The Siren

A First Responders Group (FRG) Newsletter March/April 2017

Working Collaboratively to Help Improve Disaster Relief Efforts

The August 2016 earthquake in central Italy that claimed nearly 300 lives holds important lessons for the preparedness and response community. The small mountain town of Amatrice was nearly isolated in the days that followed when aftershocks from the 6.2-magnitude earthquake continued to rock the region, inflicting heavy damage on access roads and bridges that were critical to relief efforts.

The isolation of the town of Amatrice highlights the importance of readiness and a coordinated global preparedness plan. Disasters affect the residents at their epicenter and drastically impact an entire region. Villages, towns, cities and even adjacent countries are often called on to respond to the plight of their afflicted neighbors. Adapting to the difficult circumstances and challenges following an emergency will help build more resilient communities by enabling neighboring communities to help one another.

This is the central issue that has FRG partnering with the Central United States Earthquake Consortium (CUSEC). Established in 1983 and funded by the Federal Emergency Management Agency (FEMA), CUSEC seeks to reduce deaths, injuries, property damage and economic losses resulting from earthquakes in the central United States. CUSEC is a partnership of eight member states and 10 associate states and the federal government. CUSEC provides dynamic support to multi-state response and recovery planning; resource acquisition; public education and awareness; mitigation; and research associated with earthquake preparedness. While CUSEC's priority is earthquake preparedness, the planning and mitigation strategies developed are applicable in any crisis.

FRG and CUSEC are currently identifying the operational gaps and information needs that emergency managers face and defining the data sources that are indispensable to them. Recognizing that communities differ in the way they manage information, the goal is to build a tool or system that will seamlessly share the vital information necessary for recovery. The critical information will be aggregated and displayed for emergency managers. Sharing resources such as power, transportation or weather information, for example, will help emergency managers to make informed decisions when allocating resources. FRG and CUSEC are currently discussing a five-year plan for information sharing.

This effort will eventually shape how agencies mitigate local emergencies in the future. Since eliminating emergencies is not an option, planning on how to contain them and minimize their impact and save lives will be a top priority for FRG and CUSEC.

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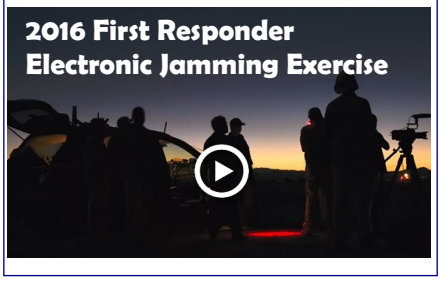
Video Spotlight



View more videos on the FRG Video Page

Homeland Security
Science and Technology

FRG in the News

S&T, New Orleans Teamed to Conduct Flood Relief Planning Exercise

DHS S&T, Partners Develop New Support Tool for Impostor Detection Training

Biometrics Report Notes Strides Made for Law Enforcement

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Eye Tracking Technology Enhances Imposter Detection Training

Helping Houston's Public Safety Agencies Bring Their 'A' Game to the Super Bowl

Encryption Requirements to Change P25 CAP Approved Equipment List

Mutual Aid Resource Planning Tool Improves Community Preparedness

NUSTL OpEx

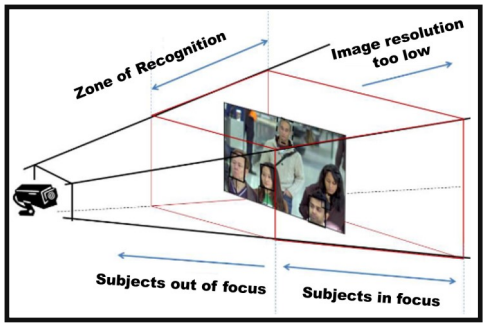
Biometrics Report Highlights the Technological Strides Made for Law Enforcement

Check out the S&T Newsroom for more Responder News!

Helping Agencies Find the Right Facial Recognition Tools for their Needs

With increasing incidents of crime and threats across the country, first responders have a growing need for the right tools and re-sources to help them protect our nation and solve crimes faster and more effectively. Facial recognition tools are one of the ways law enforcement and security personnel can significantly enhance the ability to quickly find and apprehend individuals such as wanted criminals on watch lists. These applications enable end users to identify individuals by analyzing still or video camera images against countless images and footage in a database.

Due to the numerous facial recognition applications available on the market, selecting the right tool for an agency can be a daunting task. To assist agencies with determining which of these tools would best fit their individual needs and requirements, FRG's Patty Wolfhope began collaborating with the National Institute of Standards and Technology (NIST) to conduct an unbiased evaluation of these applications.



This evaluation tested the speed and accuracy of facial recognition systems to report on their capabilities in operationally realistic environments. To examine a number of realistic scenarios with moving persons, the operational use cases consisted of crowded spaces (e.g., an airport), queuing lines and egress areas.

Additionally, the evaluation assessed the facial recognition results based on camera placement within a facility, which is valuable information as the performance of each system is highly dependent on the infrastructure and camera placement.

The summary and findings from this evaluation were recently released in a technical report: Face In Video Evaluation (FIVE) Face Recognition of Non-Cooperative Subjects. Wolfhope is also currently working on a simplified operational guide for end users based on the findings of the this report.

Applying Our Expertise to a Different Cause: Easter Egg Hunts

Last month, FRG's Response and Defeat Operations Support (REDOPS)—a group that enables bomb technicians to share best practices for safer and more effective improvised explosive device (IED) response operations—convened in Fairfax, Virginia for an entirely different reason: Easter egg hunts.

The team participated in the International Association of Bomb Technicians and Investigators' (IABTI) "The Rachel Project." This project assembles and donates "beeping eggs" so that visually impaired children can take part in an Easter tradition that millions of kids get to enjoy every year.

Volunteers from DHS along with members from the Department of Defense, Fairfax Bomb Squad, Washington Area Metro Transit Police Bomb Squad, the FBI, Army, Navy, Air Force and Marines called upon their expertise in electronic circuitry to assemble the beeping eggs. This is the second year REDOPS has participated, completing 330 electronic eggs that were donated to schools for the blind in Baltimore, Philadelphia and Paoli, Pennsylvania.

The Rachel Project began in 2005 when an IABTI member wanted to help his visually-impaired daughter participate in a church Easter egg hunt. The project helps teach blind children to locate and retrieve items, and gives their families a way to enjoy the event together, with sighted siblings wearing blindfolds.

Industry Day Brings Potential Partners Together to Address First Responder Technology Needs

On March 23, 2017, FRG held an industry day in Washington, D.C. to announce FRG's Broad Agency Announcement (BAA) solicitation, which opened a few weeks later. The goal: bring together potential partners from the private sector, academia, laboratories and the innovation community to learn about first responder capability gaps and begin to consider how they might work with us to develop technologies that ensure that responders are more efficient and better protected.

More than 300 potential partners joined in person, via webinar, and via live Periscope stream to watch presentations from FRG's Greg Price, Bill Stout, Milt Nenneman, Angela Ervin, Kimberli Jones-Holt and Bill Deso, as well as representatives from the DHS S&T contracts office. Attendees learned about the 10 BAA topic areas and scheduled one-on-one meetings with the program managers to gain a better understanding of the responders' technology needs.

"We're looking for innovative companies that are able to rapidly develop technologies—the best of the best," said Price in the event announcement. "We're on a twelve to eighteen month development cycle, so we need companies that are inspired, that have bright thoughts, bright people, and can develop the types of technologies we're looking for."

As he addressed event attendees, he stressed that, "Our goal is to transition technology—we want to get technology into our first responders' hands."

Responders of all disciplines provided direct feedback about their capability gaps for this year's BAA topics—including energy-harvesting smart fabric, emergency vehicle navigation and roadway alerting systems. Fifteen of these FRG responder stakeholders were in attendance at the event to share their firsthand perspectives on the topic areas and how the new R&D efforts will ultimately serve them.

"I wanted to take a moment to thank FRG staff for the invitation to be a part of the first Pre-Solicitation Industry Day," said Captain Randal Bittinger of the Fairfax County (Virginia) Fire and Rescue Department. "This was a unique opportunity to meet with industry leaders to discuss, share operational knowledge, and ultimately help to develop new tools and systems."

"As a member of a large combination fire and rescue department, I immediately saw the endless possibilities for future developments to help career and volunteer fire departments, police, and search and rescue teams improve the safety, speed, and capabilities to those they serve," Bittinger continued.

FRG Makes an Impact at the International Wireless Communications Expo

The International Wireless Communications Expo (IWCE) hosts approximately 400 public and private sector exhibitors and draws in a network of more than 7,000 peers from a diverse group of communications technology professionals including government, public safety, utility, transportation and business enterprise. Due to the audiences this event attracts, it provides a great opportunity for FRG to meet other attendees, share ideas and learn what is new in the world of innovative wireless communications technologies.

This year's event was held March 27-31, 2017, in Las Vegas, Nevada. FRG hosted four well-attended sessions (with the Town Hall session seeing upwards of 60 attendees) on topics such as the datacasting technology, Project 25 Compliance Assessment (P25 CAP), managing video systems and the Next Generation First Responder. These sessions generated a lot of interest, often resulting in continued discussions at the exhibit booth. Multiple program activities also occurred in conjunction with our presence at the show, including the P25 CAP quarterly Advisory Panel Meeting.

The P25 CAP program announced updated encryption requirements ahead of the show, resulting in this being a popular topic this year, with manufacturers making verbal commitments to bring their products into compliance right away by providing end users with AES encryption for free. Next steps are to continue to work with all P25 manufacturers to get their equipment fully compliant.

Our technology partner for datacasting, SpectraRep, provided tech demonstrations at the exhibit booth, as did our partners from the University of Central Florida on modeling and simulation training. With more than 225 booth visitors, the tech demos proved to be very successful, resulting in many enhanced stakeholder relationships. FRG's team executed on a thoughtful technology scouting plan designed to help S&T build industry connections to identify and deploy befitting tech solutions. This involved engaging target industry and aligning industry to FRG's programmatic technology needs. This lends itself to how FRG will continue to think about showcasing technologies that demonstrate impact and relevance with stakeholder requirements. All in all, FRG's presence at IWCE was fruitful. Industry representatives and responders alike acknowledged FRG's work as important and conveyed appreciation around it's commitment to continuously work towards understanding and resolving capability gaps and technology requirements.

Improving Hurricane Planning and Evacuation Processes

As another hurricane season begins, FRG remains committed to building resilient and robust communities that not only bounce back after a crisis, but bounce forward. Towards this end, FRG identified the need for a comprehensive hurricane decision platform that encompassed all phases of planning and evacuations. In collaboration with the Federal Emergency Management Agency (FEMA) via the National Hurricane Program (NHP) Technology Modernization initiative, FRG worked to streamline the currently available HURREVAC storm tracking and decision platform. The result of this collaboration is the HURREVAC-eXtended (HV-X) platform which integrates forecast and planning data into one interface to provide Emergency Managers (EMs) with the decision support tools they need.

"Timely access to information can help improve a community's response to a hurricane," said FRG Program manager Darren Wilson. "By prioritizing an EMs ability to review various sources of information more efficiently, HV-X gives EMs more pertinent data to support their recommendations and decision making."

The ultimate goal of modernizing the NHP is to provide EMs a platform like HV-X that enables timely and accurate evacuation decisions. FRG partnered with the Massachusetts Institute of Technology Lincoln Laboratory to develop "cascading" interfaces that can be layered onto one another, allowing EMs to better see and use a variety of sources like forecasts, storm tracking, satellite and radar images, etc. when making decisions. Data analytics are used to provide impact assessments based on the EMs local evacuation zones. In addition, embedded training capabilities using simulated storm tracks and forecasts provide guidance and feedback, letting EMs improve preparedness.

The new ability to layer disparate information sources gives EMs a better operational picture. In the case of Hurricane Matthew, one of the first operational uses of HV-X, flooding was so widespread several feet of standing water was reported as far as 40 miles away from the storm's center. HV-X incorporates flood reports and shelter alerts that will allow EMs to make the best recommendations for evacuation plans. Traffic forecasting tools incorporated in HV-X like S&T's Real Time Evacuation Planning Model (RtePM) estimates the time required to evacuate a specific area. The ability for EMs to properly assess how long it can take people to evacuate to a safe, dry area could ultimately save lives.

End-user input was crucial in developing HV-X. S&T conducted more than 50 interviews with federal, state, and local stakeholders to define what would be most beneficial on a platform. As development continued, DHS S&T elicited further feedback through nationwide user group meetings of hurricane emergency managers from FEMA and the National Hurricane Center. A beta version of HV-X was released in July 2016, with 10 updates since. More than 200 registered users of the current functional prototype HV-X will also provide suggestions for improvements to further refine the platform. A fully operational system is scheduled to go live to the operational community in May 2018.

"The new evolution to HURREVAC will be successful in real operations across hurricane prone regions because DHS S&T listened to what emergency managers needed, first and foremost," said FEMA Director of Planning and Exercises, Response Directorate, Josh Dozor. "This program has taken the knowledge of subject matter experts and created a platform that will help our operators face the difficult decisions needed to save lives."

HV-X is designed for constant upgrading from third-party developers and operates as an open-source solution that invites innovation and can be used on tablets, smartphones or non-PC interfaces.

"Partnering with S&T has resulted in the identification and development of innovative solutions to address the National Hurricane Program's technology gaps," said Program Manager for the National Hurricane Program in FEMA Headquarters Response Directorate, Christopher Penney. "Moving forward we will have an increased capability to efficiently and effectively support the critical hurricane evacuation and response decisions made by our stakeholders in the emergency management community."

Version 1.0 of HVX was officially transitioned to FEMA and U.S .Army Corps of Engineers on May 1, 2017 and training sessions on HVX was held at the 31st Annual Florida Governor's Hurricane Conference on May 17, 2017 in West Palm Beach, Florida.

HV-X will help EMs make the best decisions in response to a Hurricane. By being able to look at multiple sources of information and have a better understanding of a storm's predicted or sustained impact, EMs can make faster and more accurate decisions.

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