.

Greg Shaw, M.S. (FIU)

Senior Instructor

A graduate of the FIU School of Computer Science, Greg has served as an Adjunct Professor, Visiting Instructor, Instructor, and now Senior Instructor. In his 28 years at FIU, Greg has taught introductory and intermediate level programming courses to well over 8000 students in seven different programming languages utilizing a wide variety of programming paradigms: including Procedural Programming (Fortran and Basic), Visual/Interactive Programming (Visual Basic), Structured Programming (Pacal), Abstract Data Type Programming (ADA), and Object-Oriented Programming (C++ and Java). In addition, Greg has taught several CGS courses covering microcomputer applications such as Word, Powerpoint, Excel, and Access.

Jill Weiss, M.S. (Barry University)

Senior Instructor

Professor Weiss received her M.S. in Computer Science Education from Barry University in 1992, and has worked in the computer industry since 1985 in different capacities, mostly in computer education. She has been involved in all facets of the computer industry, including hardware/software installation, repair, trouble shooting, consulting, programming, and (multi-unit) managing training centers for a major Fortune 100 retailer. Professor Weiss worked as a computer consultant/trainer for several large companies and has trained users from various county and government agencies.

Professor Weiss has been teaching in the School of Computing and Information Sciences since 1989 as an adjunct, and since 1999 as a fulltime faculty member, and was promoted to Senior Instructor in 2012. She primarily teaches the School's service courses and since 2000, she has provided World's Ahead instruction to over 20,000 FIU students. She is the recipient of the School of Computing and Information Science's Excellence in Teaching award in 2008 and 2013 and the FIU University Excellence in Teaching award in 2015.

Antonio Bajuelos, Ph.D (JINR)

Instructor

Dr. Antonio L. Bajuelos received his Ph.D. in Applied Math (specialization in Computer Science) from Joint Institute for Nuclear Research (Dubna, Russian Federation) in 1990, and M.S. and B.S. in Applied Math from Saint Petersburg University (Russian Federation), in 1984 and 1982, respectively. He came to SCIS at FIU after fifteen years teaching at the University of Aveiro in Portugal. He has 18+ years of expertise in the supervision of research and academic projects related to some real-life problems: wireless networks, quality coverage problems, proximity and facility location problems, etc. Dr. Bajuelos has been a major adviser of 2 Ph.D. and 10 MS graduates.

Rick Blazek, Ph.D. (NSU)

Instructor

Dr. Rick Blazek came to FIU after almost twenty years teaching at Robert Morris University Illinois. He holds an MA in Philosophy and MDiv in Theology as well as MS and PhD in Computer and Information Science. Blazek worked as a computer consultant in Oil and Gas, Retail, and Construction Engineering for more than ten years both before and after gaining his PhD. His passion for teaching and desire to understand new technologies has lead him to ongoing research in Database and Information security. Since joining FIU in 2014, Blazek has enjoyed teaching a variety of courses for the School of Computer and Information Sciences at FIU at both the undergraduate and graduate levels.

Maria Cristina Charters, M.S. (NSU)

Instructor

As an instructor for SCIS, Ms. Charters enjoys teaching the courses that start students off in their IT or CS major: COP 1000, COP 2250, COP 3804, and COP 3337. She is passionate about spreading Computer Science education to all children, starting in kindergarten, through elementary, middle, and high school. She also believes that all students at FIU should get a chance to learn how Computer Science impacts their lives, and to dabble in a little bit of coding in languages such as Python and tools like MIT App Inventor. That is why she helped develop a new online course, IDC 1000 – Computer Science for Everyone, which is designed for students who are non-CS and non-IT majors. She would like all students at FIU to consider taking it.

Prior to teaching at FIU, Ms. Charters had 2 other careers. Most recently, she was an educator and teacher-trainer within the Miami-Dade County Public School District. Her first career was as a Computer Programmer/Analyst for FPL, where she developed mainframe and client/server systems. She is an FIU alumni, and feels blessed to be able to work in SCIS as an Instructor, after having graduated from FIU with a degree in Computer Science many years ago.

Debra Davis, Ph.D. (UT Austin)

Instructor

Dr. Davis' research interests emphasize interdisciplinary topics including understanding and improving: (1) Computer Science education; (2) complex human-machine interactions; and (3) educational applications and techniques for online STEM learning. She has extensive IT Industry experience, including as a Chief Information Officer (CIO), and has authored many papers on HCI, User Experience and Computer Science Education. In the last four years, Dr. Davis has been a Co-PI on four NSF grants. Dr. Davis also has interest in technology transfer initiatives and has been the recipient of NSF SBIR Phase I and Phase II awards. In 2004, Dr. Davis received her PhD in Cognitive Developmental Psychology from the University of Texas at Austin and 2004 a MS in Computer Science from Florida International University.

Trevor Cickovski, Ph.D. (Notre Dame)

Instructor

Dr. Trevor Cickovski received his Ph.D. from the University of Notre Dame in 2008. He currently works at Florida International University as an Instructor primarily of hardware courses, and also a member of the Bioinformatics Research Group (BioRG). Before coming to FIU, Trevor served on the Faculty at Eckerd College and was Discipline Coordinator of Computer Science from 2012 to 2015. At Eckerd he instructed a wide range of computer science courses at the undergraduate level plus some cross-disciplinary courses in the liberal arts. As a graduate instructor at Notre Dame, Trevor received the Kaneb Award for Excellence in Teaching.

Trevor's research interests include high-performance GPU computing and its application to bioinformatics. He was a Visiting Scholar at Stanford University in 2012 for his work with molecular dynamics, which includes publications in the Journal of Chemical Theory and Computation, Molecular Biology of the Cell, and the Journal of Computational Chemistry. He is currently studying connections between social network theory and the microbiome, and also methods for bringing GPU computing to the classroom. His previous institution, Eckerd College, was awarded as a GPU Education Center by NVIDIA in 2013.

Patricia McDermott-Wells, Ph.D. (NSU)

Instructor

Dr. Patricia McDermott-Wells has over 35 years of experience in the computer industry, from mainframes to PCs. She is an independent software developer who has produced software for U.S. Army and U.S. Marine Corps JROTC, and has worked with numerous other city, state and national government entities. She has been an instructor at FIU since 2000, and has received several teaching awards. She holds a PhD from Nova Southeastern University. Her research interests include software tools to assist blind students in doing math in real-time collaboration with sighted partners.

Michael Robinson, M.S. (FIU)

Instructor

Michael Robinson's research interests are Computer Science and Information Technology Education, Bioinformatics, Genomic Databases, Data Mining, Information Retrieval, Virtual machines. He has developed several research tools for searching genomes. Mr. Robinson has authored two books in 2016 entitled "Java Programming Applications" and "Operating Systems for IT". He has developed tutoring programs, certification workshops, and other curriculum for the School's Hardware Lab to provide students hands-on training on different areas of Computer Science and Information Technology, helping SCIS students become great professionals. In 2007 Mr. Robinson earned a Master of Science in Computer Science from Florida International University, graduating with Honors.

Intellectual Property & Research Funding

Below is a list of recent faculty intellectual property disclosures and patent activity. These technologies all have great impact potential in their respective industry areas. For more information contact FIU's Office of Technology Management and Commercialization (research.fiu.edu/ored/otmc):

Title	Faculty	Status
Method for Synchronizing Transmission Times in Ad Hoc Networks using Packet Reception Time Statistics	Bogdan Carbunar, Shivajit Mohapatra, Michael Pearce, Loren J. Rittle, Venugopal Vasudevan	US Patent Awarded
Geolocating Social Media	Naphtali Rishe	US Patent Application
Streaming Representation of Moving Objects and Shapes in a Geographic Information Service	Naphtali Rishe	US Patent Application
Informed Traveler Program and Application	Naphtali Rishe	US Patent Application
A Cross Street Transit and Multimodal Multi-level Station and Pedestrian-Oriented Interchange	Naphtali Rishe	US Patent Awarded
Video Motion Classifications	S.S. Iyengar	US Patent Application
Load Balancing Algorithms for Data Center Networks	Deng Pan	US Patent Awarded
Systems and Methods for Augmented Reality Interaction	Jong-Hoon Kim	US Patent Application
Context Based Algorithmic Framework for Identifying and Classifying Embedded Images of Follicle Units	Md Mahbubur Rahman, S.S. Iyengar, Wei Zeng, Frank Hernandez, Bernard Nusbaum, and Paul Rose	US Patent Awarded
Communication Virtual Machine	Yi Deng, Masoud Sadjadi, Steve Luis, Peter Clarke, Li Zhang, Vagelis Hristidis, Raju Rangaswami	US Patent Awarded
System and architecture for robust management of resources in a wide-area network	Supratik Mukhopadhyay, S.S. Iyengar	US Patent Awarded
Multi-Touch Machine Framework	Francisco Ortega, Naphtali Rishe, Armando Barreto	US Patent Application
Gesture Discernment and Processing System	Francisco Ortega, Naphtali Rishe, Armando Barreto	US Patent Application

Faculty	Title	Agency	Amount	Duration
Bodgan Carbunar (PI), Debra Davis (Co-PI)	EAGER: Digital Interventions for Reducing Social Networking Risks in Adolescents	NSF	$216,540	2014-2017
Bogdan Carbunar (PI)	TWC: Small: Collaborative: Cracking Down Online Deception Ecosystems	NSF	$261,652	2015-2018
Bogdan Carbunar (PI)	CSR: Small: Collaborative Research: Sensorprint: Hardware-Enforced Information Authentication for Mobile Systems	NSF	$249,652	2015-2018
Shu-Ching Chen (Co-PI), Tao Li, Scott Graham (Sr. Inv)	CREST: Center for Aquatic Chemistry and the Environment (CAChE)	NSF	$1,099,985	2016-2021
Shu-Ching Chen (Co-PI)	Hurricane Catastrophe Fund 2015 - 2020	State Board of Admin., Florida	$40,200	2015-2020
Shu-Ching Chen (Co-PI)	Public Hurricane Loss Model	Florida Dept. of Insurance Regulation	$1,982,833	2013-2017
Shu-Ching Chen (PI), Tao Li, Steve Luis (Co-PIs)	A Data Mining Framework for Enhancing Emergency Response Situation Reports with Multi-Agency Multi-Party Multimedia Data	Purdue Univ. / US Dept. of Homeland Security	$305,000	2010-2017
Shu-Ching Chen (Co-PI)	Florida Public Hurricane Loss Model Project Model Enhancements to Estimate Losses from Storm Surge and Flooding	FL Dept. of Insurance Regulation	$5,636,600	2013-2017

Faculty	Title	Agency	Amount	Duration
Peter Clarke (PI), Debra Davis (Co-PI)	Type 2 Collaborative Project: Integrating Testing into Advanced CS/IT Courses Supported by a Cyberlearning Environment	NSF	$375,340	2012-2016
Peter Clarke (PI), Debra Davis, Geoffrey Potvin, Mandayam Thirunarayanan (Co-PIs)	Collaborative Research: Engaged Student Learning - Design and Development Level II: Using a Cyberlearning Environment to Improve Student Learning and Engagement in Software Courses	NSF	$614,639	2015-2019
Ruogu Fang (PI)	CRII: SCH: Characterizing, Modeling and Evaluating Brain Dynamics	NSF	$174,991	2016-2018
Ruogu Fang (PI)	Minimal Radiation Exposure Technology for Acute Stroke Assessment in CT Perfusion	CTSC (Cornell University)	$5,000	2016-2017
Ruogu Fang (PI)	Modeling, Estimating and Reasoning in Limited Data Brain Dynamics	ORAU	$5,000	2016-2017
Mark Finlayson (PI)	Narratives in the Informational Patient Society and their Association with Health	UCLA/NIH	$180,000	2014-2017
Xudong He (PI)	An Adaptive Evolutionary Computing Based Runtime Checker	AAMU/AFRL	$228,925	2015-2018
S.S. Iyengar (PI), Niki Pissinou (Co-Pi)	A game theoretic approach to self-configuring, non-cooperative mobile sensors for monitoring moving targets	Army Research Office	$390,321	2015-2018
S.S. Iyengar (PI)	STIR: Scientific Exploration of Cyber-Driven Dynamic, Distributed Big Data Forensics Systems	Army Research Office	$49,984	2016-2017
Tao Li (PI), Shu-Ching Chen, Steve Luis (Co-PIs)	BDD: Data-Driven Critical Information Exchange in Disaster Affected Public-Private Networks	NSF	$315,998	2015-2018
Christine Lisetti (PI), Mark Williams (Co-PI)	CHS: Small: Advanced Design Principles for Computer Simulated Agents	NSF	$529,618	2014-2017
Christine Lisetti (PI), Stacey Frazier (Co-PI)	Interactice Virtual Training (IVT) for Early Career Teachers in High Poverty Schools	Rutgers University / US Dept. of Education	$286,305	2015-2018
Jason Liu (PI)	EAGER: SwitchOn - Exploring and Strenghtening US-Brazil Collaborations in Future Internet Research	NSF	$200,000	2014-2018
Jason Liu (PI)	PrimoGENI Constellation for Distributed At-Scale Hybrid Network Experimentation	BBN Technologies / NSF	$285,231	2013-2016
Jason Liu (PI)	Scalable Discrete Event Simulation for Performance Prediction	US Dept. of Energy LLNL	$251,999	2015-2018
Jason Liu (PI - transferred)	Enabling Time-sensitive Applications on Virtualized Computing Systems	ARO	$642,654	2013-2017
Jason Liu (PI - transferred)	Vulnerability and Survivability of Cyberspace: Basic Science to Applications	USF FC2	$25,000	2015-2016
Masoud Milani (PI)	RET in Engineering and Computer Science Site: Nanotechnology Research Experiences for Teachers at FIU	NSF	$479,903	2013-2016
Giri Narasimhan (PI)	Multi-Disciplinary High Performance Computing and STEM Education	ARO	$498,691	2016-2017
Francisco Ortega (PI)	SBIR Phase IIA: 2.5D Extensions to Braille-based User Interfaces	PBI/NSF	$105,000	2016-2017
Deng Pan (PI)	CSR: Small: A Scalable and Efficient Framework for Switch Virtualization	NSF	$397,988	2011-2016

Faculty	Title	Agency	Amount	Duration
Nikki Pissinou (PI), S.S. Iyengar (Co-PI)	REU SITE: ASSET: Research Experiences for Undergraduates in Advanced Secured Sensor Enabling Technologies	NSF	$360,000	2013-2017
Nikki Pissinou (PI), S.S. Iyengar (Co-PI)	REU SITE: ASSET: Research Experiences for Undergraduates in Advanced Secured Sensor Enabling Technologies	NSF	$360,000	2016-2019
Nikki Pissinou (PI), S.S. Iyengar (Co-PI)	RET in Engineering and Computer Science SITE: Research Experience for Teachers on Cyber-Enabled Technologies	NSF	$498,000	2014-2017
Niki Pissinou (PI)	Using Trajectory Sensor Data Stream Cleaning to Ensure the Survivability of Mobile Wireless Sensor Networks in Cyberspace	AFOSR	$453,688	2014-2017
Raju Rangaswami (PI)	CSR: Small: Non-blocking Writes	NSF	$513,367	2013-2017
Raju Rangaswami (PI)	Securing Storage for Insider Threat Mitigation	USF FC2	$20,000	2015-2017
Raju Rangaswami (PI), Jason Liu, Giri Narasimhan (Co-PIs)	CSR: Medium: Collaborative Research: NVM-enabled Host-side Caches	NSF	$392,368	2016-2019
Naphtali Rishe (PI), Xudong He, Shu-Ching Chen (Co-PIs)	CREST: Center for Innovative Information Systems Engineering	NSF	$5,715,513	2008-2016
Naphtali Rishe (PI), Shu-Ching Chen, Tao Li, Ming Zhao (Co-PIs)	MRI: Development of an Integrated, Geospatial Analytics Research Instrument	NSF	$758,693	2011-2016
Naphtali Rishe (PI), Tao Li (Co-PI)	III: Large: Collaborative Research: Moving Objects Databases for Exploration of Virtual and Real Environments	NSF	$1,331,000	2012-2017
Naphtali Rishe (PI), Scott Graham, S.S. Iyengar (Co-PIs)	I/UCRC: Phase II: Center for Advanced Knowledge Enablement	NSF	$741,000	2013-2018
Naphtali Rishe (PI) - CFO Kenneth Jessel is institutional Lead	UniversityCity Prosperity Project	USDOT	$11.4M	2014-2017
Naphtali Rishe (PI), Abraham Kandel, S.S. Iyengar, Tao Li, Malek Adjouadi (Co-PIs)	MRI: Development of an Instrument for Acquisition, Management, and Analysis of Super-resolution Aerial Imagery	NSF	$366,000	2014-2017
Naphtali Rishe (PI)	RAPID: Big Geospatial Data for Decision Support in Ebola Triage	NSF	$100,000	2015-2017
Naphtali Rishe (Co-PI)	MRI: Development of an Integrated Neuroimaging Instrument with Temporal and Spatial Alignments for Brain Research	NSF	$3,955,110	2015-2020
S. Masoud Sadjadi (PI)	Vertically Integrated Program at FIU	Georgia Institute of Technology / Helmsley Trust	$227,087	2015-2017
Geoffrey Smith (PI)	Cyber Resilience for Injection Attacks	USF FC2	$25,000	2015-2016
Mark Weiss (PI)	Collaborative Research: Florida IT Pathways to Success (Flit-Path)	NSF	$1,944,118	2016-2021
Ning Xie (PI)	AF: Small: Local Computation Algorithms -- New Directions and Techniques	NSF	$229,142	2014-2017
Wei Zeng (PI), transferred	Composing Security Services for Software-defined Networks	USF FC2	$25,000	2016-2017
Wei Zeng (PI)	EAGER: Computational Teichmuller Theory	NSF	$249,989	2015-2017

VERTICALLY INTEGRATED PROJECTS

Students demonstrating senior projects to industry judges at End-of-Semester Showcase

Vertically Integrated Projects program (vip.fiu.edu) unites undergraduate and graduate students with faculty research projects in a team-based context. VIP students earn academic credits, while faculties benefit from the design and discovery efforts of their team. Piloted at Georgia Tech and now expanded through a consortium, FIU and consortium members were awarded seed funding by the Helmsley Foundation to initiate the program nationwide. The FIU VIP Director is Dr. Masoud Sajadi, who oversees the VIP coordination team, curricular implementation, project selection and student placement.

VIP projects at FIU are long-term, large-scale projects based on faculty mentor's research. These projects expose teams to new technologies, project management, development techniques, and require the development of a tangible system where experiments can be conducted. For example, student teams have explored the use of drone-captured imagery to analyze the health of locally grown crops. Another team used our ICAVE virtual reality system to build a new type of 3D programming language.

Students also develop many valuable professional skills such as leadership, communication, and being exposed to the innovation process.

All the teams use agile development techniques, including sprints, daily scrum meetings, and retrospectives with their mentors. In addition, VIP students conduct research producing publishable content in some cases. Some interesting features of the program are: (1) VIP can be taken twice replacing the Computer Science Senior Project requirement, and (2) VIP can be taken starting in sophomore year, providing a way for students to quickly develop marketable industry skills.

As of Fall of 2016 there were 144 VIP/Senior Project registered students. We have expanded across several majors including Computer Science, School of Construction, Electrical and Computer Engineering Department, College of Architecture and the Arts, Statistics, among others. A university-wide VIP course is in the pipeline for final approval allowing all FIU students to take VIP and receive its many benefits. These students demonstrate their projects at our Student Showcase held at the end of each semester.

VIP/Senior Project students with faculty and industry mentors.

“Clearly, computing at FIU is making major strides”

- Dr. Vicky Hanson, Rochester Institute of Technology

“I am impressed with how SCIS is transforming into a very high caliber research institution”

- Dr. Dave Martinez, MIT Lincoln Laboratory

“There is a great trajectory defined for SCIS”

- Dr. Daniela Rus, EECS, MIT

“I was very impressed by the nature of the interdisciplinary research that is conducted at FIU”

- Dr. Asad Madni, University of California, Los Angeles

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Cover image: Researchers are using the ICAVE to visualize hurricane intensification. An interactive stereographic 3D model of Hurricane Sandy was created by integrating WRF modeling and radar data rendered as a surface mesh with shading added to differentiate altitude and wind speed.