



Center of Excellence

WIRELESS AND INFORMATION TECHNOLOGY

AT STONY BROOK UNIVERSITY

NEWSLETTER

SEPTEMBER 2016

Tech Entrepreneurship Symposium, CEWIT
Experts and Entrepreneurs at Work, Big
Data Values, Long Island's Booming IoT
Practice, International Partnerships

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



SEPTEMBER COVERAGE: TECH ENTREPRENEURSHIP, CEWIT ENTREPRENEURS, EXPERTS AT WORK, BIG DATA VALUES, LI'S BOOMING IOT PRACTICE, INTERNATIONAL PARTNERSHIPS

Ask the Experts: Access leading business management strategies at work in Long Island's innovation economy at the upcoming Technology Entrepreneurship Symposium on November 2, 2016. Now only a few seats left.

CEWIT International Partnerships: Also joining the Symposium is Inon Elroy, Israel Economic Minister to North America, to discuss current and future international partnership opportunities for entrepreneurs through the Government of Israel Economic Mission in New York.

CEWIT Business Insights: Russ Artzt combines large business experience with startup agility forming his new CEWIT-based company, Digital Associates, and helping other startups to become thriving, global enterprises. The brains behind CEWIT's newest member incubator company, Frank Zinghini, shares first-hand entrepreneurial advice while investing in the software startup, Code Dx, and fostering its growth at CEWIT.

CEWIT Industry Partners: IPS and Zebra Technologies lead the charge in Long Island's booming IoT practice.

Technology Frontiers: CEWIT and Stony Brook University researchers support the value of big data for social innovation with the newly NSF-awarded STRIDE training program designed to provide STEM graduate students with unique interdisciplinary skills to translate data-enabled research into informed decisions and sound policies, with further research utilizing advanced data analytics to visualize complexities in gender and language.



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The Next Big Thing:
CEWIT Symposium

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TECHNOLOGY ENTREPRENEURSHIP SYMPOSIUM

Presented by the Office of the Vice President for Economic Development

ASK THE EXPERTS:

Access leading business management strategies at work in Long Island's innovation economy in CEWIT's applied research and education-oriented environment.

A wide range of practical how-to information and strategies for forming, conducting, and selling your enterprise and a technology-agnostic crossroads of proven experts, inventors, and entrepreneurs representing companies at all stages — together at Stony Brook University.

WEDNESDAY, NOVEMBER 2, 2016 · 9:30am

CEWIT, Room 200, Stony Brook University | Limited Seating, Registration Required



Our Experts: Alon Kapan, Partner, Farrell Fritz, is a corporate attorney who focuses on representing entrepreneurs, emerging growth companies, and their individual and institutional investors. He counsels entrepreneurs and emerging growth companies in the formation of business entities, structuring agreements among founders, negotiation of capital raising transactions, compliance with securities laws, and development of effective corporate governance.

Agenda, Speaker Profiles, and Registration | www.cewit.org/events/techentrepreneurship.html



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Property Counsel.
Carter, DeLuca, Farrell
& Schmidt LLP



Karen O'Connor
Tax Director
Marcum LLP



Inon Elroy
Economic Minister
to North America
Government of Israel



Leo Guthart
Senior Adviser
Topsin Partners

CEWIT EXPERTS AND ENTREPRENEURS AT WORK

FOSTERING NEW ENTERPRISE DEVELOPMENT AND SMARTER BUSINESS MODELS

More Science, Less Art: As it is an integral part of CEWIT's mission and commitment to accelerating the region's startup community, our team of business

mentors and emerging and veteran entrepreneurs are hard at work fostering new enterprise development and smarter business models.

The Technology Entrepreneurship Symposium will feature ten notable experts that continue to mentor the CEWIT community and regional innovators, including Farrell Fritz Partner and leading specialist in Emerging Companies and Venture Capital, Alon Kopen. An avid supporter of Stony Brook University's internal network of startups and academic entrepreneurs, Alon's insight and expertise in the areas of early stage valuation has supported companies in their valuation process by advantaging a scientific approach and a number of key methodologies that allow for an effective discussion with investors.

The New York Venture Hub is an in-depth blog resource for entrepreneurs, emerging companies, investors, and professionals, of which Alon contributes, focusing on a variety of topics including his most recent two-part series on Seed Round Model Structures.

Frank's Advice: Code Dx, a CEWIT-member incubator company, was initially developed in and then spun out of the Secure Decisions division of Applied Visions, Inc. Frank Zinghini founded AVI with the goal of building a software development company focused on the power of visual applications – where skilled developers, researchers and designers could create cutting-edge software in a supportive environment tailored to their needs. Frank has led the organization's growth from its basement-office beginnings to the multi-location commercial and government-focused solution provider it is today. Today, he is investing in Code Dx and fostering its growth at CEWIT. He shares his advice and first-hand experiences on a number of enterprise challenges and opportunities including measures to take to build security into IoT systems, reasons to use continuous integration, and picking a mobile app development company. Read the latest on Applied Visions' acquirement of Software Design Solutions, adding top designers of IoT applications.

Cutting Through the Chaos: Thirty-nine years after co-founding Computer Associates, Russ Artzt has lost no time starting a new company and helping other startups and charities. His new CEWIT-based startup, Digital Associates, helps businesses analyze their digital operations to streamline their infrastructure, deepen their insights and improve their business decisions. Digital Associates combines large business experience with startup agility.

Russ, also the Chairman of CEWIT's Industrial Advisory Board, will talk about the process of turning a startup into a relevant and thriving business at WCBS-SCNB's Small Business Breakfast, October 19, 2016, and again as a panelist on Protecting your Intellectual Property Rights at the U.S. Commercial Services's Startup Global, Long Island event at CEWIT on October 27, 2016.

DNA Tagging: Jim Hayward, CEO and his team at Stony Brook University-based Applied DNA Sciences, a CEWIT industry partner and continuously innovating biotechnology company, tackles the textile industry head on. Applied DNA Sciences, known for its unique biotech-based security solutions, expands the application of its DNA tagging technology and fosters new global partnerships with the textile industry to improve the authenticity of cotton and other fabrics. The company's innovation model is prime for adaptation to industry-relevant challenges and helps a range of manufacturers with supply chain security, brand protection and law enforcement applications, while establishing secure environments that foster quality, integrity, and success. Bloomberg Businessweek covers: [DNA Testing Could Put an End to Fake Egyptian Cotton](#).

Jim keynotes on how to both think and act globally, also at Startup Global, Long Island, October 27, 2016, CEWIT.



On Time and On Budget: Innovative Stony Brook University-member and CEWIT partnering software company relaunches its flagship personal-budgeting app, one of the first downloads ever made available for the original iPhone, as FYI Mobileware. Advantaging the Mobileware spin-off, a popular community-based transit-scheduling application, FYI Mobileware focuses exclusively on personal finance, creating two distinct markets for the dual applications.

As the experienced app-maker continues to eye expansion and new products that enhance user experience, CEO Yun Zhang talks to Innovate LI on additional company top priorities, particularly his goal of creating Long Island jobs and "keeping the talent local." Yun voluntarily mentors Stony Brook University students in the finer points of software development with about 18 students working with the FYI Mobileware team since last year – an excellent source of potential future employees as well as a positive impact on Long Island's innovation economy. [Read more, get the apps.](#)

BIG DATA-ENABLED RESEARCH FOR COMPLEX DECISION MAKING AND SOUND POLICIES

CEWIT CHIEF SCIENTIST, ARIE KAUFMAN, A CO-PI FOR THE SCIENCE TRAINING & RESEARCH TO INFORM DECISIONS (STRIDE) PROGRAM

The Institute for Advanced Computational Science (IACS) has been awarded a five-year \$3M National Science Foundation Research Traineeship (NRT) grant to support graduate students from the departments of Applied Mathematics and Statistics, Biomedical Informatics, Computer Science, Ecology and Evolution, and the schools of Journalism and Marine and Atmospheric Sciences. This unique and interdisciplinary grant is for Science Training & Research to Inform DEcisions (STRIDE). The award will prepare the next generation of scientists working with big data to support complex decision-making.

STRIDE is an innovative training program that will provide STEM graduate students with unique interdisciplinary skills to assist, create and eventually lead the translation of complex data-enabled research into informed decisions and sound policies. These include skills traditionally taught to science students such as data analytics and visualization. The unique contribution of STRIDE is also to prepare scientists by building skills in decision support that are often not explicitly taught, such as understanding the perspectives of various stakeholders, science communication, and translating scientific uncertainty.

IACS Director Robert Harrison is the PI for this project: “Decision support and all of the skills it entails are essential for high-impact science, and this need cuts across many disciplines. Our team is really excited about how this project will transform both our University and especially the careers and leadership opportunities for our students.”

The training program encompasses spatial data, advanced visual data analytics, and high-performance and data-centric computing. Uniquely, the program also incorporates a domain discipline, science communication, including interpersonal skills and modern media (at the Alda Center for Communicating Science), as well as decision-making. It also offers relevant internships at Department of Energy laboratories, IBM and NOAA.

The interdisciplinary nature of STRIDE is reflected in the faculty involved. The Co-PIs are: Liliana Dávalos, associate professor, Ecology and Evolution; Arie Kaufman, chief scientist, CEWIT, distinguished professor and chair, Computer Science; Heather Lynch, associate professor, Ecology and Evolution; Janet Nye, assistant professor, School of Marine and Atmospheric Sciences; Christine O’Connell, associate director, Alan Alda Center for Communicating Science and assistant professor, School of Journalism; Joel Saltz, Cherith professor and founding chair, Biomedical Informatics; Erez Zadok, professor, Computer Science; and Minghua Zhang, professor, School of Marine and Atmospheric Sciences.

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GENDER AND LANGUAGE ON FACEBOOK

COMPUTATIONAL ANALYSIS OF LANGUAGE REVEALS COMMUNICATION STYLES OF MEN AND WOMEN

In a computational analysis of the words used by more than 65,000 consenting Facebook users in some 10 million messages, it was discovered that women use language that is warmer and more agreeable than men. Additionally, algorithms of language use predicted one’s gender on Facebook 90 percent of the time. In the publication, Women are Warmer but No Less Assertive Than Men: Gender and Language on Facebook, some of the most commonly cited topics, or automatically derived clusters of related words, used by women included words

such as wonderful, happy, birthday, daughter, baby, excited, and thankful. Some of the words most commonly cited by men included freedom, liberty, win, lose, battle and enemy. These language differences by gender on Facebook are being investigated by a team of researchers comprised of psychologists and computer scientists from Stony Brook University, the University of Pennsylvania and the University of Melbourne in Australia. Gender is a complex, multi-faceted and fluid concept. Their paper helps to illuminate some of that complexity through big data and computational analysis, and the findings suggest gender influences the way people express themselves on Facebook.

"Looking at language in social media offers a fresh perspective on understanding gender differences," said H. Andrew Schwartz, PhD, Assistant Professor of Computer Science, affiliated faculty member, the Center for Dynamic Data Analytics at Stony Brook University and a co-author of the paper.

The analysis automatically identified differences in the types of words used by women and men. Women mentioned friends, family and social life more often, whereas men swore more, used angrier and argumentative language, and discussed objects more than people. On average, women used language that was characteristic of compassion and politeness while men were more hostile and impersonal.

Some findings, added Schwartz, illustrated nuances and differences in language by gender not previously revealed. "We were able to explore the dimensions of warmth and assertiveness with a novel data-driven technique," explained Schwartz, citing one example. "While some previous work suggests men are generally more assertive, the language in Facebook did not reflect this, showing woman use slightly more assertive language than men."

In the analysis, the topics expressed via the Facebook language were rated for how affiliative (socially connected) and assertive they were. The authors built gender-linked language around an interpersonal circumplex. While most language appeared with both genders, other language use was clearly gender-linked.

Psychologist Dr. Margaret Kern, of the University of Melbourne and one of the study authors, noted that "in many ways, the topics most used by women versus men are not surprising – they fit common gender stereotypes. The computational methods let us make visible what the human mind does to automatically categorize people and thanks that we encounter in our everyday life."

The study also demonstrates a method to test psychological theories at a large scale, with a way to visualize the results. With such large-scale computational studies, generating thousands of statistical results, visualization is key. "This is a good example of visualization helping us to see the bigger picture with complex data," said lead author Dr. Gregory Park, a psychologist from the University of Pennsylvania. "If we only look at individual topics in isolation, it's difficult to see patterns in the kind of topics that are used more by women or men. However, when we visualize them together, it's clear that many of the language differences break down along these interpersonal dimensions."

STONY BROOK UNIVERSITY • MAY 2016

LEADING THE CHARGE IN LONG ISLAND'S BOOMING IOT PRACTICE

CEWIT INDUSTRY PARTNERS: INTELLIGENT PRODUCT SOLUTIONS AND ZEBRA TECHNOLOGIES

Billions of digital conversations are going on around us, a stream of wireless chatter from machine to machine that companies on Long Island and beyond hope to ride to prosperity.

This is the "internet of things," the wireless network that allows devices ranging from coffee makers to thermostats to jet engines to automobiles — all of which

contain electronics — to transmit data. Then people can, for example, remotely turn up the heat before they arrive home, or do preventive maintenance on equipment. Long Island companies already are creating hardware, software and services for the internet of things that will help manage our health care, lighting and transportation, ensure our food is unspoiled, and help secure homes, businesses and schools.

Globecomm, Intelligent Product Solutions, Napco Security Technologies and Zebra Technologies are a few of the companies with headquarters or significant operations on Long Island that are working on the internet of things.

These and other businesses are tapping a consumer and business hardware market that Gartner Inc., a technology research firm based in Stamford, Connecticut, set at **6.4 billion connected devices worldwide in 2016**. Gartner expects the market to grow to **20.8 billion devices by 2020**.

In financial terms, the market for these connected objects will grow from **\$1.18 trillion in annual revenue in 2015 to \$3 trillion in 2020**, according to Gartner. That far exceeds Gartner's projection of \$641 billion in 2016 worldwide spending on computing hardware, including PCs, mobile phones and tablets.

Beyond the devices themselves, Gartner estimates that spending on services to design, install, operate and provide bandwidth for the IoT will be \$235 billion in 2016, up 22 percent from 2015.

CEWIT industry partner, Intelligent Product Solutions, designs hardware and software for corporate clients ranging from Fortune 500 companies such as L3 Communications, an aerospace contractor, and PepsiCo to startups. IPS estimates that at least 60 percent of its business is related to the IoT.

"This has been a core of our business for a while," said co-founder and President Mitch Maiman. "Smart, connected technology is being applied to product categories where it never was."

One client, Adheretech, a Manhattan-based health care startup, came to IPS with an idea for a smart pill bottle to help patients remember to take their medications. "Imagine that you have a senior citizen parent and they have to take four medicines at different times of the day," he said. "This pill bottle can connect to your pharmacy, but also a home health care worker." He said that IPS designed the bottle, integrated the sensors that register when the contents of the bottle change and set up the wireless communication to the cloud.

Also making strides is Zebra Technologies, a bar code and scanner company that acquired the assets of former Long Island bar code pioneer Symbol Technologies Inc. when it bought Motorola Solutions' enterprise business in 2014.

Zebra Technologies is both a CEWIT industry partner and collaborator on multiple R&D projects including the newly established, mobility-innovation focused Zebra Research Center at CEWIT.

"It has become quite a trend, the whole notion of IoT from the consumer side or business-to-consumer," said Zebra chief technology officer Thomas Bianculli, who is based in Holtsville, a site of Zebra's research and development for mobile computing, smart retail environments and transportation and logistics.

In retail, Zebra tags can tell the network when an item's inventory is running low. In logistics, its sensors can report on the refrigeration of perishable food. It can monitor and steer forklifts to the proper pallet with indoor GPS, increasing their use. Zebra also has created a cloud software platform, dubbed Zatar, to capture the data spun off by its IoT customers.

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CEWIT INTERNATIONAL PARTNERSHIPS

INTERNATIONAL PARTNERSHIP OPPORTUNITIES: INON ELROY, ISRAEL ECONOMIC MINISTER TO NORTH AMERICA



A joint effort by CEWIT, the Israel Innovation Authority (MATIMOP/OCS), the Israeli Consulate of New York, and CEWIT's community of forward looking industry partners, CEWIT provides a unique suite of programs for both entrepreneurs and companies to pursue well-crafted business and investment partnerships, enable technology transfer, and maximize access to international and regional markets, while jointly broadening bi-lateral relationships and strengthening multi-disciplinary industrial research partnerships.

CEWIT's international partnerships are a vital component of the Center's three-part program objective – Technical: to disseminate cutting-edge developments and applications of emerging technologies in infrastructure, healthcare, and energy; Business: cultivate commercialization potential of resulting technologies to drive the local, regional, and global innovation economies; and Social: to enhance industry, academia and government synergy.

Joining the November 2, 2016 Technology Entrepreneurship Symposium is Inon Elroy, Israel Economic Minister to North America, to further discuss current and future opportunities for international partnerships through the Government of Israel Economic Mission in New York, a part of the Foreign Trade Administration at the Israeli Ministry of Economy whose goal is to promote trade and investment between Israel and the United States, particularly East Coast markets.

Inon has more than eighteen years of experience representing the Ministry of Economy and Industry in a wide range of executive positions both in Israel and internationally. As Vice Director General of the Israel Ministry of Economy and Industry from 2012-2016, Inon was tasked with overseeing industrial policy, trade regulations, and regional economic planning. In addition, he supervised the Ministry's digital strategy, and initiated policies to foster innovation synergies between the public and private sectors.

UP NEXT

SUCCESSFUL NEGOTIATION STRATEGIES

October 13, 2016, LIHTI: Joe Campolo, Esq., Managing Partner, Campolo, Middleton & McCormick, LLP, shares alternatives to traditional negotiation strategies focusing on: managing negotiations; balancing empathy and assertiveness; combating hard-bargaining tactics; and diagnosing weaknesses and regaining footing. Registration required to francescalabro@lihti.org.



MANUFACTURING EXTENSION PARTNERSHIP (MEP) KICKOFF

October 19, 2016, CEWIT: Stony Brook University has been awarded nearly \$5 million in state and federal funding over the next five years as part of a program to foster manufacturing in the region, with a focus on small and medium-sized companies. The Kickoff will present a number of talks on how the MEP program works for and with regional manufacturing companies. Contact kathleen.ferrell@stonybrook.edu.

U.S. COMMERCIAL SERVICE: STARTUP GLOBAL, LONG ISLAND

October 27, 2016, CEWIT: Startup Global, a US Department of Commerce initiative, is an educational platform designed to help more U.S. startup firms think globally from the earliest stages of their growth. Startup Global events are educational seminars in partnership with local incubators and accelerators to cover the most pressing issues startups face in the global environment.

TECHNOLOGY ENTREPRENEURSHIP SYMPOSIUM

November 2, 2016, CEWIT: A wide range of practical how-to information and strategies for forming, conducting, and selling your enterprise and technology-agnostic crossroads of proven experts, inventors and entrepreneurs representing companies at all stages — together at Stony Brook University.

LIFE SCIENCES SUMMIT

November 2 & 3, 2016, 10 on the Park, NYC: The Life Sciences Summit is an early stage investor and business development conference that highlights innovation and connects emerging biotech startups and academic innovators with the capital and strategic partners they need to move new discoveries through clinical development.

UPCOMING EVENTS:

October 2016 · Stony Brook University
HACKfEAT: Experiments in Art and
Technology Hackathon

October 13, 2016 · Long Island High Tech
Incubator: Successful Negotiation
Strategies

October 18, 2016 · LI Tech Day 2016

October 19, 2016 · Manufacturing
Extension Partnership (MEP) Kickoff

October 20, 2016 · 20th Annual LISA
Awards: The 2016 Long Island Sluggers
Awards

October 27, 2016 · U.S. Commercial
Service Start Up Global, Long Island

October 29, 2016 · NYAS From Scientist to
CSO

November 2, 2016 · Technology
Entrepreneurship Symposium

November 2 & 3, 2016 · Life Sciences
Summit

February 17-19, 2017 · CEWIT Engineers
Week Kickoff Celebration & Hackathon

June 8, 2017 · Save the Date: Stony Brook
University 2017 Incubator Company
Showcase

- OUR COMMUNITY · The Advanced Energy Center
- OUR COMMUNITY · The Center for Advanced Technology in
Diagnostic Tools and Sensor Systems (Sensor
CAT)
- OUR COMMUNITY · The Center for Biotechnology
- OUR COMMUNITY · The Center for Corporate Education and
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- OUR COMMUNITY · The Center for Dynamic Data Analytics
(CDDA)
- OUR COMMUNITY · The Clean Energy Business Incubator Pro-
gram (CEBIP)
- OUR COMMUNITY · The College of Business at Stony Brook
University
- OUR COMMUNITY · The College of Engineering and Applied
Sciences at Stony Brook University
- OUR COMMUNITY · Empire State Development: NYSTAR
- OUR COMMUNITY · IEEE Long Island Section
- OUR COMMUNITY · Long Island Forum for Technology (LIFT)
- OUR COMMUNITY · Long Island High Technology Incubator
- OUR COMMUNITY · Long Island Software and Technology
Network (LISTnet)
- OUR COMMUNITY · The New York Academy of Sciences
- OUR COMMUNITY · Small Business Development Center at Stony
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