The Center of Excellence in Wireless and Information Technology

NEWSLETTER

JUNE 2015

CEWIT is an unparalleled resource, advancing the science and technology underlying the next epoch of the information revolution.

CEWIT2015 CONFERENCE

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Center of Excellence

WIRELESS AND INFORMATION TECHNOLOGY

AT STONY BROOK UNIVERSITY

REGISTER NOW

EARLY BIRD REGISTRATION THROUGH AUGUST 7, 2015

The 12th International Conference & Expo on Emerging Technologies for a Smarter World • CEWIT2015

OCTOBER 19 & 20, 2015 • Melville Marriott Long Island, Melville, New York

FOR MORE INFORMATION & TO REGISTER: WWW.CEWIT.ORG/CONFERENCE2015

CEWIT2015 CONFERENCE

REGISTRATION NOW OPEN

Gaining recognition as one of the most prestigious and highly attended programs, CEWIT2015 is an excellent opportunity to network and listen to industry and academic experts discuss innovative ideas and applications in infrastructure, healthcare, and energy – three of the most critical components of a smarter global environment.

RESERVE YOUR SEAT at New York's premier IT conference and international forum on emerging technologies.

DISCOUNTS FOR IEEE, LIFT, AND LISTnet MEMBERS, and **REDUCED RATES THROUGH AUGUST 7, 2015**. Registration Now Open for both General Conference and Big Data and Data Science Tutorials: https://secure2.events-registration.com/cewit2015/

BIG DATA AND DATA SCIENCE TUTORIALS

DAY 2, TUESDAY, OCTOBER 20, 2015. Two, 3-hour, for-pay, workshops on Python Data Analytics and R Data Mining, instructed by experts from the NYC Data Science Academy Team and certified by The Center for Corporate Education at Stony Brook University. For registered conference attendees.

SESSION I · PYTHON DATA ANALYTICS WORKSHOP
NUMPY, PANDAS, MATPLOTLIB, SCIPY

SESSION II · R DATA MINING WORKSHOP
CARET, RPART, RANDOMFOREST, GBM, BOOSTING

NYC DATA SCIENCE ACADEMY

INTRODUCING KEYNOTE SPEAKER

GIRISH RISHI
EXECUTIVE VICE PRESIDENT
NORTH AMERICA INSTALLATION
& SERVICES AND TYCO RETAIL
SOLUTIONS
TYCO INTERNATIONAL

IOT: HYPE OR REALITY? OUTLOOK FOR SCHOOLS, HOSPITALS, STORES, OFFICES AND BEYOND

Girish Rishi joined Tyco as Executive Vice President, North America Installation & Services and Tyco Retail Solutions, in May 2015. In this role, Mr. Rishi has responsibility for Tyco's commercial fire and security businesses in the U.S. and Canada, a segment with nearly $3.9 billion in revenue in fiscal year 2014, as well as the global Tyco Retail Solutions vertical market business. Before joining Tyco, he served as Senior Vice President, Enterprise Visibility and Mobility, with Zebra Technologies. Previously, Mr. Rishi oversaw product development, product management and engineering for the Enterprise division of Motorola Solutions and held positions of increasing responsibility with Symbol Technologies, ranging from sales and marketing roles to general management responsibility for several global regions. Mr. Rishi holds a bachelor's degree in commerce from the University of Mumbai, India, a master's degree in business administration from the University of Hartford, where he serves on the Board of Regents, and a master's degree in international public policy from Johns Hopkins University.

SPOTLIGHT ON ENTREPRENEURSHIP

CEWIT2015: DAY 1, MONDAY, OCTOBER 19

ENTREPRENEUR'S TOOLKIT I · FUNDING 101 · TRACK D · SESSION I · Focuses on burnishing your company for a venture capital investment. It includes value creation through Intellectual Property, specific recommendations for attracting and managing funds placement, and culminates in a Pitch Clinic in which early phase companies present their funding pitches interactively to CEWIT's expert Panel.

TRENDS IN VENTURE CAPITAL AND IS THERE ANOTHER WAY? · TRACK D · SESSION II · Kicks off with CEWIT's 3rd Annual Venture Capital Panel, a traditionally rousing moderated discussion of current trends in equity investing. Following, presentations delivered by entrepreneurs who found their way to the success of an ongoing business without venture capital funding. Culminating this Session is a discussion of an entrepreneur's considerations when negotiating an out-license of technology, another potentially venture capital-free means of achieving commercial success.

CEWIT2015: DAY 2, TUESDAY OCTOBER 20

ENTREPRENEUR'S TOOLKIT II · HOW INVESTORS THINK AND FUNDING 201 · TRACK D · SESSION III · Covering a number of important yet novel subject areas such as the results of a formal study about how Crowdfunding investors make their decisions, and the importance of being able to communicate science to business people, as presented by a representative of the Alan Alda Center at Stony Brook University. The Session transitions to information regarding government sponsored programs focused on helping entrepreneurs address funding and other issues, including an address by the Director of the StartUP NY program.

INTERNATIONAL B2B NETWORKING SESSION · Featuring a 40 company delegation from Israel and Korea as well as CEWIT's regional base of 30+ exhibiting organizations allowing for a no-cost opportunity of accessing international and local markets. Early registration will furthermore put your company at a position to aggressively promote to external parties as well as strategically pre-arrange day-of business engagements. Contact CONFERENCE@CEWIT.ORG for more information.

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RESEARCH

KAUFMAN: MARCUS FOUNDATION TO FUND CEWIT CHIEF SCIENTIST

Virtual Pancreatography Research Receives Funding from the Marcus Foundation

Kaufman has been conducting computer science research for more than 40 years. To date, he has over 40 patents and has been a principal or co-principal investigator on more than 100 research grants. Kaufman is internationally recognized for his revolutionary research and breakthroughs, including the Reality Deck and the 3D Virtual Colonoscopy, which is an FDA approved and licensed technique for screening colon cancer. *-Stony Brook University, June 2015*

Arie Kaufman, CEWIT Chief Scientist and Chair of the Department of Computer Science at Stony Brook University, has received a grant for almost $1 million from The Marcus Foundation to explore the use of virtual reality in pancreatic cancer research.

The research is a collaborative effort between Stony Brook and Johns Hopkins University Hospital. Kaufman, principal investigator of the project, shares the award with co-PI Joel Saltz, chair of Biomedical Informatics at Stony Brook, and PI Ralph Hruban and co-PI Elliot Fishman from Johns Hopkins.

Pancreatic adenocarcinoma is the fourth leading cause of cancer death in the United States. It's estimated that this year 46,420 Americans will be diagnosed with pancreatic cancer and 39,590 will die from the disease. While much remains a mystery surrounding pancreatic cancer, researchers do know that it is extremely aggressive, with only 5 percent of patients alive five years after diagnosis.

A significant fraction of pancreatic cancers are thought to originate from curable cystic precancerous lesions. Approximately 10 percent of the U.S. population has a CT scan each year and a significant number of incidental pancreatic cysts are detected in these individuals. Believing that a key to survival is early diagnosis, this unique collaboration between Stony Brook and Johns Hopkins proposes a novel approach for identifying and classifying pancreatic cysts.

This research presents a unique opportunity to save lives that would otherwise be lost to pancreatic cancer. The challenge is that some pancreatic cysts are harmless and present a risk for over-treatment, while others are precancerous. Reliable, pre-operative classification of these cysts is not possible at present.

Kaufman and his team will identify well-characterized patients with previously surgically removed pancreatic cysts, and, using advanced computer science approaches, they will create a virtual pancreatography for 3D visualization and navigation through and around the pancreas, and especially the ducts, to identify and characterize the cysts and to correlate cyst features with cyst diagnoses. This non-invasive tool will help avoid unnecessary surgery in patients with benign cysts that do not have the potential to progress, and will help save lives by identifying cysts that are at risk of progressing to the incurable invasive pancreatic cancer. The Marcus Foundation's support of this pioneering research will give newfound hope to pancreatic cancer patients around the world.

SMOLKA: TO CREATE CYBERHEART PLATFORM FOR ADVANCED MEDICAL DEVELOPMENT

A virtual-heart platform proposed by Stony Brook researchers and colleagues to improve and accelerate medical-device development and testing has received funding from the National Science Foundation (NSF) in the amount of $4.2 million over five years.

The "CyberHeart" project, led by Scott Smolka, a Professor of Computer Science at Stony Brook University, is part of the NSF's center-scale initiative to advance the state-of-the-art in Cyber-Physical Systems (CPS): engineered systems that are built from, and depend upon, the seamless integration of computation and physical components. Often called the "Internet of Things," CPS enable capabilities that go beyond the embedded systems of today. CPS such as wearable sensors and implantable devices are already being used to assess health, improve quality of life, provide cost-effective care, and potentially speed up disease diagnosis and prevention.

"The translational research of Professor Smolka, and its practical implications for advancements in medical care, is indicative of the cutting-edge research taking place at Stony Brook University, as well as the strength of our Computer Science Department," said Dennis N. Assanis, Provost and Senior Vice President for Academic Affairs at Stony Brook University. "This is also an excellent example of how interdisciplinary collaborations that cut across traditional academic boundaries can solve some of society's most vexing challenges and lead to new discoveries."

The Stony Brook-led project includes collaborators from seven leading universities and centers working together to develop far more realistic cardiac and device models than currently exist.
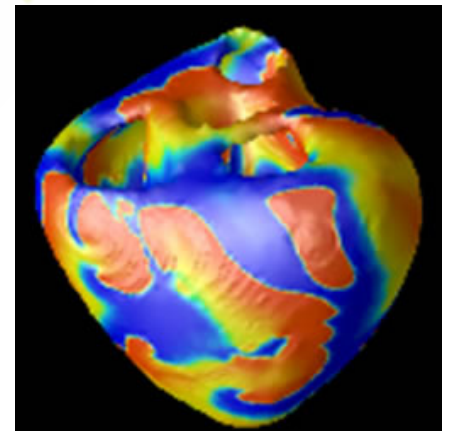
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R E S E A R C H

This "CyberHeart" platform can be used to test and validate medical devices faster and at a far lower cost than existing methods. CyberHeart also can be used to design optimal, patient-specific device therapies, thereby lowering the risk to the patient.

"Innovative 'virtual' design methodologies for implantable cardiac medical devices will speed device development and yield safer, more effective devices and device-based therapies, than is currently possible," said Professor Smolka."We believe that our coordinated, multi-disciplinary approach, which balances theoretical, experimental and practical concerns, will yield transformational results in medical-device design and foundations of cyber-physical system verification."

The group's approach combines patient-specific computational models of heart dynamics with advanced mathematical techniques for analyzing how these models interact with medical devices. The analytical techniques can be used to detect potential flaws in device behavior early on during the device-design phase, before animal and human trials begin. They also can be used in a clinical setting to optimize device settings on a patient-by-patient basis before devices are implanted.

Co-investigators on the project include Edmund Clarke (Carnegie Mellon University), Elizabeth Cherry (Rochester Institute of Technology), W. Rance Cleaveland (University of Maryland), Flavio Fenton (Georgia Tech), Rahul Mangharam (University of Pennsylvania), Arnab Ray (Fraunhofer Center for Experimental Software Engineering) and James Glimm and Radu Grosu (Stony Brook University). Richard A. Gray of the FDA is another key contributor. *-Department of Computer Science, Stony Brook University, June 2015*

N E W S

RIGHT DOSE INC., STONY BROOK TECH START UP GETS $100G IN FUNDING

Right Dose Inc., a Stony Brook tech startup working on software that monitors radiation dosages for patients undergoing CT scans, has received a $100,000 investment from Accelerate Long Island and the Long Island Emerging Technologies Fund.

Announced Thursday, the funding -- a $50,000 grant from Accelerate and a $50,000 investment from LIETF -- will allow the small company to strengthen its marketing efforts and continue working on its product, called Scannerside.

Subtle tweaks radiologists make when operating scanners, and their typical 12 to 15 adjustment parameters, can increase patients' exposure to radiation. Right Dose says that Scannerside gives medical providers a way to view radiation levels and how

they stack up against nationally recognized safety standards. Scannerside -- which Right Dose has already sold to eight health care providers on Long Island -- does three things: measure radiation levels for a particular procedure, calculate aggregate radiation exposure over several procedures for repeat patients, and create a database for practitioners to compare their radiation levels with national averages.

"A little change in one thing can result in a significant change in the overall radiation dose," said William Moore, president of Right Dose and vice chair of Education in the Department of Radiology at Stony Brook Medicine. "Unless you monitor the outcome of these machines, there's no way to know if you're within [safe] ranges or not," Moore said.

"At the end of the day with a startup company, you're betting on the founder as much as you are on the products," said Mark Lesko, Accelerate's executive director. "We think he [Moore] was worth the bet." *-Newsday, June 2015*

RESEARCH INSTITUTIONS ARE A VITAL ECONOMIC ENGINE ON LONG ISLAND

Long Island's research institutions are key to the region's economic activity and potential growth. We should see them not as ivory towers but as vital parts of the engine that powers the region -- and its future prosperity. Newsday recently underscored that point in an editorial, which advocated that Long Island "grow and keep newborn companies. Give research institutions and incubators tools to create lots of them. The more we create, the more likely some will be successful, and stay." Long Island is blessed with some of the most renowned and innovative research institutions in the nation. They have dramatic impact on the regional economy in their own right and are also catalysts for cutting-edge ideas and spin-off companies.

Stony Brook University, one of 62 research universities recognized by membership in the Association of American Universities, is the largest single-site employer on Long Island. Its annual economic impact totals $4.65 billion, generates nearly 60,000 jobs, and accounts for nearly 4 percent of all economic activity in Nassau and Suffolk counties. Their commitment to innovation is evidenced by, among many other credentials, their combined association with at least 17 Nobel Prize winners.

To grow Long Island's entrepreneurial ecosystem, the region already offers seven incubators and related facilities including Broad Hollow Bioscience Park at Farmingdale State College; Stony Brook University's Business Incubator at Calverton; the Center of Excellence for Wireless and Information Technology at Stony Brook University; Launchpad LI at several locations; Canrock Ventures in Hicksville; and the Long Island High Technology Incubator at Stony Brook University.

It's this research-based ecosystem that we need to encourage, enhance, and expand. It includes our world-renowned institutions, the incubators that they provide, the start-up businesses that they generate, and the wide variety of jobs and services that they require. It's this ecosystem that is core to the economic growth of our region and to creating the jobs that so many Long Islanders need and deserve. *-Nancy Rauch Douzinas, President of the Rauch Foundation for Huffington Post New York, June 2015*

Call for Papers: The 12th International Conference & Expo on Emerging Technologies for a Smarter World (CEWIT2015)
Melville Marriott Long Island | Melville, New York | October 19 & 20, 2015

Scope of the Conference

We cordially invite you to submit your contribution to the 12th International Conference & Expo on Emerging Technologies for a Smarter World (CEWIT2015). Originally known as the International Conference on Cutting-Edge Wireless & Information Technologies, this conference is organized by the New York State Center of Excellence in Wireless and Information Technology (CEWIT) located at Stony Brook University in New York.

CEWIT2015 is the premier international forum on the applications of emerging technologies in infrastructure, healthcare, and energy, which are three of the most critical components of a smarter global environment. Specific topics of interest include, but are not limited to, the following:

Area 1 – The Internet of Things (IoT)
- Wireless Sensor Networks
- Intelligent Sensors/Devices
- Collaborative Signal/Image Processing
- IoT Applications and Services
- Device and Circuit Design for IoT
- Architecture and Systems Design for IoT
- Interface and Control Systems for IoT
- IoT Data Analytics
- Mobile IoT
- IoT Testbed and Standards

Area 2 – Cybersecurity
- Mobile Security
- Internet of Things (IoT) Security
- Defenses against Zero-day and Targeted Attacks
- Defenses against Insider Threats
- Online Privacy and Anonymity
- Vulnerability Analysis and Software Protections
- Digital Forensics
- Privacy Enhancing Technologies
- Anonymity Domain Abuse and Trademark Dilution

Area 3 – Health Technologies and Medical Devices
- Advanced Medical Imaging
- Mobile Health
- Computer-Aided Diagnostics
- Wireless Telemedicine
- Noninvasive Health Monitoring
- Teleradiology
- Personal Medical Devices
- Implantable Sensors
- Medication Adherence
- Asset Tracking and Monitoring
- Implantable Prosthetics

Area 4 – Big Data Analytics and Visualization
- Model Driven Data Analysis
- Data Mining in Business Intelligence
- Text Mining & Sentiment Analysis
- Visual Analytics
- Biomedical and Healthcare Informatics
- Distributed Robotics and Real-Time Data Analytics
- Virtual and Augmented Reality
- Immersive Interface
- Tiled Displays
- Human Computer Interaction
- GPU Clustering

Area 5 – Smart Urban Systems
- Securing the Transportation Infrastructure
- Transportation Infrastructure Sensing
- Traffic Simulation & Visualization
- Interaction between Vehicles and the Environment
- Integrated Management Technology for Ubiquitous City
- Sensor Network for Water and Electric Utilities
- Urban Pollution

Area 6 – Smart Energy
- Distributed Sensor Networks for Smart Grid
- Advanced Metering Infrastructure
- Energy Efficient Computing
- Advanced Sensor and RFID Technologies
- Smart Grid Interoperability
- Simulation and Modeling

Area 7 – Information Technology and Society
- Worldwide Economic Impact of IT
- IT in Education
- IT as the Job Creation Engine
- Social Media
- Information Dissemination
- Global Impact

Submission Guidelines
CEWIT2015 is primarily interested in serving as a venue for the discussion of technical contributions highlighting end-to-end technical solutions, applications and systems, even if available only in prototype form. Therefore, we strongly encourage authors to submit abstracts describing their contributions in an application-oriented context.

Abstracts will be evaluated by conference program committee members and external reviewers. Submissions will be judged on validity, originality, technical strength, practical significance, quality of presentation, and relevance to the conference topics. We encourage submissions from a variety of fields where in-depth application-centric ideas addressing important challenges related to the conference theme are discussed. Authors of accepted oral presentations may submit a full paper to be included in the conference proceedings.

In addition to the oral presentations, we encourage participation in the poster session to present on-going research and innovative application projects. A judging panel of industry and academic experts will evaluate the posters and determine the winners of Best Poster and Best Student Poster Awards.

Please submit your abstract electronically at www.cewit.org/conference2015. Submission guidelines and other information will be provided on the conference website.

Important Dates
Abstract Submission Deadline: *July 1, 2015*
Notification of Acceptance: *August 1, 2015*
Camera-Ready Paper & Presentation Materials: *September 1, 2015*

Contact Information
For more information about CEWIT2015, please visit www.cewit.org/conference2015 or contact the conference general chair Dr. Shmuel Einav or the program committee chair Dr. Rong Zhao at +1 631-216-7000 or email conference@cewit.org.

Venue
CEWIT2015 will be held at the Melville Marriott Long Island, the largest full-service hotel in Suffolk County with a 5,000-square-foot atrium-enclosed lobby and 369 spacious guest rooms. In addition, this breathtaking Melville hotel's amenities include a Concierge Level, 24-hour fitness facility, sparkling indoor pool, and a full-service restaurant and lounge. Guests at the hotel can also enjoy 21,000 square feet of state-of-the-art meeting space, dedicated event professionals and impeccable catering services for business meetings and social celebrations. The Melville Marriott is conveniently situated just 20 miles from Islip Airport, 30 miles from JFK Airport and 30 miles from LaGuardia Airport. For more information please visit http://www.marriott.com/hotels/travel/nycml-melville-marriott-long-island/.

IEEE CEWIT2015 is technically co-sponsorship by IEEE Region 1 and its Long Island section. Peer reviewed conference papers will be submitted for inclusion in the IEEE Xplore online database and EI.