



Center of Excellence

WIRELESS AND INFORMATION TECHNOLOGY

AT STONY BROOK UNIVERSITY

NEWSLETTER

JUNE 2017

CEWIT2017 Call for Papers, Recruiting the Experts in AI and Cybersecurity, Showcasing Startups, Introducing the Center for Visual and Decision Informatics

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





CEWIT2017 Conference

OPEN CALL FOR PAPERS

THROUGH AUGUST 1, 2017

CEWIT2017 is the premier international forum on the applications of emerging technologies in infrastructure, healthcare, and energy — **three of the most critical components of a smarter global environment.**

Specific topics of interest include the Internet of Things, Cybersecurity, Big Data, Health Technologies, Smart Energy, Smart Urban Systems, and Technology Entrepreneurship.

The 13th International Conference on Emerging Technologies for a Smarter World, CEWIT2017, will be held on November 7-8, 2017 at CEWIT.

Submit your contribution to CEWIT2017 today.



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RECRUITING THE EXPERTS

Stony Brook University and campus centers receive a \$4.5 million grant to recruit leading experts in AI and cybersecurity

Stony Brook University's College of Engineering and Applied Sciences (CEAS) has been awarded two grants totaling \$4.5 million from SUNY's Empire Innovation Program. The funding will be used to recruit and retain world-class faculty and researchers that strengthen Stony Brook's research productivity in two high economic opportunity areas of state and national significance — artificial intelligence (AI) and cybersecurity.

These hires will also accelerate the development of the emergent Institute for AI-Driven Discovery & Innovation. The initiative for the institute involves a collaboration between the CEAS and Stony Brook University School of Medicine, as faculty in these two high-tech areas encompass experts in multiple areas of medicine and engineering.

The awards are designed to strengthen Stony Brook University's prominence by funding senior field-leading hires in AI and cybersecurity. In AI, Stony Brook will focus on applications in medicine, smart environments and infrastructures, as well as core AI and machine-learning technologies. In cybersecurity, the focus will be on hardware security, operating systems security, big data security, and mobile security and on the National Security Institute, the University's existing cybersecurity cluster.

The National Security Institute is part of an Interdisciplinary Faculty Cluster Hiring Initiative undertaken in accordance with the SUNY 2020 plan. The cluster hires target society's most vexing challenges – in this case, data security – through multidisciplinary collaborations.

“Stony Brook has consistently played a nationally prominent role in AI and cybersecurity research,” said Samuel L. Stanley Jr., President of Stony Brook University. **“We have recently undertaken a bold, strategic initiative in engineering-driven medicine for which AI technology and cybersecurity of medical data are significant drivers.** This grant will enable us to recruit leading faculty researchers, and invest added resources with our current researchers as they together pursue excellence in advancing these fields.”

The envisioned Institute will serve as a hub for all AI research thrusts on campus and advance Stony Brook University's position as a leader in AI research. In addition to conducting funded research, the Institute will catalyze new educational programs generating professionals for the AI-driven economy of the future. This will range from core technical programs (e.g., interdisciplinary data science and engineering or machine learning) to science communication, technology policy and entrepreneurship programs.

The Institute will also stimulate regional economy by providing local industry and entrepreneurs with advanced technology training and highly skilled graduates.

Space for the new hires will be allocated in the Computer Science building, a LEED facility commissioned in 2015, and the upcoming MART (Medicine and Research Translation) building. Contingent upon AI cluster hire needs, additional space

will be available in existing centers, including the Center of Excellence in Wireless & Information Technology (CEWIT), the Institute for Advanced Computational Science (IACS) and I-DIME, a new building that will serve as discovery and innovation space for medicine and engineering, to be located in the Stony Brook University Research and Development Park.

The Empire Innovation Program (SUNY EIP) is a state-funded competitive grant program dedicated to recruiting and retaining world-class faculty at the State University of New York.

Currently on staff at Stony Brook University is Department of Computer Science Professor and CEWIT-affiliated faculty Long Lu, specializing in software and systems security, operating systems, and program analysis. **Lu is the National Science Foundation CAREER award recipient for 2017 making it his fourth NSF award and eighth research grant, securing him over \$3 million dollars in grants.** The prestigious grant will support his goal in rethinking mobile security in today's app-as-a-platform environment.

Over the next five years, Lu aims to achieve three different research goals which include identifying current mobile security problems in operating systems, evaluating extending security coverage into the cloud, and looking at building the necessary security mechanisms to support the ongoing emergence of the Internet of Things (IoT).

“It's basically a fundamental redesign of the underlying system that we have for today's mobile devices and services,” Lu said. **“We are trying to think ahead and identify the security issues facing mobile users and device manufacturers alike, to introduce new designs and technologies to the operating system.”**



2017 INCUBATOR SHOWCASE



SUMMER TALENT



WELCOMING MEDPOD, INC.



NEW YORK VENTURE SUMMIT

2017 Incubator Showcase
CEWIT welcomed over 50 member entrepreneurs and 200+ attendees to the second annual Office of Economic Development Incubator Company Showcase at Stony Brook University – an exclusive opportunity to experience first-hand, the technologies our startups are developing and introducing to the marketplace.

Summer Talent
Softheon's newest crop of summer student interns are ready to work on its innovative and easy-to-use products that are revolutionizing the way everyday people control their healthcare needs – at CEWIT.

Welcoming Medpod, Inc.
Medpod, Inc, CEWIT's newest member startup, is a healthcare platform combining cutting-edge software with professional medical devices to extend the physician's reach.

New York Venture Summit
Meet, interact, and network with 500+ VCs, angels, and investors at the **New York Venture Summit, July 18-19, 2017 at Convene, NYC.** As an industry partner, CEWIT is offering a special 10% registration discount with code **CEWITVIP.**

We packed dozens of Stony Brook University-based early-stage companies representing a wide spectrum of industries, from clean energy and craft beverages to nanotech and big data into CEWIT for the second annual Office of Economic Development Incubator Showcase on June 8, 2017.

The University's numerous NYSTAR Centers of Excellence, Centers for Advanced Technology, and thriving business incubator system create a unique opportunity for entrepreneurs on campus by providing equal parts material support and networking opportunities.

Innovate LI was particularly busy at this year's Showcase covering the event and checking-in with our energy and biotech companies:

TeraPaths and Green SulfCrete LLC, two Cutting-edge Big Data and Infrastructure Startups Under Stony Brook University Entrepreneur, Bill Biamonte

Both with breakout potential, the two startups are each looking to capitalize on an industry that figures prominently on national levels.

First there's Green SulfCrete LLC, which is leveraging decades of Brookhaven National Laboratory research and multiple small-scale grants in its quest to remake the construction trades with sulfur polymer, a next-level construction material promising maximum strength and minimum carbon footprint.

Biamonte is also targeting big data. As he did with the sulfur polymer formula, Biamonte licensed a proprietary BNL technology originally developed to move massive amounts of digital information generated by the lab's next-level experi-

ments – with an eye on “prioritizing” network bandwidths to ensure rapid delivery of critical electronic communications.

That's the gist of TeraPaths, which is cooking up a commercial-scale version of the technology suited for large corporations, health networks and others with lots of data to move – or perhaps just one must-have-it-now email – but not always enough bandwidth to move it. **Read more.**

Stony Brook University Startup Sustained Nano Systems aims to Revolutionize Pharmaceutical-delivery Systems across the Healthcare Spectrum

Based in SBU's Long Island High-Technology Incubator and working closely with cohorts in the university's Center for Biotechnology, the nine-year-old enterprise has taken the scenic route on its quest to change how pharmaceuticals are delivered to patients – but its origins, according to Libin, will be familiar to anyone who's ever indulged an inventive thought.

“It doesn't matter what you create,” he told Innovate LI. “It's the same creative process, whether you write musicals or write novels or want to start a company.”

In the case of Sustained Nano Systems, the entrepreneurial author and his friends focus squarely on the latter. The idea is for “people to be able to take their drugs in a more effective way, an easier way,” Libin noted, by swapping daily-dosage requirements for one-shot nanotechnology-based injections that slowly deliver meds over a course of months.

“We're making it as easy as possible for patients to take their drugs,” Libin said. “So, patients in chronic disease states are no longer involved with taking their medications every day or every week, or even every month.” **Read more.**



INTRODUCING CVDI

The National Science Foundation funds I/UCRC Phase II, the Center for Visual and Decision Informatics (CVDI), focusing on big data science

More than five years ago, the National Science Foundation funded the creation of the Center for Dynamic Data Analytics (CDDA), an Industry/University Cooperative Research Center (I/UCRC), at Stony Brook University. As a result of the first phase of this I/UCRC and with Department of Computer Science (CS) Chair and CEWIT Chief Scientist Arie Kaufman serving as CDDA's co-director, Stony Brook University became a leader in developing industry research partnerships.

With the goal of building on the success of the CDDA, in February 2017 Kaufman and fellow researchers were awarded new funding from the National Science Foundation (NSF), paving the way for Stony Brook to become a university partner in the I/UCRC Center for Visual and Decision Informatics (CVDI).

CVDI will be the country's largest I/UCRC in the field of big data. CVDI is a collaboration between academia, industry, and government to develop cutting edge tools and techniques necessary to handle the demands of large data volume endeavors, such as visual analytics and machine learning. The university partners of CVDI include Stony Brook University, Drexel University, and University of Louisiana at Lafayette, University of Virginia, and Tampere University of Technology in Finland, with Brigham Young University and the University of North Carolina-Charlotte are expected to join in 2017.

CVDI's mission is to research and develop next generation technologies in data science, big data analytics, including visual analytics, augmented intelligence, and decision informatics to enable decision makers in government and industry to fundamentally improve the way their organization's information is interpreted and analyzed. CVDI will bring together, analytic, visual and perceptual techniques by advancing the state-of-the-art in the research fields of Information Visualization, Visual Analytics and Automated Analysis.

In Phase I, CVDI completed 35 distinct projects and generated 88 new publications. In Phase 2, with Stony Brook now an active partner, the entire I/UCRC seeks to double those figures. There are 17 faculty members from Stony Brook who will be working with industry researchers on a variety of projects. Many CEWIT-affiliated faculty members contributed to the accomplishments during the CDDA phase and will continue to lead projects through CVDI. Key faculty include:

Arie Kaufman – Dr. Kaufman, the Chief Scientist at the Center for Wireless Information Technology (CEWIT) specializes in visualization, virtual reality; will focus on immersive, big data analytics; and virtual diagnosis.

Rong Zhao – Dr. Zhao is the Managing Site Director for CVDI at Stony Brook and the Software Systems Division Director at CEWIT. His focus will be on a number of Center strategies associated with data mining, machine learning, and medical informatics, as well as mobile applications.

CVDI "seeks to conduct multi-disciplinary, cross-institutional, pre-competitive research and develop the next generation technologies in data science, big data, analytics, data acquisition and management, and data visualization." Each member

university will receive funding from the NSF for a minimum of five more years to encourage industry outreach and educational opportunities for students.

Companies that worked with CDDA during the first I/UCRC phase included Northrop Grumman Aerospace Corporation, Softheon, CA Technologies, Samsung, BioClinica, and Mobileware. Some of these companies and many more are expected to take advantage of the CVDI research model.

The Department of Computer Science at Stony Brook University, which is part of the College of Engineering and Applied Sciences, is the perfect fit for an endeavor such as CVDI. Its facilities boast over 20 research laboratories and include the Reality Deck and Immersive Cabin at CEWIT, highly unique visualization facilities designed and built specifically for mass data.

Moving forward into Phase II is sure to produce many exciting new projects, which will only add to the already impressive body of work completed by Stony Brook researchers in the previous phase. The recent renewal extends the life of CVDI into 2022. **As part of the CEWIT2017 Conference, CEWIT and CVDI will host a joint Big Data Symposium to present their results, developments, and discuss critical topics and trends in data science** with leading experts from member universities and industry partners. **Stay tuned.**

Interested in joining CVDI? IUCRCs offer a platform for significant leveraging of financial investment by members to accelerate the knowledge base in emerging technological and manufacturing sectors and develop an industrially savvy workforce to benefit the US economy. Small businesses also welcome. **Learn more.**

OUR COMMUNITY

The Advanced Energy Center

Center for Advanced Technology in
Diagnostic Tools and Sensor Systems
(Sensor CAT)

The Center for Biotechnology

The Center for Corporate Education
and Training at Stony Brook
University

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 High Technology
Incubator

The Manufacturing and Technology
Research Consortium (MTRC)

The New York Academy of Sciences

Small Business Development Center
at Stony Brook University

SAVE THE DATES

Upcoming Stony Brook University,
NYSTAR Centers of Excellence and
Centers for Advanced Technology
Conferences

October 5, 2017 · CIEES Workshop:
Energy Business Opportunities in
New York State

November 1 & 2, 2017 · Life
Sciences Summit 2017

November 7 & 8, 2017 · CEWIT2017
Conference & Expo on Emerging
Technologies for a Smarter World

November 8, 2017 · CEWIT/CVDI
Joint Big Data Symposium at the
CEWIT2017 Conference

March 26-28, 2018 · Advanced
Energy Conference 2018



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