

INNOVATOR



Syracuse
Research
Corporation

TECHNOLOGY NEWSLETTER



SRC's Advanced Technology Initiatives

The Advanced Technology Initiative (ATI) Program is in full-swing. The ATI Program is SRC's corporate technology investment that targets some of the most critical and challenging problems facing our customers. ATI projects seek to make critical breakthroughs on "grand challenge" problems, and provide opportunities for innovation and collaboration both internally within SRC and with our Government stakeholders. Technologies developed under the ATI Program potentially "spin on" to existing product and service areas or "spin off" to new product and service areas.

The ATI Program currently has projects in five technology thrust areas:

- (1) Urban Operations: Urban Signals Intelligence (SIGINT) Collection, Management, and Exploitation (see Feature Article below)
- (2) Improvised Explosive Device (IED) Defeat: IED Detection
- (3) Bio-Forensics: The Physical Geolocation System
- (4) Bio-Technology: Finding Locations of Interest Using DNA Tags
- (5) Communications Intelligence Modeling and Simulation: Realistic Threat Communications Emulation

SRC ATI projects are typically medium- to long-term projects in the 24-36 month range, and are well aligned with 6.1-6.3 Government Science and Technology programs.

CREW Duke V3 Award - \$177.9M

SRCTec was awarded an \$177.9 million contract based on an Engineering Change Proposal (ECP) for the U.S. Army Communications-Electronics Command (CECOM) under the Counter Radio-Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) Program to develop and manufacture CREW Duke V3 Adjunct Units to augment

the already fielded Duke V2 system. Deliveries will start early this fall. In addition to manufacturing, the ECP includes Software and Firmware development along with extensive testing that includes Engineering Test, First Article and Design Verification Test, environmental and electromagnetic interference (EM) tests, and Operational Test.

SR Hawk Progress

A little more than a year ago, SRC and SRCTec began to update the tried and tested AN/PPS-5D/E, now renamed the SR Hawk ground surveillance radar (GSR), for the domestic and international marketplace as part of an independent corporate initiative. This product launch pioneers a new business model for the two companies. The dedicated Integrated Product Team of Design Engineers, Business Development staff, and Market Analysts have developed a world-class radar that has already surpassed customer and market requirements. The SR Hawk features that consistently exceed similar radars and customer expectation include: 360 degree rotation, multi-mode operation, multi-target tracking, and clutter mapping.

The market for SR Hawk is broadly based and includes each service in the Department of Defense (DoD), as well as the Department



SR Hawk

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Urban Operations: Collecting, Managing, Exploiting Signals in Urban Environments

The Urban Operations ATI develops fundamental capabilities and technologies for collection, management, and exploitation of signals in urban environments. Specific challenges include geolocation and visualization of unknown emitters; remote/passive detection and monitoring of human activity; and data mining and pattern matching in large data sets. SRC's innovative solutions to these problems provide the technology necessary to develop next generation signal intelligence platforms, which ultimately directly benefit the warfighter.

The *Geolocation* work finds the location of a radio frequency transmitter, which could be a trigger signal for an explosive. SRC's challenge was to geolocate a transmitter using only a simple antenna and the radio frequency (RF) power intercepted by a receiver.

Activity Detection and Monitoring (ADaM) focuses on detecting human activity remotely (through the wall) via passive surveillance of common RF signals. SRC has established the remote capability to detect the presence of one or more individuals within a building.

Data Mining and Pattern Matching identifies information of interest in large, dynamic data sets, such as dense and threatening signal environment in conflict areas. SRC has developed high-dimensional data kernel methods for entities of interest. Applying this to real-time stream mining is important to defense and intelligence groups. By quickly and reliably isolating the most important information from a torrent of data, this capability increases effective response to threats and focuses resources accordingly.



SRC's Sense-through-the-Wall capabilities illustrated here

of Homeland Security. Applications include border and perimeter security, harbor surveillance, and using the radar's wide-area persistent surveillance to cue target identification sensors such as Electro-Optical/Infrared (EO/IR) systems. In addition, many prime contractors are considering the SR Hawk their GSR of choice for multi-sensor "system of systems" hardware suites.

Based on the product performance, customer need, and the viability of the market, SRCtec has moved ahead with developing the production line and shelving inventory. SRCtec will manufacture the SR Hawk in its ISO registered facility, which is known for its quality throughput. SRC is moving forward with improving the SR Hawk's technical capability; another spiral development for the radar has already begun based on market analysis and customer feedback.

CREW CLS Contract Award

SRCtec was awarded a contract modification with a \$226.6 million ceiling from CECOM under the CREW 2.0 Program. This modification provides for three years of Contractor Logistics Support (CLS) and Engineering Services for U.S. Armed Forces in-theatre. Efforts include sustainment of depot and field maintenance operations, engineering services (product improvements through technology insertion), and field/depot spare parts. SRC will perform the engineering services to improve systems based on performance and feedback from the warfighter.

SRC Awarded DIA SIA Contract

SRC has been awarded a contract by the Defense Intelligence Agency (DIA) as part of the Science Applications International Corporation (SAIC) team. This multiple award, indefinite-delivery/indefinite-quantity contract will support the Solutions for Intelligence Analysis (SIA) Program. The maximum dollar value for all task orders that can be awarded to prime contractors, including SAIC, under this 5-year contract is \$1 billion. The scope of the contract covers efforts for DIA, Combatant Commands, and Service Production Centers at locations nationally and overseas, and will be issued by DIA out of the Washington, DC, Metro area.

Under the contract, SRC will support the DIA mission with services in the areas of computer network operations, weapons systems characteristics and performance, weapons of mass destruction, and emerging and disruptive technologies to provide effective analysis for the Defense Intelligence Enterprise.

SRC has a history of developing solutions for the Defense Intelligence Enterprise, helping to meet its most demanding requirements on programs, including EW Integrated Reprogramming (EWIR) to National Ground Intelligence Center (NGIC) under the NGIC contract; Chemical/Biological support to NGIC under CBRTech; tools for electronic intelligence processing development under contract to Missile and Space Intelligence Center, which is part of the DIA; and several others.

SRC Brings International Environmental Science Conference - QSAR - to CNY

The 13th International Workshop on Quantitative Structure-Activity Relationships (QSAR) in the Environmental Sciences was hosted by SRC in Syracuse, NY, bringing more than 100 international and national visitors to Central New York (CNY).

A biannual Workshop, QSAR 2008 returned to North America after most recently being held in Lyon, France and Liverpool, England. The International Workshop series has been at the forefront of developments in predictive methods and is an important forum for dissemination of qualitative and quantitative structure-activity research and application. SRC was selected to host this year's Workshop by its Steering Committee, further proving SRC's expertise in this highly specialized field.

Dr. Phil Howard was recognized with the QSAR Special Award, awarded by the International Steering Committee for QSAR 2008.

Keynote speakers included Klaus Kaiser, Principal Investigator, TerraBase; Maurice Zeeman, U.S. Environmental Protection Agency; Al Leo, Pomona College and BioByte Corporation; and Terry Schultz, Emeritus Professor, College of Veterinary Medicine, University of Tennessee.



Dr. Howard and Dr. Jay Tunkel, organizer of this year's workshop

I2WD Information Exchange at Fort Monmouth

SRC hosted an Information Exchange at the U.S. Army's Intelligence and Information

Publications and Presentations

"A comparative human health risk assessment of p-dichlorobenzene-based toilet rimlock products versus fragrance/surfactant-based alternatives", D.B. Aronson, S. Bosch, D.A. Gray, P.H. Howard and P.D. Guiney. *Journal of Toxicology and Environmental Health*, Part B. 10: 467-526.

Dr. Philip Howard's article, entitled "Are There Other Persistent Organic Pollutants? A Challenge for Environmental Chemists," has been published in *Environmental Science and Technology* and is being featured on the American Chemical Society Publication's Web site (pubs.acs.org).

D.A. Gray is an invited reviewer at the Defense Threat Reduction Agency's FY08 Science and Technology Review.

Carl Thunberg presented his paper entitled, "Human Factors in Ground Control Station Design: The Predator/Reaper Approach" to the Unmanned Systems North American Symposium - AU/VS 2008. This conference is the world's largest unmanned systems symposium with anticipated attendees exceeding 10,000. Carl has been supporting the Predator/Big Safari customer for more than five years as a Pilot, Logistics Expert, and Predator/Reaper Technical Expert.

Sean O'Hara was an invited subject matter expert/panelist for two well-attended technical roundtables at the International Wireless Communications Exposition in February. The panels covered "Cognitive Radio Technologies" and "Future Wireless Broadband Architectures for Public Safety Communications." Both of the panel discussions were lively and well-received by the audiences.

Warfare Directorate (I2WD) at Fort Monmouth, NJ. SRC briefed the Army on a variety of technology and programs on topics ranging from Radar and Combat Identification; Counter-IED and EW; Information Operations; and Fusion, Modeling, and Simulation. I2WD provided a tour of their facilities and a capability overview highlighting their core technology and business thrusts.

In addition to discussing ongoing business and near term opportunities, SRC and I2WD are also pursuing the establishment of a CRADA - a form of an official joint independent research and development agreement to benefit both parties through collaboration.

AIM Presentation at QSAR

Michael Card's presentation at QSAR 2008 described SRC's success in developing a new way to cluster chemicals based on their

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molecular fragments, the so-called Analog Identification Method (AIM). The new approach used for AIM was to utilize a high-dimensionality index created for a Java object-oriented database engine, which Card originally developed at SRC for use in various analyses. The results to date have been very promising.

ICOODB 2008

Michael Card also gave a keynote presentation at the First International Conference on Object-Oriented Databases (ICOODB) in Berlin, Germany. Card's presentation focused on the next-generation standardization efforts for object-oriented databases. He serves as the chair for the Object Database Technology Working Group within the Object Management Group. This Working Group is responsible for developing the standard that will succeed the now-defunct Object Data Management Group's 3.0 standard. Card's

presentation was well-received and spurred a lively discussion about changes to the Java programming language to incorporate so-called Language INtegrated Queries, a language feature currently planned for C#, an object-oriented programming language. SRC's participation in this standardization effort continued as Card chaired a follow-on meeting of the Object Database Technology Working Group in Ottawa, Canada.

SRC Achieves CMMI Level 3

SRC's Information Science & Engineering Requirements Management Products and Services area achieved the Software Capability Maturity Model Integration (CMMI) Level 3 rating from Carnegie Mellon

University's Software Engineering Institute. This is a very rigorous quality standard, one that can only be achieved over time and with demonstrated consistency in performance. Attaining this prestigious credential demonstrates SRC's strong commitment to self-imposed quality standards and establishing consistency across the organization. Projects that follow SRC's CMMI-compliant processes increase productivity and quality, as well as shorten product development times and reduce costs. Additionally, executing disciplined, repeatable practices enables SRC to better serve our customers by delivering product and process quality, use of industry best practices, and continuous improvement.

Tyszko Appointed to AOC Board

Mary Ann Tyszko, President and CEO of SRCtec, was invited to join the board of directors of the Association of Old Crows (AOC) as an Appointed Director. She will serve until October 2009. The AOC is a non-profit, international and professional association that focuses on the science and practice of EW, Information Operation, and other related disciplines.

DSS Awards SRC Charlottesville Commendable Rating

SRC's Charlottesville, VA, office recently received a commendable rating from the Department Security Service (DSS). DSS, an agency of the DoD, assigns security ratings to contractor facilities to ensure that each facility employs effective security systems and procedures to protect classified information. Every 12- or 18-months, each of the 12,000+ cleared facilities in the industrial security program are assessed by an

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Public Safety Communications

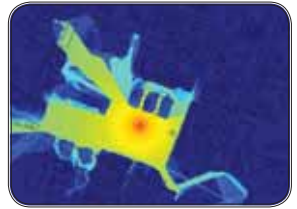
SRC Supports Public Safety and Homeland Security Communications

SRC's Systems Technology Business Area has a long history of providing communications technology support, and operational enhancements to the public safety and homeland security community, both in New York State and across the nation.

In New York, SRC has worked with the State for more than 10 years to procure, deploy, and test a state of the art, public safety communications system. The New York Statewide Wireless Network (SWN), a \$2B integrated voice and data network, is now in the first stages of deployment and test in western New York. The SWN represents the largest, most innovative, and most advanced technology procurement for public safety communications to date.

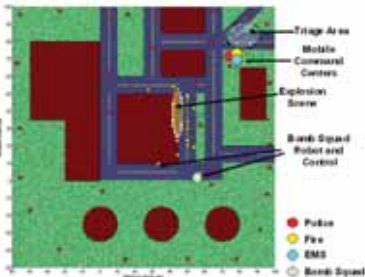
Outside of New York State, SRC's longtime relationship and support of the national public safety community has also allowed us to achieve the highest levels of trusted advisor status, including representing the public safety community within international standards development activities, such as the IEEE (formerly the Institute of Electrical and Electronics Engineers) 802 and Telecommunication Industry

Association standards process, and the Software Defined Radio Forum (SDRF). In the IEEE 802 efforts, SRC worked under the National Public Safety Telecommunications Council (NPSTC) to embed public safety requirements within the broadband wireless standards organizations, and help develop standards that would eventually become low-cost, commercial off-the-shelf technologies. SRC then developed detailed models of the deployments of these technologies, and worked with the Federal Communications Commission (FCC) to embrace the deployments of these technologies within public-safety-specific spectrum allocations.



Further, on behalf of the NPSTC, SRC co-chaired the Cognitive Radio and Spectrum Sharing Working Group within the SDRF for its first two years, ensuring that significant international resources were focused on the transfer of these advanced technologies into the public safety realm. This was done in order to enhance operational capabilities, and to address communications interoperability.

Currently, our most urgent efforts are focused on helping NPSTC and the Association of Public Safety Communications Officials achieve a vision of a nationwide, broadband mission critical network. This network has been proposed by the FCC as a national partnership between public safety and a private commercial entity. SRC is working with these national organizations to identify and examine innovative approaches that can achieve the critical operational objectives of public safety, while providing a financially sustainable business model that can support the long-term viability and success of the network for the next generation of public safety users.



Government Affairs

Congressman McHugh and Senator Valesky Tour SRCtec

SRC and SRCtec hosted U.S. Congressman John McHugh (NY-23) for a tour of SRCtec's manufacturing facility. McHugh, senior member of both the House Armed Services Committee (HASC) and the House Oversight and Government Reform Committee, is a long-time advocate of SRC-developed warfighter technologies. He is also a member of the House Permanent Select Committee on Intelligence.



Jim Periard and Congressman McHugh



Senator Valesky, Mike Ermenwein, and Kevin Hair

In a separate event, NYS Senator David Valesky toured SRCtec's manufacturing facility. As major employers in Valesky's district, SRC and SRCtec provided the Senator with an overview of the companies and various product lines.

CANYS New York Day in Washington

Representatives from SRC and SRCtec participated in the annual Chamber Alliance of New York State (CANYS) New York Day in Washington, DC to advocate pro-business federal policies. As part of this effort, Government Affairs met with the offices of Congressmen Michael Arcuri, James Walsh, and John McHugh, and Senator Hillary Clinton's staff to discuss SRC's and SRCtec's priorities and interests.

SRC Goes to Capitol Hill

SRC hosted its inaugural Capitol Hill Awareness Day in the Rayburn House Office Building in Washington, DC. SRC's Government Affairs Department and representatives from various technical business

areas, as well as SRCtec were available to provide briefings and demonstrations of the companies' technologies and programs supporting the various customers. Professional staff members from HASC and House Oversight and Government Reform Committee attended. Congressman Tom Davis (VA-11) also made a special appearance.



SRC and SRCtec products on display at Capitol Hill

Industrial Security Representative. The rating categories include superior, commendable, satisfactory, marginal, and unsatisfactory. A commendable rating states that contractors have "fully implemented the requirements of the National Industrial Security Program Operating Manual in an effective fashion resulting in a commendable security posture ... This rating denotes a security program with strong management support, the absence of any serious issues and minimal administrative findings." For more information on DSS and their ratings, visit www.dss.mil.

"LEEDing" NY's Green Efforts

Since opening the new corporate headquarters in early 2007, SRC has been making headway on many environmentally-friendly endeavors. Most importantly, they are in the final stages of achieving the Leadership in Energy and Environmental Design (LEED) for New Construction certification by the U.S. Green Building Council.

SRC's headquarters will be the first and only, to date, building of its size in CNY achieving LEED project certification – only 978 buildings worldwide are LEED for New Construction project certified. SRC's 121,000 square foot facility has the capability to self-sustain for up to 24-hours; utilizes advanced lighting technology and energy efficient heating and cooling systems; and much more. SRC expects to be within the national average savings range for environmentally-friendly construction of \$50-\$65 per square foot throughout the initial 20-years of occupying the headquarters. SRC is also qualified for "energy conservation" credits from New York State Energy Research and Development Authority.



SRC's Corporate Headquarters in North Syracuse, NY

Top 10 Best Company

SRC was ranked as one of the top 10 "Best Companies to Work for in New York for 2007" by the New York Society for Human Resource Management (NY SHRM) and Best Companies Group – an independent company managing Best Places to Work programs in many states around the country. NY SHRM and Best Companies formed a partnership to launch the first of its kind awards program in the State of New York.

This statewide survey and awards program was designed to identify, recognize, and honor the best places of employment in New York, benefiting the state's economy, its workforce, and businesses. The Best Companies to Work for in New York list consists of 30 companies in two groups: 15 medium-sized companies (25-250 employees) and 15 large-sized companies (251 or more employees). SRC was ranked eighth in the Best Large Companies to Work for in New York.

Tech Company of the Year

SRC was named the 2008 Technology Company of the Year by the Technical Alliance of CNY (TACNY). Additionally, Doug Colclough, one of SRC's top engineers in the Systems Technology Business Area, has been named the 2008 Technologist of the Year; and SRC and Lockheed Martin's EQ-36/MMR Program won the 2008 Technology Project of the Year.

About SRC and SRCtec

Syracuse Research Corporation, a not-for-profit company, and its for-profit subsidiary SRCtec, Inc., deliver innovative solutions to challenges of national significance in the areas of defense, environment, and intelligence.



7502 Round Pond Road
North Syracuse, NY 13212
800-724-0451
www.syrres.com



5801 East Taft Road
North Syracuse, NY 13212
315-452-8700
www.srctecinc.com

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