

SAIC Magazine

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MISSION-CRITICAL intelligence support in war on terror

From geospatial information and signals intelligence to data mining software and visualization tools, SAIC provides a wide range of operational and analytical support to help the intelligence community fight the global war on terror.

The responsibility of leading SAIC's efforts belongs to Larry Prior, president of SAIC's Intelligence and Security Group, who is surrounded by a leadership team with decades of intelligence community experience, and more than 6,000 highly skilled employees, making his intelligence organization one of the intel industry's largest.

While much of the work SAIC does for the intelligence community is classified, Prior and members of his team recently spoke about some of the security challenges ahead and discussed, in general terms, how SAIC is providing mission-critical support to its customers.

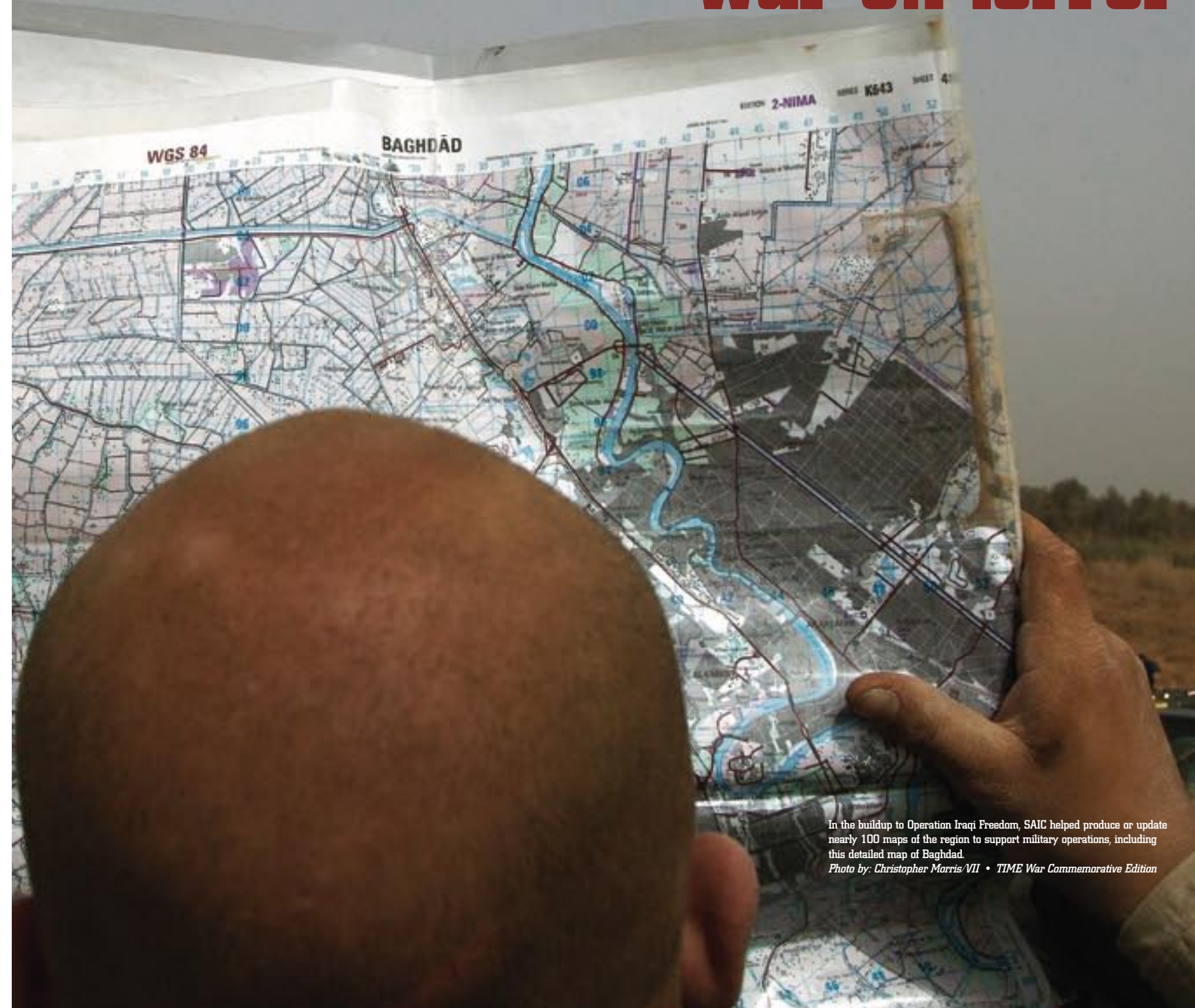
How do they define mission-critical?

"That's where you have anywhere from 10 to 100 employees and, oh, by the way, the future of the nation rests on their backs. We've got a bunch of those locations; not just in the Intel Group, but across the company," Prior says. "It is who we are and why we love being a part of something really important. It really defines and differentiates SAIC."

"We pride ourselves on being where the customer is," adds John Thomas, a retired Army major general who manages SAIC's Operational Intelligence Solutions Business Unit. "We have people deployed around the world – from Diego Garcia to Iraq and Afghanistan and lots of places in between. We deployed to Iraq when the first military units went in and we've been there ever since with our customers."

SAIC's Intelligence and Security Group has roughly 300 to 500 people overseas at any point

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In the buildup to Operation Iraqi Freedom, SAIC helped produce or update nearly 100 maps of the region to support military operations, including this detailed map of Baghdad.

Photo by: Christopher Morris/VII • TIME War Commemorative Edition

'National treasures'

When it comes to supporting the intelligence community, SAIC's Larry Prior is especially proud of what he calls our "national treasures" — employees with deep domain knowledge who work closely with our customers and are trusted to do the most sensitive work imagined. While it's not possible to recognize all of them in this limited space, here are a few examples:

Tracking and targeting maritime threats. When Coast Guard officers thwarted mock terrorists in a staged attack off the North Carolina coast, it made headlines across the country. But when the Coast Guard and SAIC help thwart real terrorists, often as not, it never reaches the media. And that's okay with Frank Gutierrez, director of strategic intelligence solutions in SAIC's Homeland Security Analysis Division.

A retired Naval intelligence officer who has also worked on commercial maritime issues, Gutierrez has put together a team experienced in counterterrorism and law enforcement to support the Coast Guard and commercial maritime customers.

"Our bench strength of talent is remarkable, not only within my business unit and group, but across SAIC," Gutierrez says. "Those of us working with the customer are the tip of the spear of a much broader knowledge base."

Drawing on that experience, they developed a new "holistic" approach to analyzing disparate information that enabled the Coast Guard to target and track multiple networks of suspected terrorists and smugglers. Their efforts provided actionable intelligence that led to a number of arrests and deportations.

To help Coast Guard personnel learn from these and other experiences, Gutierrez and his staff provide analytical summaries and training.

Cutting-edge cryptography. Working on the cutting edge of cryptography and data encryption is all in a day's work for Bruce Clark, a chief software design engineer in SAIC's Real-Time Engineering Division.

"It's very challenging working with all our customers to deliver a product that will definitely help to fill a need and enhance their overall security," says Clark, who joined SAIC in 1998 after working 13 years at NSA.

One of those products is the In-Line Media Encryptor (IME), which SAIC developed for a government customer

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MISSION-CRITICAL intelligence support in war on terror

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in time, many of them permanently stationed, Prior says.

Whether they're on the frontlines overseas or supporting homeland security missions from U.S. locations, SAIC's employees are part of a team effort among military and civilian agencies as well as industry, says Leo Hazlewood, who manages the Mission Integration Business Unit.

"The people who are in Afghanistan and Iraq depend upon the people who are back home and elsewhere to support them. The people who are doing 'spooky' things around the world depend upon their support networks. One of the secrets of all this is teamwork among the pieces," says Hazlewood.

Since 9/11, the pace has been frantic and the working conditions often difficult and highly stressful, but SAIC's employees and customers are deeply committed to their national security mission, he adds.

"This is probably the best kind of business you can be in because you're doing important stuff for important customers. You're intimately involved. You're doing real live things that you can see matter, and it's enormously motivating to the employees. They're really proud of what they do," Hazlewood says.

For example, SAIC is a premier producer of geospatial information that goes into maps and charts that are used by soldiers, sailors, Marines, air-

men, and intelligence staff around the world for their daily activities or in combat, says Hazlewood, whose business unit supports the National Geospatial-Intelligence Agency (NGA). Working in another important area, SAIC was part of an NGA team that received a Meritorious Unit Citation in 2004 from the Director of Central Intelligence for their extraordinary effort and exceptional teamwork in developing and deploying a capability making theater airborne imagery available to a wide range of defense and intelligence users.

Geospatial information is just one of the area's Hazlewood's team specializes in, but it's a specialty he knows very well. Before joining SAIC in 2000, Hazlewood served as the first deputy director of NGA (then known as NIMA), and as the agency's first deputy director for operations. Before that, he served in a number of senior assignments at the Central Intelligence Agency.

One of the biggest challenges facing the intelligence community at home and abroad revolves around information analysis and sharing — sifting through all the information that's available, connecting the dots, then helping make sure the right information gets to the right person at the right time.

"We have a number of projects that are helping our customers to address that," Thomas says. "We do a



Larry Prior, SAIC Group President

fair amount of work in data mining, and in technologies that allow you to access large amounts of data and then provide tools that allow analysts to work with it and visualize it."

Much of that work is wrapped into a cutting-edge project called the Joint Intelligence Operational Capability — Iraq (JIOC-I). SAIC staff at home and in Iraq are helping to develop, test, deploy, and sustain this new capability, says Thomas. (See related article on page 15.)

Before joining SAIC in 2001, Thomas commanded the U.S. Army Intelligence Center and Fort Huachuca in the 1990s, and the U.S. Army Intelligence and Security Command — the Army's operational intelligence force, among other key assignments.

"What differentiates SAIC from the big hardware companies is that we have a really good understanding of

how the intelligence work gets done," Thomas says. "When we build an application it's not just some novel idea that comes from a backroom. It comes from the experiences of our analysts. No one knows the needs and demands of intelligence like the analyst who works in the field every day."

For example, Thomas cited our Pathfinder data mining and visualization tool suite, which is part of the JIOC-I. Built by and for analysts, this software technology has been engineered by SAIC to allow users to reach new levels of productivity in processing and analyzing data.

SAIC is also a key developer and operational supporter of the Biometric Automated Toolset (BAT), which is deployed in Iraq and Afghanistan to maintain positive identification of detainees and track other persons of interest, Thomas says. BAT is a portable system composed of a laptop

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The TIGER biosensor system stalks pathogens

The TIGER biosensor system, which SAIC helped develop with a San Diego pharmaceutical company, was honored with an R&D 100 Award for 2005. Often called the Oscars® of invention, R&D 100 Awards have recognized innovative products such as the automated teller machine (1973), the fax machine (1975), the liquid crystal display (1980), and HDTV (1998). Below is an example of TIGER's innovation.

However, Navy researchers enlisted the aid of SAIC and Ibis Technologies (a division of ISIS Pharmaceuticals), which together have developed the TIGER (triangulation identification for genetic evaluation of risks) biosensor system under a contract with the Defense Advanced Research Projects Agency - Special Projects Office.

Using TIGER, which combines advanced genomic and signal-processing techniques to identify known, newly emergent, and bioengineered pathogens, researchers quickly identified the bacteria responsible for the infections and were able to monitor the epidemic. (Not only does TIGER identify and quantify bacteria, viruses, fungi, and protozoa, it does so directly from their genomic DNA or RNA without culturing.)

"The unique thing about TIGER is that it can detect and classify nearly any bacterial pathogen with a single assay," said SAIC's David Robbins, who manages the Sensor Technology Division in Jurgen Gobien's Technology Research and Integration Business Unit. "The classical approach for identifying pathogens requires a specific assay for each pathogen you're looking for."

The bacteria infecting most of the recruits turned out to be group A streptococci (GAS), also known as *Streptococcus pyogenes*. Especially virulent because it's encased in a carbohydrate capsule, GAS causes mild to severe respiratory infections, with complications such as acute rheumatic fever.

Late in 2002, recruits at San Diego's Marine Corps Recruit Depot (MCRD) experienced one of the most severe outbreaks of pneumonia in decades.

To help contain the epidemic, its cause had to be quickly identified. With standard techniques – such as culturing – identifying a particular bacteria or virus can take weeks. (Culturing helps determine the cause of infectious disease by letting the agent reproduce in a certain media.)

"The majority of infections were caused by the emm3 genotype of group A strep, a genotype previously associated with high respiratory virulence. Recruits are deployed to other locations after completion of training, so there was concern that the virulent strain might spread to these locations. As a result, the team also surveyed respiratory outbreaks at other military facilities," said Robbins. "In this case, we found that while one or two samples from each location had an emm3 genotype, the highly virulent strain was not dominating the GAS population at other locations. Group A strep is a big issue (at MCRD and throughout the military)." This is probably because military recruits gather from across the country and are subject to intense physical and psychological stress as a normal part of training, according to medical literature.

In addition, TIGER simultaneously identified other pathogenic organisms, including *N. meningitidis*—which can cause meningitis. (The ability to simultaneously identify GAS and other bacteria and viruses in large numbers of samples could greatly facilitate an understanding of respiratory epidemics, according to experts.)

Another key impact of TIGER was that it helped with the epidemiology of the disease. "Our team was able to show that it wasn't passed around to other places after that," said Robbins. "(TIGER helped the Navy) understand how it spread, which can help them take preventative action in the future."

Because TIGER can determine a particular strain of an infectious agent, you can use TIGER to monitor the spread of an epidemic in real-time, thus facilitating rapid intervention to help contain the outbreak.

TIGER checks a pathogen's 'signature'

Besides helping health care workers determine the causes of many illnesses, a TIGER biosensor system could help detect biological warfare attacks on high-value installations.

This is especially important as biological terrorism ranks as a strategic threat to the U.S. Not only do biological agents represent the highest lethality density of any of the major weapons of mass destruction, they are fairly simple to produce and can be deadly at doses as small as .0000001 milligrams (a paper clip weighs about 500 milligrams).

"A TIGER biosensor system has been shipped to the United States Army Medical Research Institute for Infectious Disease (USAMRIID), which will use the system to identify infectious agents for biowarfare defense," said David Robbins. In addition, the Department of Homeland Security's National Bioforensics Analysis Center will use TIGER for microbial forensics to investigate crimes involving infectious organisms.

TIGER amplifies genomic DNA (the genetic blueprint of living things) or RNA sequences in samples using a technique called "broad range PCR." (RNA plays several roles in determining the synthesis of proteins.) TIGER then analyzes the PCR products with mass spectrometry and signal processing to develop mass or base composition signatures (i.e., the number of As, Ts, Cs, and Gs – chemical "building blocks" – in the PCR products). Because it is difficult to distinguish genetic material from pathogens from the many other background organisms that may be present in complex samples – such as a throat swab, surface swab or air sample – TIGER uses SAIC-developed signal processing algorithms to detect and interpret a pathogen's genetic mass "signature."

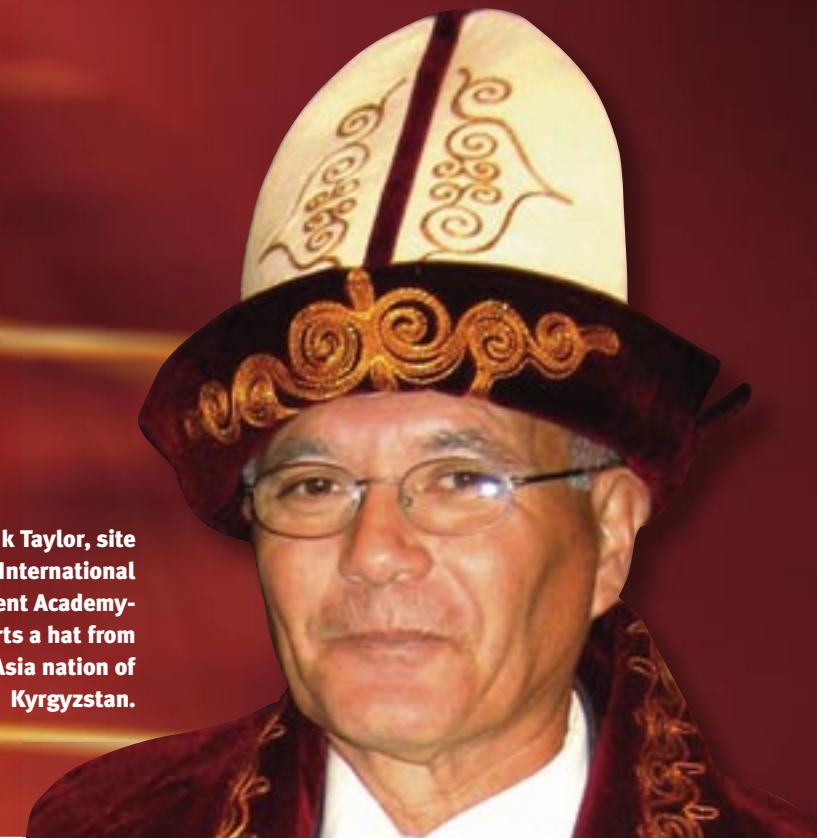
TIGER checks the pathogen's mass against the masses of known pathogens in its database. If there is no match – because it is a newly evolved strain or it has been bioengineered – TIGER can tell researchers if the pathogen is similar to any known pathogen. (In fact, TIGER can identify any of hundreds of pathogens that might be present in a single sample.)

SAIC's system differs in this regard from most biosensors, whose antibody-based or pathogen-specific PCR components cannot detect unknown or bioengineered pathogens. In addition, TIGER has a fast turnaround – it can analyze 200 samples in less than 24 hours – and has extremely low false positive rate. This is important to avoid a false alarm to prevent putting the population on antibiotics unnecessarily.

ROSWELL ACADEMY

cements international bonds

SAIC's Frank Taylor, site manager for the International Law Enforcement Academy-Roswell, sports a hat from the Central Asia nation of Kyrgyzstan.



The chief prosecutor of Namibia... the deputy director of the Hungarian National Police... the head of Brazil's environmental enforcement agency – you probably wouldn't expect to meet such persons in a U.S. government training program.

However, these officials, along with a police general from China, are typical of those who have graduated from the State Department's International Law Enforcement Academy (ILEA-R), which SAIC helps operate in Roswell, New Mexico.

The mission of the ILEA-R program is to provide advanced criminal justice instruction to law enforcement officials from around the world. In fact, in the last five years (the first classes started a week before the Sept. 11, 2001, terrorist attacks), the academy has graduated more than 1,800 students from 68 countries.

Besides providing day-to-day administration of the program, SAIC provides some instruction at the academy, according to Jack Swickard, a community relations consultant for the program. In fact, SAIC developed the curriculum and operating procedures for the ILEA-R program, which exposes students to the society and institutions of the U.S.

"Through this program, SAIC is able to work with foreign law-enforcement officials and positively impact their countries," said Chuck Zang, who manages the Engineering, Test and Analysis Business Unit. "We consider it one of the BU's premier programs."

Classes at ILEA-R range from modern policing strategies to global trends and emerging issues in transnational crime – countering international terrorism is emphasized, as well.

"This program has the opportunity to provide a united effort to combat terrorism and transnational crime," said Frank Taylor, site manager of the program.

In addition, the program includes a strong emphasis on human rights, according to Taylor.

"The delegates are experiencing new and different ideas in Roswell," said Taylor (students are referred to as delegates at the ILEA-R). "The most rewarding aspect is how we are able to change their perception of the United States. Some have negative thoughts about us, as people. When they leave, they have developed excellent relations with all of us, as well as people in the community, which greatly enhances our image

around the world."

In addition to improving communications among U.S. and foreign law-enforcement officers, the ILEA-R program helps foster communications among neighboring countries that send students to the academy. (Before attending ILEA-R, delegates are required to attend one of the regional ILEAs in Gaborone, Botswana; Bangkok, Thailand; or Budapest, Hungary. These ILEAs are operated directly by the federal government.)

"One of the things we have really seen is the interaction... among the bordering countries," Taylor said. "We are able to establish a network among bordering countries to deal with international crime."

After returning home, a delegate from the African nation of Malawi sent an e-mail to Taylor: "I have settled back down to work and already I am using some of the skills I learned there in Roswell in my day-to-day work. I have to admit that we

did learn a lot and it was an enriching experience, professionally, but also academically, socially and even psychologically... the warmth and hospitality we received from people at ILEA, Roswell and Albuquerque was just fantastic."

How has Roswell, the city known for a purported UFO crash in 1947, taken to the ILEA-R delegates? In 2002, the Roswell City Council made Ukrainian and Hungarian students honorary citizens of the community after the delegates honored a Roswell patrolman who was shot during an arrest.

In addition to SAIC, three universities help operate ILEA-R, including New Mexico Tech, Sam Houston State University, and Eastern New Mexico University-Roswell. New Mexico Tech, which holds the cooperative agreement with the State Department, is the lead institution in the consortium.

For more information, contact Frank Taylor at frank.r.taylor@saic.com.

The mission of the ILEA-R program is to provide advanced criminal justice instruction to law enforcement officials from around the world.



As one of the largest research and engineering firms in the U.S., SAIC promotes cutting-edge research through its Executive Science & Technology Council (ESTC) publication awards competition. Since 1984, the ESTC has recognized some of the most innovative research and best written technical papers and books by SAIC scientists and engineers. Here are summaries of some winners.

Returning to renewable energy

Before the industrial revolution, mankind directly harnessed the sun, wind, and water for its energy needs. Ironically, we now return to renewable energy sources as the folly of fossil fuels is exposed by heated issues such as global warming. The nation's recent spike in gas prices is another painful reminder of our need to become less dependent on petroleum and fossil fuels.

One promising renewable energy source is geothermal energy, which taps the energy of water heated within the Earth's crust. Geothermal power has tremendous potential, considering the massive heat reservoir inside the Earth. According to the California Energy Commission, geothermal resources generated over three times more electricity in California in 2001 than wind and solar resources combined, totaling five percent of the state's total electrical power generation.

To estimate the recoverable energy from a geothermal reservoir, scientists predict the quantity and thermodynamic state of the water that may be produced by a geothermal well. Because geothermal wells contain a highly turbulent mixture of liquid water and steam, no strictly analytical method exists to calculate well behavior. Scientists instead simulate fluid flow in geothermal systems with computer models that are based on correlations for oil wells. Not surprisingly, the differences between oil and water make petroleum-based simulations unreliable for geothermal systems.

For the first time in the industry, SAIC's Sabodh Garg, John Pritchett, and James Alexander have utilized actual geothermal well data to accurately simulate this

complex fluid dynamics problem. "With the advent of modern well measurement tools, we now have dependable data on which to base our models," states Garg. Using high quality data from over forty flowing wells the researchers explored what is known as the liquid hold-up correlation. "In order to model the fluid flow in a geothermal well, one of the critical tasks is to develop a relationship for the dramatic difference between the liquid and gas velocities," explains Garg. "This relationship is called liquid hold-up correlation."

Applying SAIC's proprietary well-simulation program, WELBOR, the team initially forced simulation results and actual data into agreement by adjusting the liquid hold-up correlation for each well. Then using the liquid hold-up correlation values for all the wells, the team created a generalized liquid hold-up correlation that can be applied to any geothermal well.

After integrating the new liquid hold-up correlation into WELBOR, the forty wells were simulated with excellent agreement between the computed results and measured data. The new liquid hold-up correlation accurately predicts fluid flow in geothermal well bores and will aid in the search for economically recoverable geothermal energy sources.

"A new liquid hold-up correlation for geothermal wells" was published in Volume 33 of *Geothermics*. The research was sponsored by the U.S. Department of Energy, utilizing well data from Unocal Corporation and Caithness Energy.

For more information, contact Sabodh Garg at sabodh.k.garg@saic.com

VIRTUAL WEAPONS OF MASS DESTRUCTION

At the dawn of the twenty-first century, governments have been forced to fight the physical and psychological terror of weapons of mass destruction (WMD). A counter-offensive in the war against WMD, the computer is used extensively to prevent and mitigate damage. By simulating weapon systems and their effect on targets, computer scientists can predict vulnerabilities while avoiding costly and destructive physical experiments.

A challenging example is the simulation of an underwater explosion, the data from which can be used to protect ships. Many complex physical processes must be modeled: a detonation wave through explosive material, a shock wave into water, the pulsating behavior of gas bubbles (which wreak most of the damage), and the interaction of these shocks with nearby structures. These processes occur over vastly different time scales – from seconds to millionths of a second, making typical numerical models expensive if not impossible, even for today's massively parallel supercomputers. Additionally, the dramatic variation between the properties of the explosive material and water, in both liquid and gas phases, can easily lead to the meaninglessness and collapse of the simulation.

SAIC's Hong Luo and Joseph Baum together with Rainald Löhner have solved this demanding computational fluid dynamics problem in a novel way, applying a method never before used on a problem of this complexity. Rather than explicitly calculating the movement and properties of the entire multi-material flow, which would have been computationally expensive and unstable, the team focused on the interfaces between the different phases of materials. "We do not allow the materials to mix within individual cells of the grid. Pockets of liquid and gaseous water and explosive material are kept distinct by explicitly tracking the interfaces between them," explains Luo. "The bulk of the flow 'goes along for the ride,' which simplifies the computation while making it more robust."

The team specifically tested three variations of the Arbitrary Lagrangian Eulerian (ALE) method, which is typically used to analyze static bodies that interact with fluid. The team adapted the method for their highly volatile multi-material flow problem with excellent results from two of the three ALE schemes. The models achieved sharp resolution along the material interfaces and handled strong property and velocity discontinuities between materials. In addition to successfully modeling a series of underwater explosions, the methods also effectively simulated a supersonic missile over water. Subsequent research will predict damage on structures with more complex geometries, as virtual WMDs will eventually mirror their real-life counterparts.

"On the computation of multi-material flows using ALE formulation" appeared in Volume 194 of *Journal of Computational Physics*. This research was sponsored by the Defense Threat Reduction Agency.

For more information, contact Hong Luo at hong.luo@saic.com or Joseph Baum at joseph.d.baum@saic.com



Mapping hope for AFRICA

With the devastation wrought by Hurricanes Katrina and Rita in 2005, it's easy to forget that drought has long been a cause of widespread human misery.

One of the most insidious effects of drought has been famine, which may occur when hot, dry winds reduce soil moisture and water below the point where plants (and animals) can survive.

While droughts occur on all continents, the most severe ones in recent decades have been in Africa. Although you might have heard of long and devastating droughts in countries such as Ethiopia in the mid-1980s (which helped cause widespread famine and contributed to the deaths of more than a million people), even a relatively short dry spell of two to three weeks can significantly reduce crop yield.

This is especially problematic in sub-Saharan Africa because food security is often tied to the small farmer, and subsistence farming relies heavily on rain-fed agriculture. The bitter irony is that many of these regions in Africa also face intense rainfall, which likewise reduces crop productivity because topsoil is lost. (Plants generally concentrate their roots in, and obtain most of their nutrients from topsoil.)

However, excess rainfall – called runoff – may be used to irrigate crops if it's caught in ponds. In his ESTC Award-winning article, SAIC's Gabriel Senay (and co-author) presents a way to help assess runoff potential between regions for use as a water-management tool.

In fact, the authors developed water harvest index maps of Africa to aid regional planners in pond feasibility studies. The maps range from a simple

indicator of runoff distribution across Africa to the number of potential ponds per family – a small pond filled by runoff can provide about half the water of a half-hectare plot (enough water to turn potential catastrophe into a modest success.)

"These maps are believed to be the first of their kind for continental Africa," according to Senay. "Comparable maps have been produced for the contiguous United States by the NRCS [Natural Resources Conservation Service]."

In addition, the maps include average runoff depth by catchment area (a place set aside for collecting water which runs off the surface of the land), recommended watershed area for a small pond, and recommended pond depth.

"This study shows that a large part of food-insecure regions in Africa have sufficient amount of runoff that can be stored in small ponds for smoothing out the erratic patterns," according to Senay. "It is hoped that these maps will encourage regional planners to conduct further feasibility studies to pursue economically feasible pond-based, small-scale supplemental irrigation schemes."

The article by Senay and (co-author), "Developing Index Maps of Water-harvest Potential in Africa," appeared in *Applied Engineering in Agriculture*. (The study was conducted with financial contributions from the Famine Early Warning System Project of the U.S. Agency for International Development and a grant from the U.S. Department of Agriculture Foreign Agriculture Service Scientific Cooperation Research Program.)

For more information, contact Gabriel Senay at gabriel.b.senay@saic.com

War on terror

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computer and supporting devices used to record a person's features – iris, fingerprints and face recognition.

In the heat of battle, geo-location is needed – and needed quickly. Our Web-based PRISM application allows theater users, in various functional roles and at different echelons, to synchronize end-to-end intelligence requirements and intelligence, surveillance, and reconnaissance (ISR) collection support with current military operations and priorities. PRISM, which stands for “Planning tool for Resource Integration, Synchronization and Management,” was originally developed for the U.S. European Command. “It’s the product of a lot of hard work by a lot of brilliant people,” says SAIC’s Ron Baham, who has been instrumental in establishing PRISM.

“When it comes to the depth of knowledge around analysis and around support to operations, we’ve got to be one of the leaders in the nation and in the world,” Prior says, adding that a smart acquisition strategy and recent additions such as Presearch, IMAPS, and Object Sciences Corporation have added to SAIC’s capabilities.

From boots on the ground to eyes in the sky. SAIC also plays a key role in support of military space missions, says Roberto Vasquez, who runs SAIC’s DoD Space Operations.

For example, SAIC is a key provider of position, navigation and timing (PNT) services to the U.S. Air Force GPS Joint Program Office.

“SAIC is intimately involved in the development of strategies for acquiring, enhancing and sustaining GPS system-level capabilities,” Vasquez says. “We facilitate decision-making at the highest levels of the U.S. government on how GPS should be utilized and protected for the military, national defense, homeland security, transportation activities and commercial concerns.”

In addition, SAIC represents about 20 percent of the contractor workforce at NORAD-NORTHCOM, where we support the J2, J4, J5, J6, and J8 missions, he adds.

More than a high calling. For Prior, who has spent much of his 30-year career serving the intelligence community – including a stint early in his career as a professional staff member in Congress on the Permanent Select Committee on Intelligence – this is more than a business, it’s a “high calling.” And, in his case, it’s also a family affair.

“My wife was an Air Force signals intelligence officer; I was a Marine Corps intelligence officer (she likes to say that’s an oxymoron) and we met at Georgetown University at the security studies program,” Prior says. “Hopefully, our two daughters have dominant genes for the intel community.”

Prior heads up an impressive leadership team. In addition to Hazlewood, Thomas, and Vasquez, the leadership team includes Larry Cox, who manages the Intelligence & Information Solutions Business Unit; Stu Shea, who runs the Space and Geospatial Intelligence Business Unit; Phil Lacombe, who oversees the Integrated Security & Systems

Solutions Business Unit; Chief Technology Officer Andy Palowitch, who previously served as director of the CIA’s Central Intelligence Systems Engineering Center and the Systems Engineering and Analysis Office; and Sam Visner, a national security and intelligence expert who oversees business development efforts.

“We have this multi-generation model that works wonderfully at SAIC. You can get somebody with decades of intelligence community experience coupled with a young engineer bringing a solution that they’ve never thought of before,” Prior says. “And it’s the marriage of those generations and a commitment to accomplishing a mission that I think is a real competitive differentiator for SAIC.”

“I believe the heart and soul of what we do is knowing our customers and their missions better than anyone, understanding what they need to do going forward, taking good science and engineering, and bringing them solutions one job, one challenge at a time,” says Prior.

The future of global intelligence. Over the next 10 years, the U.S. faces global uncertainties and risks in a variety of venues, he adds.

“For example, will China be one of our best allies or will China be a threat in terms of what happens with Taiwan or Hong Kong or competition for global resources? I think there’s as much a chance that they will be a great ally as a great risk,” Prior says. “But that’s a classic dilemma facing the intelligence community as they support policy makers and decision makers. And, for every China there are another 20 issues.”

For the moment, the main focus is on fighting and winning the global war on terror.

“The one thing that’s always in the back of my mind is our employees overseas and making sure they are okay,” Prior says. “When you think of how important their mission is, what they’re doing for the nation and for the company, we really spend a lot of time on managing our operational risk and taking care of our people.”

For more information about SAIC’s intelligence capabilities, visit www.saic.com or contact Denise Dancy at denise.m.dancy@saic.com

TIGER

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In fact, the SAIC/Ibis team, a subcontractor to SAIC on TIGER, has delivered systems to the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) for detection and analysis of emerging infectious diseases and to the Department of Homeland Security for microbial forensics. The team also plans to soon deliver a TIGER biosensor system to the Naval Health Research Center in San Diego for respiratory pathogen surveillance. Systems are also slated for delivery to the Centers for Disease Control and Prevention for epidemiological surveillance and to the National Institute for Allergy and Infectious Disease (NIAID) for detection of viral and bacterial contaminants of vaccines.

For more information, contact Duane Knize at duane.j.knize@saic.com

‘National treasures’

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to help secure critical data stored on a computer’s hard drive without making the computer too slow to adequately serve the users. IME is a NSA-certified Type I hardware solution that can be integrated into a standard desktop or laptop computer and provides transparent encryption of information stored on the hard drive.

Clark also serves as SAIC program manager for an important U.S. Air Force project to help develop reprogrammable, next-generation cryptographic equipment for the space ground applications in satellite systems.

Expertise in geospatial information. SAIC has an outstanding reputation in developing geospatial and imagery processing systems for the defense community and civilian agencies thanks, in large part, to people like Clifford Greve, director of imagery and remote sensing systems.

He also serves as program manager on the National Geospatial-Intelligence Agency Global Geospatial Intelligence contract, the U.S. Geological Survey Cartographic Services II contract, and National Oceanographic and Atmospheric Administration Shoreline Mapping contracts.

An internationally recognized expert in photogrammetry, Greve is a past president of the American Society for Photogrammetry and Remote Sensing. Photogrammetry is the art, science, and technology of obtaining reliable information about physical objects and the environment, through processes of recording, measuring, and interpreting images and patterns of electromagnetic radiant energy and other phenomena.

“The biggest challenge for the entire mapping community is the need for more and more timely images at higher and higher resolution,” says Greve, who joined SAIC in 1995. “Technology has helped, but a lot of it is still people looking at images and extracting features.”

Reshaping how ISR data is analyzed. To successfully fight the asymmetrical global war on terrorism, warfighters need horizontal and vertical intelligence integration that links national, theater, and tactical users. Warfighters must know collectively what each sensor reveals individually.

As SAIC operations manager for the U.S. Army’s Joint Intelligence Operations Capability-Iraq (JIOC-I), Russell Richardson and his team are helping to address those challenges. JIOC-I is a joint Web-based system that allows analysts to extract and interpret data easier and faster.

Richardson is the former president and CEO of Object Sciences Corporation, which was recently acquired by SAIC and has been at the forefront of providing technology solutions to help reshape how intelligence, surveillance and reconnaissance (ISR) information is processed and analyzed.

JIOC-I is based on a large interactive data repository that allows analysts to pull in information from a wide range of sources, uses XML tagging to make the data easier to search, and adds visualization tools to make it easier and more intuitive to interpret. The network is being extended further into the field by enabling soldiers to access intelligence data via PDAs.

Military health care

CONTINUED FROM BACK COVER

This support consists of comprehensive software engineering and integration, system engineering, configuration and data management, logistical operations and maintenance, site operations and subject matter expertise for both the DoD’s original electronic health record system – the SAIC-developed Composite Health Care System (CHCS) – and its emerging health record system, AHLTA (formerly CHCS II). Our support also covers clinical information systems, and DoD/Veterans Affairs initiatives to share medical resources and records.

In addition to providing helpdesk support, as well as onsite support for 106 military treatment facilities and their 535 remote clinics worldwide, SAIC also provides 24x7 remote system monitoring via our North American Integrated Services Management Center (NAISMC) in Oak Ridge, Tennessee.

“The support SAIC has provided CHCS users has instilled them with great confidence in our clinical systems, and the number of patients who have been assisted by the system SAIC produced and maintains is now truly countless,” said Colonel Vic Eilenfield, program manager of the MHS Clinical Information Technology Program Office.

SAIC will continue to support the MHS in moving to the emerging AHLTA system which incorporates a centralized clinical data repository providing longitudinal (lifetime) health information. AHLTA builds on the functionality, usability and efficiency of CHCS and its reliability and availability to deliver critical information to health care providers when it’s needed most.



A LONG LEGACY OF SUPPORTING

military health care



Extending an 18-year record of service to the Military Health System (MHS), SAIC's Health Solutions Business Unit recently won a contract to continue to provide a wide range of information technology in support of more than 9 million active duty and retired military personnel and their families.

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SAIC SUPPORTS HEALTH CARE DELIVERY TO AMERICA'S MILITARY

1988

SAIC surprises the health care industry by winning an eight-year, billion-dollar contract to install a computerized medical information system at DoD medical facilities worldwide. Called the Composite Health Care System (CHCS), this groundbreaking system will become the foundation for the Military Health System.

1996

SAIC delivers CHCS on schedule, on cost, and with greater quantified benefits than promised. Deployed worldwide, the system serves more than 500 Army, Navy, and Air Force hospitals and clinics and offers the benefits of electronic health records.

The General Accounting Office (GAO) issues a positive report to the U.S. Congress calling the worldwide deployment of CHCS "a major achievement, given the complexity of the system and the number of facilities involved."

1997

SAIC helps develop another groundbreaking capability for the Military Health System: transferring electronic patient records from U.S. hospitals to on-site attending physicians in the jungles of Thailand.

1998

CHCS continues to draw accolades and win awards. *Government Executive* magazine writes, "In a government where massive information technology projects routinely fail... CHCS stands out as a shining success."

2005

Keesler AFB in Biloxi, MS, suffers a direct hit from Hurricane Katrina, severely damaging its hospital. Determined to help hurricane-displaced patients, SAIC staff bring the legacy CHCS back online and enable the option to transfer medical records of displaced patients from Keesler to other military hospitals outside the stricken area. SAIC then uses data from the new AHLTA system (formerly called CHCS II) to help retrieve electronic medical records on Keesler in-patients who were evacuated to military medical centers in Texas.

Shortly before Katrina strikes, SAIC wins a 3-year contract to continue sustainment support to the Military Health System.

2003-4

During the Iraqi conflict, SAIC staff onboard the USNS *Comfort* manage the hospital information system, helping doctors and nurses access important medical data as they treat wounded combatants.

After the December 26, 2004 tsunami strikes South Asia, our IT staff provide similar support to help the doctors and nurses onboard the USNS *Mercy* treat tsunami victims.

2001

Following the World Trade Center attacks, the USNS *Comfort* hospital ship docks off New York City to provide support to first responders. SAIC IT staff – and the CHCS system – are onboard to help.