



Center of Excellence

WIRELESS AND INFORMATION TECHNOLOGY

AT STONY BROOK UNIVERSITY

NEXT GENERATION RESEARCH AND EDUCATION



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



Stony Brook University

CEWIT *An Overview*

CENTER OF EXCELLENCE IN WIRELESS AND INFORMATION TECHNOLOGY

Our Mission

The Center is a next generation research and educational facility whose mission is threefold: become recognized as a world leader in interdisciplinary research in the emerging, critical technologies of the information age, address the skilled technology worker shortage, and foster new enterprise development.

Our Center

To best capitalize on the IT revolution, spur economic growth, advance scientific research and develop the technologies of tomorrow, the New York State Designated Center of Excellence in Wireless and Information Technology (CEWIT) was created in 2003 as the anchoring building in SUNY Stony Brook University's Research and Development Park.

Since its inception, the Center has created a powerful intellectual portfolio resulting in numerous patents and has worked hard to build strategic alliances and business partnerships among the academic, scientific, and business communities. Our partners include some of the world's best known and most sophisticated giants of wireless and information technology. The Center is building on these achievements and has laid the foundation for R&D alliances with its industry partners, sponsors, and with other internationally known research institutions.

Director's Message

Innovation has fueled the economic growth throughout the history of mankind and serves as a valuable lens through which to examine a nation's history and national character. During World War II, U.S. Government sponsored research led to the atomic bomb, microwave radar, electronic computers, jet aircraft, and antibiotics. Government sponsored research also led to biotechnology, personal computers, and information economy.

Perhaps the biggest innovations in our time have come from information technology and the associated industry. Major thrust to the IT revolution was provided around 1975 with Intel's announcement of its microprocessor. Microsoft pioneered the age of personal computing moving the productivity resource to the desktop. In the 90's, the age of networked computing was pioneered by Cisco so that productivity could be shared and multiplied by the number of users on a network leading to the ultimate resource: the World Wide Web. Now as we lay the foundation for the 21st century, we enter the age of mobility, internet of things (IoT) and data analytics. The age of mobility is where all the productivity resources docked at our desks, and information locked in our network closets, will be unleashed in to the palm of every individual's hand. However, IT is still not a mature technology and we expect the rapid advances of the last several decades to continue and increase thousand folds in many fields.

IT will continue to create new and highly profitable businesses that we have not even imagined. Computational chemistry and biology, grid computing, tying far flung supply chains, and e-commerce are at the beginning of their creation. Data is now the raw material for the information economy, much as coal and iron ore were in the Industrial Revolution. Within the so-called "Internet of Things," sensors are being embedded in devices ranging from smartphones, automobiles, and utility meters to assembly lines, warehouses, and hospitals to capture data in real time. Hundreds of millions of users around the globe now contribute new data, generating new knowledge and collaboration on new innovations using the Internet. 15 out of 17 industry sectors in the U.S. have more data stored per company than the Library of Congress.

The only way to usher economic prosperity is to reignite the basic research that has always been the economic engine for the worldwide prosperity. The U.S. and international economic priorities require that we bring together businesses, academia and the government to create the next generation technologies and solutions to solve the economic problems that we face today.

The Center of Excellence in Wireless and Information Technology (CEWIT) at Stony Brook University is a leading U.S. research institution focusing on cutting-edge research in wireless and IT. Our focus is to conduct basic research and the commercialization of the resulting technologies. We seek collaborations and are keen to build strategic alliances with business enterprises, academic and scientific communities, and government entities.

— Dr. Satya Sharma, CEWIT Executive Director



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AT STONY BROOK UNIVERSITY

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www.cewit.org

CEWIT *Home of Innovation*

UNSURPASSED RESOURCES FOR CREATIVE TECHNOLOGY DEVELOPMENT

Labs:

The CEWIT facility, housing 40 new research laboratories, was designed to enable an extraordinary scope of activity. It fosters specialized research and development in all major areas of information technology and promotes interdisciplinary work among various specialties. Special capabilities include:

- Reality Deck, a fully immersive Gigapixel Display
- Immersive Cabin capable of creating a synthetic, fully immersive, 3D virtual environment
- High speed computing laboratory and cybersecurity and information assurance laboratories
- Mobile Computing laboratory containing a National Science Foundation funded testbed for ad hoc and other emergency networks
- Motion Capture laboratory for face recognition and surveillance and a 3D scanning laboratory
- Microwave sensor laboratory for design and simulation of microwave and millimeter wave circuits
- Bioinformatics laboratory for computational genetics, protein docking, and biostatistics networking
- Future home laboratory, a model demonstration site for newly developed wireless and information technologies

Technology Incubator:

Providing an integrated suite of services involving both scientific vetting and business mentoring, our Incubator Program aids in the creation of new businesses and assists entrepreneurs with their business model, funding options, and how they can gain leverage by application of Stony Brook University (SBU's) intellectual and material assets. The integration of our Center's Business Development and Entrepreneur in Residence (EIR) functions has enabled us to further optimize a company's or inventor's experience on the SBU campus. Our venture funding network includes the Long Island Angel Network and Angel investment through Series B. Some of incubator companies include:

- **Bunce:** Web-based Digital Design and Presentation Tool
- **FlightPartner:** SaaS Provider of Intelligent Air Charter Scheduling
- **SchoolSource Technologies, LLC:** Data Analytics for Education Systems
- **STS Global Inc.:** Dynamic Satellite Communications and Telecommunications
- **Zuznow:** One Click Mobilization of Web Applications
- **Charmtech Labs:** Screen-Reading Technology Application
- **Intelibs:** Hybrid DAS Solutions and Intelligent In-Building Solutions
- **Softheon:** Data Analytics and Business Intelligence Software for Health Plans
- **Web4Sign:** Advanced Electronic and Graphometric Signature Technology



CA Technologies Innovation Center:

How will emerging technologies such as cloud computing and ubiquitous mobile computing transform markets? What new revenue streams and business processes will be enabled? What new IT products and services are needed to support these next generation business processes? Answering these questions requires an integration of marketplace insights and technology analysis in a nimble, innovative, delivery-focused environment. The CA Technologies Innovation center at CEWIT is such an environment, driving the rapid delivery of innovative, market-disrupting products and services by blending the expertise of CA Technologies leaders with Stony Brook University's research resources.



Communications and Devices

The Communications and Devices Division focuses on circuit design and testing, fabrication and prototyping, microwave sensor, and wireless/mobile computing device design and testing. The research activities in this division include, but are not limited to, digital signal processing, new sensor and RFID Systems, optical packet interconnects, wireless/mobile communications, image processing, micro-machining, superconductor electronics, trusted hardware devices, and spectrum sharing.

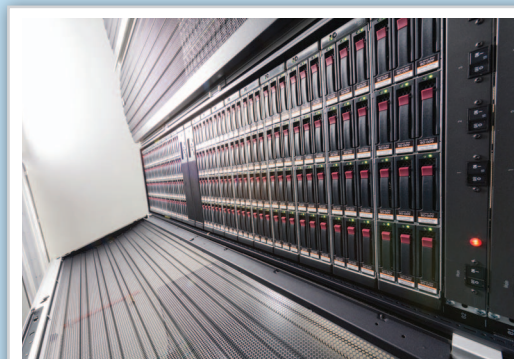
- Enabling Interoperable Public Safety Rad10 Communications
- A Flexible Network Infrastructure for Versatile Wireless Communications
- Mobile Data Gathering in Wireless Sensor Networks
- A System Infrastructure for Scalable and Robust Wireless Communications Services



Systems and Infrastructure

The Systems and Infrastructure Division focuses on developing applications based on the research conducted in the other divisions. The division is not only advancing research in related fields, but is also creating solutions and systems for commercialization. The activities in this division include, but are not limited to, mobile technologies for social impact, image processing, robotics, social networks, data visualization and visual analytics, applications of sensor networks and signal processing, smart transit systems, learning, secure storage, service oriented architectures, fault diagnosis, web information systems, reconfigurable hardware, and regulatory compliance.

- Advanced Documentation of Clinical Encounters and Context Award Presentation for Next Generation Electronic Medical Records
- Multiple Dimensional Data Visualization Made Accessible Using Illustrative Techniques
- Intelligent Mobile Technologies for Social Impact
- A Multi Semantic, Goal Oriented Programming Paradigm for Dependable Operation of Massively Distributed Reconfigurable Systems
- Wireless Utility Monitoring and Control for Efficient Energy Utilization



Network Technologies

The Network Technologies Division focuses on research, development, and commercialization of next generation wireless networks, multimedia mobile devices, and advanced solutions and services. Research activities in this division include, but are not limited to, network design, modeling, implementation and testing of various forms of wireless ad hoc, sensor, and mesh networks; protocol design for wireless and mobile networks, vehicular networks; network planning and management; network security; location management and tracking; and physical layer aspects such as MIMO.

- Accessing Urban WiFi Networks from Moving Vehicles
- Cellular and Mobile Networks Security
- Data Driven Mobility Modeling for Wireless Networks
- Network Planning and Realtime Automated Management System
- Self Powered Wireless Sensor Technology for Monitoring the Health of Electric Power Transmission Systems



Software Systems

The Software Systems Division focuses on developing and commercializing cutting-edge wireless/mobile computing and other software technologies including data management and analysis, data visualization, graphics and imaging, software and computer security, storage and file systems, distributed systems, user interface, Internet computing, software engineering, verification and optimization, parallel computing, statistical analysis and modeling, computational biology, and natural language processing. The research activities in this division include, but are not limited to, cyber-security, testing and verification, computer games, simulation and rendering, 3D visualization, cryptography, data modeling, algorithms, operating systems, geometric modeling, news and blog analysis, quality assurance, secure data management, virtual reality, file systems, augmented reality, bioinformatics, data mining and computational biology.

- The Cloud Computing Benchmarking Project
- Evidence Based Utilization Management of NYS Medicaid Program
- Instructional Technologies: The Future of Teaching and Learning
- Novel Interaction Techniques for Virtual Environments
- Volumetric Shape DNA



Medical Devices and Technologies

The Medical Division (CEWITMD) uses wireless and IT technologies to enhance the productivity and quality of healthcare, conducting the research and development leading to the engineering, prototyping, and commercialization of medical devices, products and technologies, which support patients and clinical care providers. Research areas are diverse and cover wireless medicine, the cardiovascular system, radiology, clinical pharmacology imaging modalities, virtual reality, telemedicine, wireless tracking, wireless ad hoc networks, optimized storage and communication of medical records and images, home-care medicine, computational genetics and protein docking, virtual colonoscopy, computational biology, implantable sensors and evidence-based medicine. CEWIT-MD further combines related programs that are being researched and investigated on the SUNY campuses and its Medical Centers. It identifies positive opportunities, as well as barriers, to wider adoption of wireless medical and healthcare technologies, developing recommendations for emerging healthcare needs.

- Biomedical Contact Interface Diagnosis Based on Nonlinear Viscoelastic Model
- Combined Near and Far Field UHF RFID Based Specimen Inventory and Tracking System
- Computer Aided Diagnosis System for Fast, Accurate, and Remote Evaluation of Acute Chest Pain
- Integrated Modeling and Learning of Multimodality Data Across Subjects for Brain Disorder Survey
- Self Powered Wireless Health Monitoring System



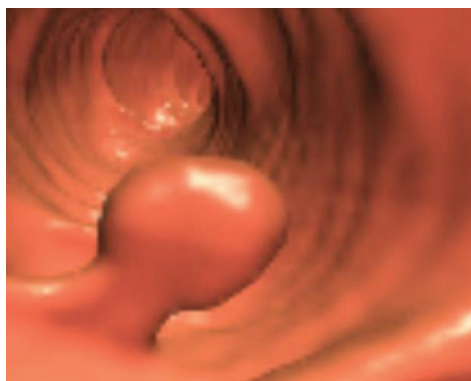
CEWIT has Unparalleled Resources

THE LEADING EDGE OF TECHNICAL INNOVATION



4 STARTUPS CREATED BY IN-HOUSE TECHNOLOGIES

- Natural language, self-teaching Webcrawler
- 3D biomedical visualization
- RFID identification
- Web navigation
- Future commercialization: Cardiac monitoring system with wireless data delivery



Virtual Colonoscopy

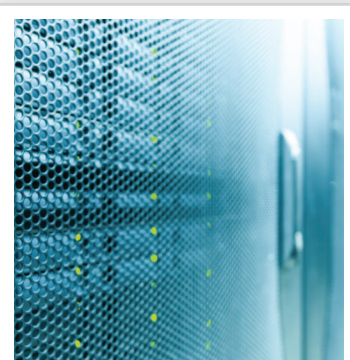


New Enterprise Development



Research

6 DIVERSE RESEARCH AREAS



- Software Systems
- Network Technologies
- Communications and Devices
- Medical Devices and Technologies
- Systems and Infrastructure
- Smart Energy

Facility

40 RESEARCH LABORATORIES

- 100,000sf Building
- 70 Faculty Affiliates
- 280 Graduate Students

7000 SQ. FT. INCUBATOR SPACE



IT Edge

100% WiFi VoIP UNIFIED COMMUNICATION

- State-of-the-art Data Center
- Private Enterprise Computing / Storage Cloud
- Direct 500Mbps Internet Connection with Redundancy

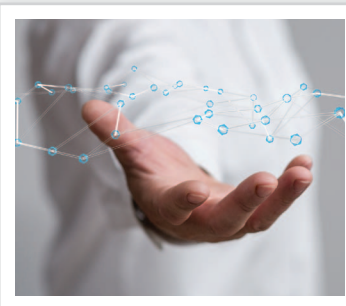
1.5 BILLION PIXEL REALITY DECK



Global Partners



Accomplishments



\$150 MILLION IN INDUSTRY COMMITMENTS

In the Last 3 Years:

- More than 1,000 jobs created or saved
- More than 680 research publications
- More than 500 projects completed
- 123 invention disclosures, and 12 licenses

36 US PATENTS

11 CORE INDUSTRY PARTNERS

- CA Technologies
- Zebra Technologies
- Northrop Grumman Corporation
- Henry Schein, Inc.
- Tyco International
- Asurion
- Digital Associates
- IBM
- Intelligent Product Solutions
- SVAM International
- Verizon



Academic and Research:

- Brookhaven National Laboratory
- Cold Spring Harbor Laboratory
- The New York Academy of Sciences
- The Feinstein Institute for Medical Research
- The State University of New York
- SUNY and CEWIT Korea

Centers:

- Center for Dynamic Data Analytics
- Center for Systems Biology
- Center for Visual Computing
- National Cybersecurity Institute

Collaboration:

Industry and research leaders provide guidance in setting industry-relevant priorities for CEWIT's applied research programs while in turn receiving unparalleled intellectual power and cutting-edge R&D resources to aid in developing real-world solutions and mission-critical applications.

Economic Development

TAKING CARE OF BUSINESS

At Stony Brook University, we're all about taking care of your business. We assist firms of all sizes and in various stages of growth, with a focus on innovation and entrepreneurship. We have the resources to help ensure the success of your business, including one of the nation's most comprehensive suites of economic development programs, and offer you access to the knowledge, worldclass facilities and human capital that only a leading university can provide. Helping **450 industry partners** to obtain close to a **billion dollars** in financing and revenues and create/retain a projected total of more than **19,000 jobs** through over **3,500 projects**, Stony Brook is a crucial asset to the Long Island economy and the businesses it supports. Find out what hundreds of companies have discovered:

Stony Brook University is *the* place to grow your business!

Innovation Hot Spot:

The Long Island **Innovation Hot Spot** is a **NYSTAR**-led program for regional incubators, accelerators, coworking spaces, and other efforts supporting startups across New York State. The program provides incentives for Hot Spot partners to collaborate in offering additional services to their clients, focusing initially on protecting intellectual property, writing proposals for federal Small Business Innovation Research awards and conducting market research. The Program additionally provides five years' worth of state, corporate, and sales tax exemption for member companies.

Ann-Marie Scheidt, annmarie.scheidt@stonybrook.edu (631) 216-7605

HOT SPOTS

- LaunchPad
- Morrelly Homeland Security Center
- LI Tech COMETS
- Entrepreneurial Technology Innovation Center (NYIT)
- Broad Hollow Bioscience Park
- SBU Incubation Programs



StartUp NY:

StartUp NY is a groundbreaking new initiative from New York State Governor Andrew Cuomo that provides major incentives for businesses to relocate, start up or significantly expand in New York State through affiliations with public and private universities and colleges. Businesses have the opportunity to operate state and local taxfree on or near academic campuses, and their employees will pay no state or local personal income taxes.. Stony Brook's StartUp NY program will pursue this goal of increased employment opportunities to make Long Island a global center for innovation and the model for a knowledge based suburban economy founded on a diversified range of innovation driven industry clusters in the life sciences, information technology, clean energy, defense and homeland security.

Susan Nastro, susan.nastro@stonybrook.edu (631) 216-7120



CEWIT and the Economic Development Partnership

The Office of the Vice President for Economic Development at Stony Brook University has an unparalleled economic role in fostering a dynamic, interconnected, entrepreneurial regional ecosystem that fuels self-sustaining, technology-based industry clusters driven by continuing innovation, while collaborating with industry and government to design new IT-focused economic development institutions and mechanisms — including CEWIT.

Economic Development

AT STONY BROOK UNIVERSITY

Strategic Partnership for Industrial Resurgence (SPIR)

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Center for Operational Excellence

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Small Business Development Center (SBDC)

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Business Incubator at Calverton

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Clean Energy Business Incubator Program (CEBIP)

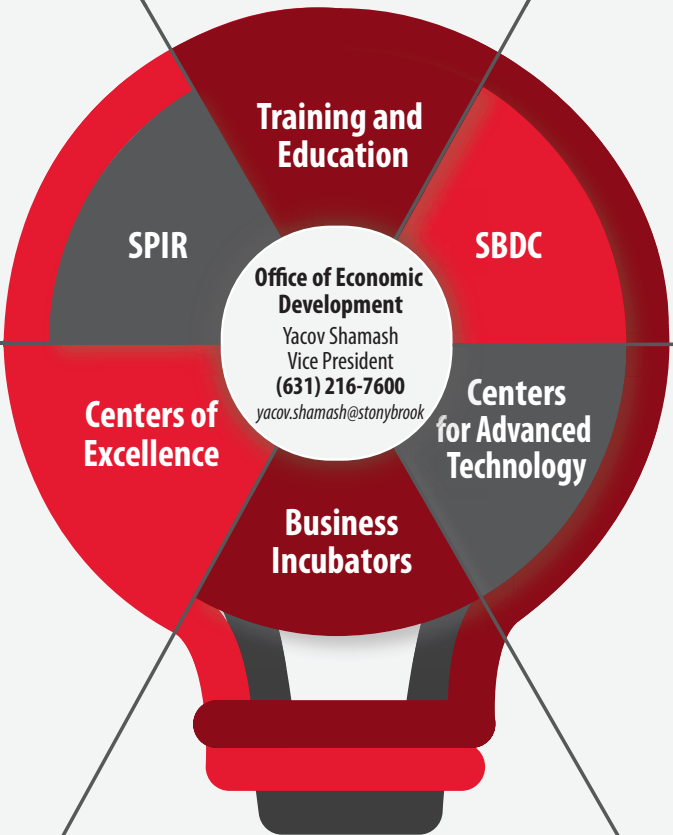
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Jim Smith
Assistant Vice President of Economic Development
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Center of Excellence in Wireless and Information Technology (CEWIT)

Dr. Satya Sharma
Executive Director
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CEWIT Collaborative Partnerships

UTILIZING OUR BRAINPOWER



CEWIT is the leader in innovative research and development for wireless and IT communications, infrastructure, networking, and software. We have all the resources you need to stay on the leading edge of technical innovation – right in your backyard. If you need R&D and wish to capitalize on your intellectual property by engaging the most innovative minds in the world, contact our Business Development Manager and Entrepreneur in Residence to discuss leveraging our worldclass brain power and state-of-the-art facilities:

Lawrence Weber, Ph.D., lawrence.weber@stonybrook.edu (631) 632-1368



Growing with CEWIT: **Softheon, Inc.**

Empowering the nation's first state health benefit exchange since 2008, Softheon's vision and strategic direction address healthcare payer, provider, and government agencies' goal of meeting Affordable Care Act (ACA) and exchange milestones. Softheon provides Exchange Integration, Direct Enrollment, Premium Billing & Payment, and Analytics solutions for insurance carriers of all sizes participating in the exchanges. Softheon's Marketplace Connector Cloud (MC2) has been trusted by health plans, in all 50 states, as an accelerated federal, state, and private exchange integration platform. Softheon MC2 is a Software-as-a-Service (SaaS) solution where insurers pay a one-time activation and ongoing per-member per-month fees for exchange members only, while eliminating most, if not all, risks associated with ACA enrollment compliance and other mandates.

Backed by their proven technology, Softheon's Welltheos platform, the nation's largest private health insurance exchange, offers a number of tools and resources for enrolling individuals and families in a broad range of Affordable Care Act compliant health insurance plans. Welltheos provides more choices than any other private online marketplace, with access to over 28,700 individual and family health insurance plans from 239 national and regional issuers participating in the marketplace.

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.



CEWIT International Conference and Expo

EMERGING TECHNOLOGIES FOR A SMARTER WORLD

Connect with Our International Business Culture, Academic Partners, and R&D Expertise

The CEWIT Conference 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. The New York State Center of Excellence in Wireless and Information Technology (CEWIT) and Stony Brook University have been organizing the annual international conference since 2003, continuing to gain recognition as one of the leading information technology conferences, converging academic research, industry advances and entrepreneurial innovations at a single forum.

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

(631) 216-7000
conference@cewit.org
www.cewit.org/conference

 **@CEWIT_SBU**

**Sponsorship and Exhibitor
Opportunities:**
Kathleen Ferrell
kathleen.ferrell@stonybrook.edu
(631) 216-7114



Valuable National and International Exposure:

- **Connect with diverse audiences across borders, disciplines, and industries.**

Extensive Academic Participation

- **Access the leading IT research that is shaping the solutions of tomorrow.**

Untapped Opportunities for Networking and Technology Exchange

- **Researchers, innovators, and entrepreneurs converge to share ideas, build partnerships, and bring cutting edge technology to the marketplace.**

Topics:

- **The Internet of Things**
- **Cloud Computing, Networks, and Cybersecurity**
- **Health Technologies and Medical Devices**
- **Big Data Analytics and Visualization**
- **Smart Urban Systems and Smart Energy**
- **Information Technology and Society**

By the Numbers:

On Average

500 Attendees

40% CEO-Director Level

50/50 Industry/Academia

Over **15** Countries Represented

80 Presenters

45 Exhibitors

175 Unique Participating Businesses, Universities and Organizations

50 International Company Delegation

150 Privately Held B2B Meetings with Senior Officers in IT's Top Industries

CEWIT *People and Partners*

BUILDING BUSINESS RELATIONSHIPS AND SHAPING THE FUTURE

Leadership

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Advisory Board

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Founder & Chief Executive Officer, Digital Associates

Girish Rishi
Executive Vice President
North America Installation & Services
and Tyco Retail Solutions, Tyco International

Otto Berkes
Chief Technology Officer, CA Technologies

Richard Boivie
Manager, Advanced Internet and Security Technologies
IBM TJ Watson Research Center

Steven J. Cento
DTL/Engineering Fellow, Northrop Grumman Corporation

Jim Harding
Senior Vice President & Chief Technology Officer
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Masaaki Maeda
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Bob Sanders
Senior Vice President, Data Capture Solutions and
Engineering Shared Services, Zebra Technologies

Dr. Kevin Tracey
President, Feinstein Institute for Medical Research

Dr. Ellis Rubinstein
President & Chief Executive Officer, NY Academy of Sciences

Kamal Bherwani
Executive Chairman, Magine TV

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Bunce
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Digital Associates
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Tyco International
Verizon Enterprise Solutions
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