



#### **MAY COVERAGE: CEWIT Entrepreneurial Innovations, Mobile** Applications and Networks Research · University-wide 40+ Startup **Showcase · Leading IT Solutions at CEWIT2016**

The June 2, 2016, Stony Brook University-wide Incubator Company Showcase is now just around the corner. CEWIT hosts and shares some pointers:

Before You Get Here: Learn about the University's burgeoning community of member incubator companies. Start with the entrepreneurial innovations of CEWIT-based companies and other University leaders in this newsletter: Charmtech Labs, LLC teams with Project Gutenberg to offer 50,000+ free audiobooks; Softheon sustains future advancements in the healthcare space; **Zuznow**, one of the world's busiest mobile-app makers, is on the move; Graphometric startup, Web4Sign, stays ahead of data threats; Codagenix scales up; Vascular Simulations revolutionizes neurosurgery; and CEWIT faculty confirming both the technical and commercialization value of their work in the eyes of industry leaders with Google Research Awards.

While You're Here: Meet the minds behind the operations and the innovators bringing cutting-edge technologies to the marketplace. Learn how to partner with them, support their research and build their companies. Discover on a large sale, what Stony Brook University is accomplishing for its member startups, researchers and entrepreneurs. Talk to us about our next big event of the year, the CEWIT2016 Conference, November 2 & 3, 2016 at the Melville Marriott Long Island. Due to the overwhelming response, we've extended our Call for Papers deadline, plus not-to-miss sponsorship and exhibitor opportunities now underway. Also, check out the newly established rotating exhibit of experimental moving image artworks on CEWIT's Next Generation Video Wall.



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··	3 - 4	.The Stony Brook University 2016 Incubator Company Showcase
<b>Z</b>	4 - 5	. CEWIT Entrepreneurial Innovations: Charmtech Labs, LLC Teams with Project Gutenberg
	5 - 6	.Growing with CEWIT Softheon's Future Advancements in The Healthcare Space CEWIT-based Companies on The Radar
)	6 - 7	.New Ventures Arrive at CEWIT, Set Up Shop Zuznow Is on The Move Web4Sign Stays Ahead of Data Threats
	7 - 8	.Biotechnology Focus: Vascular Simulations Revolutionizes Neurosurgery NYAS Bioelectronic Medicine Symposium
	8 - 9	.Google This: CEWIT, Computer Science Faculty Receive Google Research Awards
	9	CEWIT's Next Generation Video Wall: Experime Moving Image Artworks
	9 - 10	CEWIT Research: Improving Mobile Web

**Performance** 

11 ...... Upcoming Events, Our Community

10 ......Submit Your Contribution to CEWIT2016

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# Stony Brook University November 2 & 3 MELVILLE, NY 2016

# The 13th International Conference & Expo on Emerging Technologies for a Smarter World

November 2 & 3, 2016 | Melville Marriott Long Island | Melville, NY, USA

Gaining recognition as one of the leading IT conferences, CEWIT2016 is the premier international forum on the development and application of emerging technologies in infrastructure, healthcare and energy — three of the most critical components of a smarter global environment.

With more than 175 participating organizations and 500 attendees, CEWIT2016 is a destination for disseminating cutting-edge ideas in information technology and for driving the local, regional and global innovation economies.

Contribute to the leading IT research shaping the solutions of tomorrow.

Areas include: The Internet of Things, Cybersecurity, Health Technologies and Medical Devices, Big Data Analytics and Visualization, Smart Urban Systems, Smart Energy, IT and Society.

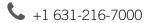
Early bird sponsor and exhibitor rates now available.

For more information:





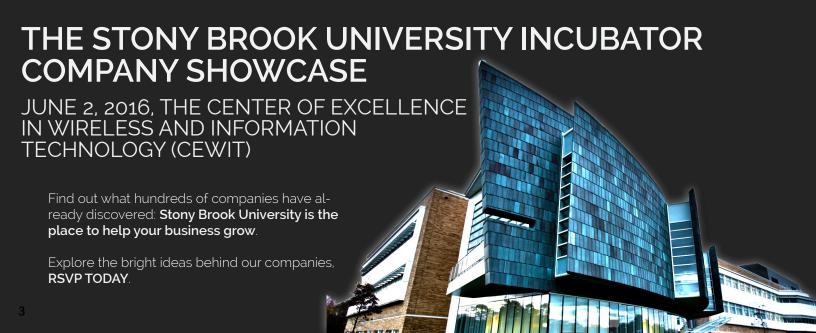












This is a joint effort by our Centers of Excellence, Centers for Advanced Technology, Business Incubators and Development Centers to showcase the comprehensive suite of economic development programs and the technological innovations and entrepreneurial advances of the University's burgeoning community of member incubator companies.

The Incubator Company Showcase will feature over 40 Stony Brook University startup company exhibits and displays at the Center of Excellence in Wireless and Information Technology (CEWIT) in the University's Research and Development Park. Providing ample time for valuable networking and one-on-one conversations with our scope of biotechnology, energy and information technology companies, the Showcase will furthermore extend its activities to offer tours and facility visits at each incubator location, allowing attendees to experience companies in their natural habitat.

The event will also commemorate both the graduation and homegrown success of Codagenix, Inc., as the biotechnology company scales up from its operation at the Long Island High Technology Incubator (LIHTI) to a new, more extensive headquarters at Farmingdale State's Broad Hollow Bioscience Park, creating jobs and economic prosperity for the region. The company's success is a notable representation of what Stony Brook University is accomplishing on a large scale, for its member companies, researchers and entrepreneurs.

For all further information including the Agenda, Getting Here, Participating Companies, and the Economic Impact of our incubator programs, visit: www.cewit.org/events/incubatorshowcase.html.

#### **AGENDA:**

9:00am – 12:00pm: Incubator Showcase 12:00pm - 1:00pm: Opening Remarks and Graduation Ceremony, Codagenix, Inc. 1:00pm – 3:00pm: Tours & Facility Visits

#### CEWIT ENTREPRENEURIAL INNOVATIONS

#### CHARMTECH LABS, LLC, THE CEWIT STARTUP BEHIND TEXT-TO-SPEECH SOFTWARE, CAPTI NARRATOR, TEAMS WITH PROJECT GUTENBERG TO OFFER 50,000+ FREE AUDIOBOOKS

Capti Narrator now makes over 50,000 free Project Gutenberg eBooks universally accessible to anyone who needs or wants to listen to audiobooks instead of reading eBooks from the screen. It is perfect for busy professionals and retirees, auditory learners and people with print disabilities, English language learners and native speakers.

Project Gutenberg was the first provider of free electronic books, or eBooks, that were invented by Michael Hart in 1971. His memory continues to inspire the creation of eBooks and related technologies to this day. Project Gutenberg, where anyone is sure to find their favorite classics, now offers over 50,000 free eBooks for anyone to download and read.

"I corresponded with Michael Hart when we were just starting with Capti; he told me that he saw a great purpose in our mission of enabling everyone to listen to all they want to read" – said Dr. Yevgen Borodin, the CEO of CEWIT-based Charmtech Labs LLC. "And today, I am thrilled to finally deliver on my promise and make Project Gutenberg eBooks available as free audiobooks to everyone!"

With 20% of the World's population having reading difficulties due to some reading disability such as vision loss or dyslexia, and with a substantial part of the population not having the time to sit down and read a book, Capti offers a perfect solution making it easy to listen to eBooks online and across many devices, including Windows, Mac, Chromebook, iOS, and soon Android.

With Capti, one can add any eBook, document, or a webpage to a playlist – a personal audio book library, and then listen to them on the go or at leisure, switch between devices and continue from where one left off. While attractive for consumers, Capti is also being adopted by schools worldwide as a resource for language learning and for providing alternative formats for students with reading difficulties.

Capti makes it easy for teachers to create Playlists with textual materials and share them with their students, who can then read and/or listen to their reading assignments on any of their devices. Capti supports many popular file formats such as HTML, EPUB, PDF, and DOC that can be added to the Playlist from



numerous sources, including the local computer, other iOS apps, Cloud storage services: Dropbox, Google Drive, and OneDrive; read-it-later lists: Instapaper and Pocket; and, now, also the Project Gutenberg eBook library.

"I am pleased that Capti will work to make our free eBooks easier to use in schools and colleges around the World, and I am also happy to see that Capti goes above and beyond to make sure the eBooks are universally accessible to people with and without print disabilities, as well as to those seeking to improve their literacy," said Dr. Greg Newby, the CEO of Project Gutenberg.

As a valuable universally accessible technology, Capti was distinguished with several prestigious awards, including the FCC Chairman's Award for Advancing Accessibility. For his work on Capti, Charmtech's CEO, Dr. Yevgen Borodin, was named a 2015 MIT Technology Review Innovator Under 35.

Charmtech Labs LLC was founded in 2010 by Stony Brook University Computer Science Professors and CEWIT affiliated faculty members, Dr. Borodin and Dr. I.V. Ramakrishnan. Initially inspired by helping people with vision impairments to overcome information accessibility problems, Charmtech Labs now brings their screen-reading technology to the mainstream market, revolutionizing the way people consume digital content. Over the last two years, Charmtech Labs has received about \$1.8 million in grant funding from several government entities, including the Department of Education, the National Science Foundation, and the National Institutes of Health. In 2014, the company was recognized by the Federal Communications Commission for making the Internet more accessible to the disabled.

Meet the Charmtech Labs team, explore the Capti software and rethink the way you experience your next book at the June 2, 2016 Stony Brook University Incubator Company Showcase at CEWIT.

NEWSDAY, VARIOUS PUBLICATIONS - APR 2016

## GROWING WITH CEWIT SOFTHEON'S FUTURE ADVANCEMENTS IN THE HEALTHCARE SPACE

The CEWIT-based data analytics and business intelligence software firm, Softheon, recently hosted its 2nd Annual Summit at CEWIT, a three day event where attendees collaborated with fellow thought leaders, explored the company's extensive operation at CEWIT and learned about Softheon's future advancements.

The well received Summit solidified the outlook of the company as an innovative and advantageous system for addressing the current and future goals of healthcare payer, provider, and government agencies to meet Affordable Care Act (ACA) and exchange milestones.

CEWIT has greatly enhanced Softheon's capacity to respond to the growing demand of its healthcare reform and exchange solutions. An anchoring company of the CEWIT Incubator Program, **Softheon is a** 



leading player in the healthcare space with a proven track record in revenue growth and creation of new high-paying jobs.

Meet their fearless leader, Eugene Sayan, and talented staff of 50+ Stony Brook University graduates, a significant factor in sustaining the company's competitive edge: June 2, 2016, Stony Brook University Incubator Company Showcase at CEWIT.

#### ON THE RADAR

Intelibs, heads to Austin, TX to exhibit its unique 3G, 4G and WiFi wireless coverage and capacity solutions at the Wireless Infrastructure Show 2016; Buncee, the cloud-based tool designed to help students easily build multimedia projects and presentations to visualize and showcase learning, becomes one of the 50 partners to integrate with Google Classroom; FlightPartner Technology's could-based air charter market software for brokers and operators receives continued praise; and the STS Global team makes headway on a number of international satellite installation projects. Catch them all here on June 2, 2016.

### NEW VENTURES ARRIVE AT CEWIT, SET UP SHOP

ZUZNOW, ONE OF THE WORLD'S BUSIEST MOBILE-APP MAKERS, IS ON THE MOVE



Zuznow, provider of mobile and web development platform enabling enterprises to deliver omni-channel experiences to customers and employees, announces the newest release of its namesake enterprise mobility development platform, Zuznow Red Fox version. The new version provides industry-first functionality to assist enterprises in handling browser compatibility issues on desktops and smartphones. Additionally, Zuznow further enhanced its native app development and deployment dashboard by offering a wizard-like interface that requires no coding skills to create a mobile-web and/or native app in minutes.

With the recent announcements from Microsoft® ending support for Internet Explorer, organizations are faced with the challenge of retooling or completely redeveloping interfaces for enterprise applications that are dependent on this browser.

"We developed what we call Desktop to Desktop conversion in response to the pain our clients were

experiencing in trying to keep up with the changes in the browser market," said Chen Levkovich, CEO and founder of Zuznow. "Zuznow is the first to address this need by extending its automatic omni-channel development platform to provide a new and futureproof user experience for enterprise applications on new browsers, as well as new applications on legacy browsers."

This latest version of the Zuznow platform also addresses the greatest pains of developing omni-channel apps; the intense and long manual development and maintenance cycles. Now the dashboard within the Zuznow platform uses artificial intelligence to automatically build and maintain apps, and provides a codeless process of adding native features to be included in the apps such as; TouchID, Device Motion, Globalization, Contacts and more. With just a few clicks the new app can be available to the clients' customers and employees.

In fact, it's already rolling. Zuznow, a software-maker that helps users turn existing online applications into mobile apps, has notched its first U.S. customer – Manhattan-based IDB Bank – and is deep in negotiations with several others.

"The Zuznow platform truly exceeded our expectations," said Robert Plante, COO at IDB NY. "The fact that we could leverage one of our top customer information websites, securely transition it to all mobile channels, and have an attractive, premium result, all with minimal effort, was outstanding."

There are several factors working in Zuznow's favor, including the prolific spread of mobile technologies, the different ways clients can access Zuznow's appcreation tools – by purchasing the software outright, as IDB Bank did, or subscribing to it via the cloud – and a go-to-market deal Zuznow announced last year with

global kingpin IBM, which added Zuznow's mobilization solutions to IBM's MobileFirst package.

The Tel Aviv import delivers the only Frontend-as-a-Service (FaaS) platform to automatically create and maintain web and native apps, for smartphones, tablets, desktops and laptops. The company helps enterprises accelerate and rapidly deploy omni-channel development projects, improve user engagement and adoption by 300%, reduce time-to-market by 90%, increase KPIs, while keeping pace with the latest technologies. The Zuznow platform enables organizations to support bi-modal development processes and achieve business goals.

As the mobilization of everyday humanity continues, Zuznow's tech – available to go or on the cloud – is smoking hot. Don't miss the opportunity to find out what's next for company: June 2, 2016, Stony Brook University Incubator Company Showcase at CEWIT.

PR NEWSWIRE, INNOVATE LI - MAY, APR 2016

#### GRAPHOMETRIC STARTUP, WEB4SIGN, IS STAYING AHEAD OF DATA THREATS

Earlier this year, the now CEWIT-based data-security startup, launched in Italy in 2015, began installing its verification and security protocols into data centers operated by NYC-based OmniconGroup. As per an agreement Web4Sign inked with the global marketing and communications giant last summer, two OmnicomGroup subsidiaries are using the company's software–based on long-term calligraphy studies by

Turkish researchers and other scientific data – to measure biometric nuances in electronic signatures. OmnicomGroup has now applied Web4Sign's software to subsidiaries Doremus Financial Printing, a New York City-based electronic documents and typesetting specialist, and Scienomics, a Connecticut-based molecular modeling and simulation software expert.

INNOVATE LI · APR 2016

#### **BIOTECHNOLOGY FOCUS: PERSONALIZING BRAIN SURGERY**

STONY BROOK UNIVERSITY STARTUP, VASCULAR SIMULATIONS, IS REVOLUTIONIZING NEUROSURGERY

Neurointerventionalists treat delicate and dangerous conditions occurring within brain vessels, where even minor errors can have catastrophic effects. Yet, unlike other professionals, brain surgeons never had a safe test environment in which they could try a new approach or polish their skills. Until recently, building solid clinical judgment still came from surgeons' experience with difficult scenarios and unexpected complications.

Vascular Simulations, a startup company launched by Drs. Henry Woo and David Fiorella with Barry Lieber in 2011 and based at Stony Brook's Long Island High Technology Incubator, has changed that. Similarly to how pilots hone their skills on flight simulators, Vascular Simulations lets neurosurgeons practice operating complex, life-threatening cases before making a single incision on their patients. By replicating patients' individual arrangement of blood vessels, the company creates a reliable test bed for every patient's case, no matter how unique or complex. The old method of using the same technique on every patient no longer works, says Woo. "Every patient's anatomy is different, and we have to account for that."



Vascular Simulations creates silicone-based replicas of human blood vessels and aneurysms by reconstructing them from CT scans or MRIs. Surgeons from around the world can choose from a long list of off-the-shelf vessels, available on the company's website, or upload custom images of their own patients. Within a few days the corresponding arteries and aneurysms arrive by mail. The surgeons can then "snap" them into their own Headleys and practice multiple surgeries. By using the simulator, surgeons can narrow their choice of embolization devices from a gamut of options to what fits each patient best.

Even a few years ago, such highly personalized treatment and testing was unheard of, but today it's on its way to becoming the norm. In a field where an individualized medicine approach used to amount to thinking quickly on one's feet and solving complications while the patient was still under anesthesia, Vascular Simulations is changing the way cerebrovascular diseases are treated around the world. With the level and precision of presurgical testing the company offers, it is quickly building a new standard of neurointerventional care, appropriate for the modern era of personalized medicine.

Meet the innovators behind Vascular Simulations and learn more about their cutting-edge simulation technology: June 2, 2016, Stony Brook University Incubator Company Showcase at CEWIT.

STONY BROOK UNIVERSITY · MAY 2016

13™ KEY SYMPOSIUM
BIOELECTRONIC MEDICINE
Targeting Molecular Mechanisms

SEP. 21 – 23, 2016 NEW YORK CITY











## GOOGLE THIS: FIVE CEWIT, COMPUTER SCIENCE FACULTY RECEIVE GOOGLE RESEARCH AWARDS

## FROM BROADENING MOBILE APPLICATIONS TO IMPROVING STORAGE AND ENHANCING VIDEO ANALYSIS

A record-setting five faculty members have received prestigious Google Faculty Research Awards, which support innovative research of new technologies developed by university faculty worldwide.

Google's Faculty Research Awards Program is also designed to build and maintain strong collaborations with top research faculty globally. The research being done at Stony Brook supported by the Google awards fosters educational training of undergraduate and graduate students. The Google awards are confirmation that research being conducted at Stony Brook University is of interest to industry leaders because it has the ability to transform and improve the interaction between a user and technology.

"The research spearheaded by our Google research scholars will impact industry in areas such Internet storage and mobile applications," said Dr. Ari Kaufman, CEWIT Chief Scientist, Distinguished Professor and Chair of Computer Science. Dr. Kaufman addressed the institutional and global significance and impact of the Google research awards. In total, there are three specific research projects supported with approximately \$150k in Google research funding.

Assistant Professors Aruna Balasubramanian and Anshul Gandhi received a grant for their project, **The Effect of Web Optimizations on Mobile Browser Performance and Power**.

The principal investigators will use critical path analysis, machine learning, and stochastic analysis to understand the performance of mobile browsers. The goal of this project is to analyze and predict the effect of a diverse set of network, Web, and browser optimizations on mobile page load times and energy consumption. The proposed research will have significant impact given that mobile pages are the primary portals of content for over two billion mobile subscribers worldwide.

The project Taming the Killer Microsecond being conducted by Assistant Professors Michael Ferdman and Nima Honarmand received a Google grant, propelling their research forward over the next year. Throughout this effort, computer scientists will examine the problem of efficiently handling the microsecond-level latencies, dubbed the killer-microsecond phenomenon, which will limit the performance of next-generation memory, storage, and networking technologies. Ferdman and Honarmand will develop a new platform that will be available to the broader research community so that researchers can investigate software and hardware techniques to the computer stack to solve the killer-microsecond programming problem. Researchers from the University of Michigan will collaborate on this project.

Human action recognition is the focus of the third Google-funded project given to Assistant Professor Minh Hoai Nguyen for his work, Towards Large-scale and Fine-grain Recognition of Human Actions: Pulling Actions Out of Context. This research project aims to develop algorithms to automatically analyze video and recognize human activities, and this has practical applications in a wide range of fields, ranging from entertainment and robotics to security and healthcare.

All of the project teams will include CS students from Stony Brook University. Through project websites and conferences, **including CEWIT2016**, researchers will share their findings with the wider community.

STONY BROOK UNIVERSITY · MAY 2016

#### **CEWIT RESEARCH: MOBILE NETWORKS**

## DR. ARUNA BALASUBRAMANIAN'S NSF GRANT WILL HELP IMPROVE MOBILE WEB PERFORMANCE

Aruna Balasubramanian, an Assistant Professor in the Department of Computer Science at Stony Brook University and CEWIT affiliated faculty member, has been awarded a National Science Foundation grant for her research, CRII: NeTS: Making Sense of Mobile Web Page Performance.

Balasubramanian works in the area of networked systems, specifically on problems related to mobile networks and mobile systems. She co-leads the **Networking Research Group** with her research focusing on improving the power and performance of mobile applications.

For many users, mobile phones are the only "computer" that they own, so mobile web pages are becoming the primary portal for content. However, loading a web page on a mobile phone is exceedingly slow. There have been several optimizations designed to speed up web pages, but an optimization that speeds up one page can slow down another page.

"One of the goals of this project is to shed light on why web pages load slower on the phone as compared to a desktop," said Balasubramanian. "The project will use this bottleneck analysis to design algorithms, techniques and tools to accurately estimate if any given optimization will help or further slow down the page load time. The end goal of the project is a comprehensive analysis framework called ProfX that will help

#### CEWIT'S NEXT GENERATION VIDEO WALL: EXPERIMENTAL MOVING IMAGE ARTWORKS

As part of a constructive, forward-looking partnership, CEWIT, the Department of Art, and the Consortium for Digital Arts, Culture and Technology (cDACT) at Stony Brook University together drive a series of interdisciplinary special projects, R&D initiatives, and experiences at the intersection of the arts, innovation, and technology.

Currently viewing on CEWIT's Next Generation Video Wall System, a thirty-two megapixel multimedia display array with 5.1 surround sound system and extension of CEWIT's multimedia lab, are artworks by Stony Brook University-based artists consisting of moving images constructed and deconstructed using a range of digital technologies.







CURRENTLY ON VIEW:
Victoria Febrer: COLOR
BARS
Virginia Lee: BADLY
DAMAGED
Razieh Jafari: LAVALAND

web developers, network providers, browser vendors and researchers design and choose the right set of optimizations to significantly speed up the mobile web."

The techniques developed in this project will be more broadly applicable to studying other mobile applications such as video.

## PROJECT OVERVIEW: MOBILE WEB PERFORMANCE: BOTTLENECKS, OPTIMIZATIONS AND METRICS

For a large number of the 2.6 billion mobile subscribers, mobile pages are the primary portal for e-commerce, news, and search. Unfortunately, the page load performance on mobile devices does not match up to its importance: mobile page load times are an order of magnitude slower than desktop, often taking 10s of seconds to load just the landing page. To address this issue, various research projects are now underway:

Performance and Energy Optimization: Improving mobile web performance is not a trivial task. Several web optimizations have been designed, but their effect on improving mobile page load times have been mixed. This is because of several reasons: The bottleneck during the page load process is not known, different optimizations affect pages differently, and potential the effect of an optimization can be different between energy and performance. Our goal is to characterize page load bottlenecks and provide a microscopic analysis of the performance and energy effects of an optimization.

Gaze Tracking: Another critical problem is that the performance metrics used to measure the page load time (PLT) may not always correlate well with user experience. We characterize the user perceive page load metric as uPLT. Our goal in this project is to conduct large scale user studies to characterize the relationship between user gaze and uPLT. Using this correlation, we will build new optimizations to optimize the uPLT metric.

Modeling HTTP, HTTP/2, and Quic: There has been several network protocols designed to improve the page load performance: these include the new HTTP/2 protocol and the UDP-based Quic protocol. These protocols react with the underlying TCP/Congestion control in non-intuitive ways. Our goal is to use systematic modeling to characterize the performance of the new network protocols. This will let us more easily compare their performance against each other and with existing HTTP protocol.

CEWIT researchers include Aruna Balasubramanian, Anshul Gandhi, Samir Das, Yi Cao, Javad Nejati and Jihoon Ryoo.

STONY BROOK UNIVERSITY · MAY 2016



#### **UPCOMING EVENTS:**

June 2, 2016 - Stony Brook University Incubator Showcase

June 2, 2016 • Stony Brook Small Business Development Center: Crowdfunding Lunch and Learn

June 4, 2016 • Eastern Long Island Mini Maker Faire

June 16, 2016 • NYIT 11th Annual Energy Conference: Sustainable Buildings

June 28, 2016 - NYS Regional MWBE Opportunities Expo: Long Island

July 5 - 8, 2016 • 10th International Web Rule Symposium (RuleML) 2016

August 14-17, 2016 · New York Scientific Data Summit (NYSDS)

September 16, 2016 • Stony Brook University Computer Science Tech Day: Student and Start-up Focus

September 21-23, 2016 - NYAS Bioelectronic Medicine Symposium

November 2 & 3, 2016 • Life Sciences Summit

November 2 & 3, 2016 - CEWIT2016 Conference





The Center for Dynamic Data Analytics (CDDA)

The Clean Energy Business Incubator Program (CEBIP)

The College of Business at Stony Brook University

The College of Engineering and Applied Sciences at Stony Brook University

Empire State Development: NYSTAR

**IEEE Long Island Section** 

Long Island Forum for Technology (LIFT)

Long Island High Technology Incubator

Long Island Software and Technology Network (LISTnet)

The New York Academy of Sciences

Small Business Development Center at Stony Brook University



