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A family business: General Funk's Army legacy

Madison Bonzo

Every American Soldier has a story. A reason they chose to raise their right hand and continue to put on the jersey of the United States Army every day. The uniform each Soldier wears represents the cloth of the nation, a legacy stitched together by generations of Soldiers and their Families.

During the inaugural Army National Hiring Days event, June 30 to July 2, the U.S. Army is looking to hire the next generation of leaders to begin their own Army legacy. While most Soldier stories are created differently, each is woven together for one common goal – to defend and protect this nation and its people.

For over 30 years, Gen. Paul E. Funk II has continued to serve the American people, in numerous military assignments and duty locations. From taking command of the 1st Infantry Division at Fort Riley, Kansas, and the Combined Joint Forces Land Component Command in Iraq to leading the fight against ISIS as the fourth commander of the Combined Joint Task Force Operation Inherent Resolve, he has been raised to uphold the Army Values in every aspect of life.

"The U.S. Army is the greatest team ever assembled," he said. Funk relates his desire to serve back to the words listed in one of his Fundamentals, #40; leave the jersey in a better place every day.

As the 17th commanding general of the U.S. Army Training and Doctrine Command, he is currently responsible for 32 Army schools, under 10 Centers of Excellence, which recruit, train, and educate more than 500,000 Soldiers and

service members annually.
When it comes to serving



During Desert Shield/Desert Storm, then Capt. Paul E. Funk II poses with his father, Maj. Gen. Paul E. Funk (left) and father-in-law, Lt. Gen. John J. Yeosock (right) during Operation Desert Shield/Desert Storm. (Courtesy Photo)

the nation, Funk takes the term "following in his father's footsteps" to a whole new level. He has created a legacy for himself, while continuing to honor those established by his father and father-in-law. "This is our family business, my dad is a retired general officer and my father-in-law was too. The Army is our Family," he said

Watching his father's Army legacy unfold is one of the main reasons why he is a Soldier today.

"At 10 years old, I saw my dad flying a Cobra Helicopter and I thought that was the coolest thing ever," Funk explained. As a high school student, he observed his father, become the commander of 5th Battalion, 33rd Armor at Fort Knox, Kentucky. There he saw firsthand how his father demonstrated teamwork, dedication, and commitment to duty.

Those lessons of teamwork proved to be instrumental during Operation Desert Storm where he was able to work alongside his father, Maj. Gen. Paul E. Funk and father-in-law, Lt. Gen. John J. Yeosock.

After many command positions, his father retired as commander of 3rd Armored Division and Fort Hood in the mid-1990s. Coincidentally, prior to coming to TRADOC, Funk held the same position at Fort Hood, Texas, making this father and son duo the first in the corps' history to have com-

manded the unit.

Alongside many service members is a spouse also dedicating their life to helping those in uniform and their loved ones. With more than 30 years of service behind them, Funk's spouse has also found her place in the Army giving back to service families.

"My wife continues to help others who are a part of this extended family, supporting Soldiers and their respective families," he said. Dr. Beth Funk uses her servant heart to support others, a passion initially parked through her father's legacy. Lt. Gen. Yeosock retired as commander of the Third United States Army during Operations Desert Shield and Desert Storm. Known to many as a humble, servant leader, Yeosock brought honor the U.S. Army through his legacy of service.

Funk's legacy illustrates a story not only of his own selfless service but also the diligence of his family. Originally inspired by his father to take the oath, the people have been the driving force behind his continued decades of service. A leader, Soldier, and father himself, Funk believes in what the Army can do for its people.

It is never too late to start your own Army legacy. For more information about Army National Hiring Days or to join the United States Army, visit the following link https://goarmy.com/ hiringdays.

DOD, base officials closely monitoring COVID-19 situation

Jim Garamone Defense.gov

Defense and local military officials are closely watching the COVID-19 situation and will make adjustments as needed, Defense Department officials told reporters at a Pentagon news conference.

Thomas McCaffery, the assistant secretary of defense for health affairs, said during Wednesday's briefing that along with an uptick in civilian communities, military COVID-19 cases have risen in Florida, Texas, Arizona and some parts of California.

DOD is doing more testing, McCaffery said, which is revealing service members who are asymptomatic — that is, not displaying signs of the sickness. Still, he



Director of Washington Headquarters Services Thomas Muir, answers questions during press briefing July 1, 2020 in the Pentagon Briefing Room to provide an update on the department's COVID-19 guidance. (Photo by Marv Lynchard)

added, the problem is manageable. Throughout the Military Health System's treatment facilities, 57 patients are tied to COVID-19, he said.

The department stands ready to advise local commanders, but commanders must adhere to clear metrics in relaxing controls: a
14-day downward trend
for flu-like and COVIDlike symptoms, and a
14-day downward trend
for new cases, Thomas
Muir, the director of
Washington Headquarters Services, said.
Commanders also must
evaluate the medical
facilities in their area,

base or region and consider the availability of personal protective equipment and other mitigation factors.

So far, the uptick has not affected the so-called "green list" of bases where travel restrictions have been lifted. "Our policy is tiered," said Lernes Hebert, the deputy assistant secretary of defense for military personnel. "So, the state has to first meet the 'gating criteria,' but once they meet it, then we devolve down to the installation

assessments."
For example, he said,
Texas met the requirement. But the state is
large, and the outbreak
is in different stages in
different parts of the
state. "Installations do
their assessments based

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Virtual recruiting event eyes diverse talent

Thomas Brading Army News Service

The Army is open for business, said the force's top recruiting and training general, and is seeking-out thousands of talented, diverse recruits to fill its ranks during a three-day hiring spree designed to offset COVID-19 hurdles.

The Army National Hiring Days, an ambitious three-day hiring windfall looking to draw more than 10,000 recruits, launched Tuesday. The first ever event is designed to redress end-strength setbacks caused by the COVID-19 pandemic after much of the Army paused earlier this year, said Gen. Paul E. Funk II, the commanding officer of the Army Training and Doctrine Command.

But keep in mind, "TRADOC never closed," Funk said, regarding the recruiting setbacks. "We paused to set conditions, thicken medical capabilities, and then we continued mission."

Slated from June 30 through July 2, the cyber heavy-event plans to bring in a variety of talent from all backgrounds who "broadly represent the diverse nation the Army serves," Funk said, during a webinar hosted by the Association of the U.S Army Tuesday.

"The idea behind [Army National Hiring Days is] to get people excited to wear the

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WEEKEND WEATHER

Friday

High: 64F.

Scattered showers.



Saturday



Partly sunny. High: 67F.



Scattered showers. High: 69F.

IN BRIEF

When the pandemic hit in March, Capt. Jacob Henry and his unit were at the National Training Center in the Mojave Desert. Upon their return to Seattle, the world was a different place.

Read more on page 5.

Nutrition Corner: Nutrition 101

Did you know that not all red meat is bad? Fatty cuts of red meat are known to be higher in saturated fat and calories so health conscious individuals often avoid them. Truth is red meats actually pack a punch in the iron department along with turkey, chicken, pork and fish. As it turns out, iron is the most common nutritional deficiency in the United States so it is important to eat a balanced diet and include low fat sources of iron daily. Iron plays a vital role in making hemoglobin, which carries oxygen from your lungs to your body tissues. To increase your daily intake, try to choose lean cuts of meats such as sirloin, 93 percent lean ground beef, lean ground turkey, skinless chicken and pork chops. For beef to be considered lean, it must have 10 grams or less of total fat, 4.5 grams or

less of saturated fat and 95 milligrams of cholesterol or less per every 3.5 ounce serving, about the size of a deck of cards.

There are also plenty of plant based iron sources, also known as nonheme iron sources. Although the body does not absorb the iron in the plant based sources as well as it does for the meat based sources, every little bit helps increase your daily iron intake and many plant based sources have other nutrients such as fiber and antioxidants. Some sources of nonheme iron are pinto and kidney beans, spinach and other dark green leafy vegetables, fortified breakfast cereals, enriched rice, and whole grain and enriched breads. Having a source of vitamin C with the nonheme sources can help with absorption so try adding some vitamin C containing foods to your

next spinach salad-mandarin oranges, peppers, broccoli and tomatoes. Always be sure to include a variety of iron containing foods as part of your balanced diet. Regardless of how much iron you get in daily, see your doctor if you develop symptoms of iron deficiency anemia-fatigue, pale skin and fingernails, weakness, dizziness, headache, and/or an inflamed tongue.

Featured Food: Sirloin Steak. A 3½ ounce portion of sirloin steak (with existing fat trimmed) has only 190 calories and 6.5 g of fat and provides 2 mg of iron. Like all steaks, this is a very versatile food and the options are endless!

Recipe Spotlight: Cumin Beef Skewers with Tahini Cauliflower

INGREDIENTS:

2 crushed garlic cloves 1/4 cup lemon juice 1 tablespoon ground

cumin

1/4 cup olive oil

2 tablespoon chopped fresh parsley leaves 16 ounce sirloin steak

Pita bread to serve 1 diced tomato

 $^{1/4}$ cup fresh coriander leaves

Tahini cauliflower:

1/4 cup olive oil

1 teaspoon ground cumin

1 teaspoon sea salt 1 head cauliflower, cut

into small florets

¹/₂ cup tahini ¹/₄ lemon juice

1/4 boiling water

PREPARATION:

Step 1: Combine garlic, lemon juice, cumin, olive oil and parsley in a large bowl. Season with salt and pepper. Add beef and toss to coat. Thread beef onto eight metal skewers. Cover and marinate in the refrigerator for 20 minutes.

Step 2: To make tahini cauliflower, preheat oven to 400° F. Line a baking sheet with foil. Place oil, cumin and salt in large bowl. Stir well to combine then add cauliflower. Toss to coat. Place mixture in a single layer on prepared tray and bake for 25 minutes or until golden and tender.

Step 3: Heat a large nonstick frying pan over medium-high heat. Cook skewers, turning for four minutes for medium or until browned and cooked to your preference.

Step 4: Combine tahini, lemon juice and boiling water in heatproof bowl. Stir until smooth. Transfer cauliflower to a serving dish. Drizzle with tahini dressing. Serve skewers with cauliflower, pita bread and diced tomatoes. Sprinkle with coriander.

How to properly dispose of worn-out US flags

Katie Lange Defense.gov

Many Americans proudly fly the U.S. flag at their homes and places of work, but what do you do with it when it's old and ratty and you're ready for a new one? Don't just throw it in the trash like any other old item — that's considered disrespectful.

Just as there's etiquette for displaying Old Glory, there's also etiquette for disposing of flags in a dignified manner.

Flag Retirement Ceremonies

Many state and county government offices and Veterans of Foreign Wars posts have flag disposal boxes outside of their buildings. Police stations also collect them. Once the disposal boxes are full, various organizations such as American Legions, VFWs and the Girl Scouts and Boy Scouts collect the flags and hold flag retirement ceremonies.

Rules on how to properly fly the flag were established in June 1923, when the National Flag Conference met in Washington. Its members created the Flag Code, which states that "the flag represents a living country and is itself considered a living thing."

The American Legion

passed a resolution about flag retirement ceremonies in 1937, and they've been an important ritual ever since. According to the resolution, "The approved method of disposing of unserviceable flags has long been that they be destroyed by burning."

The U.S. flag is considered such a sacred symbol that burning it in an undignified manner constitutes desecration. That's why the ceremonies are held in a specific manner.

Ceremony Specifics

Every year on June 14, Americans celebrate Flag Day. Not surprisingly, it's considered the most appropriate day to hold flag disposal ceremonies, which are often held at night.

During an American Legion ceremony, participants stand aligned in two parallel rows about 20 feet apart, facing each other. A



Spc. Pablo Melendez, a field artillery firefinder operator with the 82nd Airborne Division Artillery, folds an American Flag at Fort Bragg, North Carolina, on June 11, as part of a Flag Day demonstration. (Photo by Sgt. Hubert Delany)

small fire burns beyond the rows of members, opposite the Legion commander.

The flags that are no longer serviceable are presented to Legion commanders, who inspect them to make sure they should, in fact, be discarded. When it's agreed upon that they've reached their current worn state due to proper service of tribute, memory and love, a color guard presents the colors and a chaplain offers

As the crowd salutes, the flag detail dips the retired flags into kerosene and puts them on a rack over the fire. A bugler sounds "To the Colors."

Other Methods

of Disposal
Flags don't always have
to be disposed of with such
pomp and circumstance.
If you can't drop yours off
with one of the aforementioned groups, you can do
your own small ceremony

— as long as it's still held in a dignified manner.

According to the VFW, you first need to fold the flag in its customary manner. Check out the video below if you don't know how.

When you start your fire, make sure it's big enough to fully burn the flag before you put the folded flag on it. Next, salute the flag and say the Pledge of Allegiance or hold a moment of silence.

Once the flag has been fully consumed, make sure to safely extinguish the fire — and of course, make sure you're conforming to local and state fire codes and ordinances before doing any of this!

Other veterans service organizations say people can also bury the folded flag in a dignified box, or recycle them — an option that's common for flags made of synthetic or nylon material that can be hazardous if burned. Some groups, including the nonprofit Stars For Our Troops, carefully cut embroidered stars out of the flags and give them to veterans with a note that reminds them that their service won't be forgotten.

MEDDAC Minute

Important Phone Numbers

Emergency: 911 **24 Hour Nurse Advice Line:** 1-800-874-2273 Opt. 1

Appointment Line: 361-4000 Behavioral Health: 361-6059 Benefits Advisor: 361-5656 Immunizations: 361-5456 Information Desk: 361-5172 Patient Advocate: 361-5291 Pharmacy Refills: 361-5803 Tricare On-Line: www.tricare-

online.com **Health Net:** www.tricare-west.

com, 1-844-8676-9378

Over The Counter Medications

Bassett Army Community Hospital Pharmacy offers beneficiaries the ability to receive free over the counter medications. Items such as fever/pain reducers, antibiotic cream, cold and allergy remedies, lice treatment and vitamin D are available. Medicines are subject to availability and families are restricted to a maximum of four items per week. A full list of medications is available at the pharmacy.

Appointments From Home

In partnership with TRICARE, PM Pediatrics is offering virtual appointments for TRICARE beneficiaries from birth through 26 years old. Visit with a pediatrician using your smart phone, table or computer from anywhere. Common illness that can be treated are sprains and strains, respiratory infections, coughs, skin rashes, sinus infections and pink eye. Get started by downloading the PMP Anywhere app or by visiting pmpediatricsanywhere.com.

Specialist Available

Did you know you can see a specialist right here at Bassett urinary incontinence, overactive bladder, pelvic organ prolapse and fecal incontinence WITHOUT a referral from your PCM? Call 361-4000, option 4, option 1, option 1 to request an appointment with Dr. Christa Lewis.

Third Party Insurance

Do you have insurance other than TRICARE? Guaranteed no extra cost to the beneficiary, Bassett ACH is required to obtain a copy of private health insurance coverage from all non-active duty beneficiaries. To provide us with this information, beneficiaries will be asked to complete a DD FM 2569 annually.

Clean Out Your Medicine Cabinet

It's a great time to check your medicine cabinets for expired prescription and over the counter medications. A MedSafe box, located inside the main entrance of Bassett ACH across from the information desk, is in place to securely receive your expired or no longer needed medications.

COVID

Continued from page 1

on local travel restrictions, based on availability of health care and that sort of thing," Hebert said. "They then provide that to their military department secretary, who makes the decision whether or not to lift the travel restrictions."

The department does not want to do wholesale closings of states if it is not necessary, Hebert said.

DOD is already working with

those directing Operation Warp Speed — the government's effort to develop a COVID-19 vaccine — on when service members will receive the vaccine against coronavirus when it becomes available, McCaffery said. A lot that needs to happen, he cautioned, and he stressed that no one will get the vaccine before clinical trials prove its efficacy and safety.

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The Interior Military News Connection

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The Chaplain's Corner Comedy Hour with Mama Bear

Chaplain (Capt.) J. Daniel Roland
1st Battalion, 52nd
Aviation Regiment

As I prepared my family for the transition from my former duty station at Fort Carson, Colorado, to U.S. Army Garrison Alaska, Fort Wainwright, one of the aspects that continually fascinated and worried a few members of my family was the population of bears that inhabit the Alaskan forests.

I thought it would be a great thing to show my kids various animal documentaries on the wildlife that thrive up here. One video especially captivated them. One minute, it showed a female grizzly bear guiding her cubs along an Alaskan river searching for food, then in the next, the video showed her confronting a large male grizzly bear that presented a threat to her cubs.

My kids were thrilled by how violent and vicious that mama bear became. The video did a great job of catching the water droplets being kicked up by her paws and the saliva being flung out from her gaping jaws. It captured the hoarse bellows and growls as the two bears engaged in the short encounter. The male bear was surprised and wasn't expecting the all-out attack from this mad mama bear, and I didn't think badly of him for beating a hasty

retreat in the face of that unbridled fury.

My kids wanted to watch that part of the documentary over and over.

That brief but powerful encounter can illustrate a truth that Solomon wrote nearly 3,000 years ago. Proverbs 17:12 states: "Let a man meet a she-bear robbed of her cubs rather than a fool in his folly."

Today we live in a highly digitized and recorded world. Social media is full of people who are gaining massive "followings" and millions of subscribers because they are willing to do foolish things in front of an internet audience. Some of these folks call themselves "influenc-

ers" and believe that their popularity and fame is something substantial. However, many of them simply reinforce another proverb of Solomon that says "even a fool, who keeps silent is considered wise (Proverbs 17:28)."

Imagine an "influ-

encer" approaching Mama Grizzly with her cubs while recording his tourist adventure to Alaska. Such a video would be a gory, bloody and potentially a deadly event. We would want to censor that video and would feel badly about showing it to children. It would cause a lot of stress in the viewer's mind. However, Scripture clearly says it be would better to meet that bear, than



to get caught up in the folly of fools.

I definitely think that the Scriptures give us who are leaders, parents and friends something to think deeply about. What damage can foolishness do in an U.S. Army setting? Have lives ever been lost due to something that started out as a prank, or what someone thought was a

frivolous joke? Do we expand the influence of fools by not seeing the danger behind some of our entertainment choices?

All of these questions can be great discussion starters as we strive to live wisely and guide others safely. May God bless you and protect you from animal and human dangers this week!

Army selects countermeasures against drones

Thomas Brading Army News Service

The Army is leading a joint effort to align its counter-drone systems into a streamlined command and control architecture, officials said, enabling more "plug and play" technology on an increasingly joint battlefield.

All types of drone-zappers were assessed and evaluated on multiple criteria, said Maj. Gen. Sean A. Gainey, director of the Joint Counter-Small Unmanned Aircraft Systems office, or JCO, but the most prominent question remained: "Will it plug and play with emerging industry technologies?"

The Defense Department is bringing "an enterprise approach to a critical capability area, and providing the tools [needed] to enable U.S. forces to adapt when facing UAS threats," Gainey said. "Our goal is to align existing and future technology solutions to operational needs while applying resources more efficiently."

In November, the Army was tapped to be the executive agent for the Counter-Small Unmanned Aircraft System, or C-sUAS,



U.S. Army Sgt. Gage Stancell, right, looks through binoculars as Sgt. Gentry Squier describes where he saw a drone during an unmanned aerial system training exercise at Erbil Air Base in the Kurdistan Region of Iraq, April 24, 2020. (Photo by Spc. Angel Ruszkiewicz)

office to counter hostile drone systems. By January, when Gainey took command, the 60-person team started identifying and prioritizing joint gaps in readily-available sys-

By using a "system of systems approach," Gainey said, the C-sUAS office initially gauged 40 systems needed to primarily detect, access, and engage with enemy drones. That initial list whittled down to seven defense systems, and one streamlined command and control, or C2, system. The official list was released Thursday.

However, currently fielded anti-drone systems not listed won't be immediately scrapped. They will stay in use until they can be replaced with something from the approved list, Gainey said. "This method won't just

determine the selection of current systems today, but also future investments based on criteria such as effectiveness, usability, and integration."

The phased selection process for the chosen systems was measured on an array of criteria that focused on a system's ability to detect, track, and defeat threats along with their overall usability, sustainment, ease of integration, and relationship toward enduring solutions, Gainey said. The most important, however, was how the system operated on a C2 battlefield.

Armed with that criteria, the C-sUAS office worked with the Rapid Capabilities and Critical Technologies Office and put together a board represented by all the services, including the United States Special Operations Command.

The joint team came together and figured out which systems would be here for good, he said. Their final selections splintered into three target areas, including fixed and semi-fixed systems, mobile mounted systems, and handheld dismounted systems for troops on foot.

"Each service has each been assigned to sponsor one of those systems," Gainey said. "So as we move this forward as a joint approach, we'll coordinate the future upgrades of these systems and the contracting of these systems across the Joint Force."

One of the fixed or semi-fixed systems chosen was FS-LIDS, which is a

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TALENT

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cloth of our great nation and be part of something bigger than themselves," the fourstar general said.

As the campaign goes full throttle, just dubbing everyone a recruiter won't cut it, Funk said. The information space is filled with additional tools needed for troops to share their stories, he said, and will set the stage in how successful the Army National Hiring Days will be.

In mid-March, Army recruiters were forced to temporarily reduce the use of their brick-and-mortar recruiting stations to help steer clear of COVID-19. Since then, digital recruiting has stepped into the forefront of how end-strength goals are met. Things like video-messaging, tex-

ting, and social media have all helped design the framework needed to bring new troops on board, Funk said, especially during a global pandemic.

"That's how this generation gets its information," he said. "It's through Instagram, or Facebook, or Snapchat. It is the power of the nation and it's the power of ideas [that meets our goals]."

While the Army aims to ensure its recruiting techniques keep pace with technology, the force is also working to recruit a diverse force. Homing in on that talent means broadening where recruiters look, because, as Funk made a point to say, the Army isn't just a family business — "it's a people busi-

ness."

Attracting the best of the American people means making the Army a force where anyone of any background can succeed. During the webinar, the general touched on the Army's new initiative, "Project Inclusion" and how top leaders hope to eliminate racial disparity in the ranks.

First announced by the secretary of the Army and chief of staff of the Army last week, the initiative is meant to promote diversity and equity across the force to build a cohesive team.

Soldiers are our greatest ambassadors to the nation. They should "tell their Army story and share their experiences," Funk said. "I want Soldiers to talk about what it means to serve the nation," he said, "to be a part of an organization motivated to do what's right around the world. [The Army is] a merit-based profession and values-based organization, implementing

Leadership through, loyalty, duty, respect, selfless service, honor, integrity, and personal courage."

These aren't just buzzwords to the general, "they're what makes our Army great. It's because of the Soldiers who implement those values," he said. "I want people to reach out to young men and women looking for a little direction. We're looking for folks that are looking for a way to make a difference in their nation."

Army researchers take proactive approach to cybersecurity

U.S. Army CCDC Army Research Laboratory Public Affairs

Army researchers along with their academic partners are pioneering a novel cyber security framework that will thwart future attacks on military systems by changing network dynamics thus enhancing network modernization efforts.

Dr. Terrence Moore and Dr. Frederica Nelson from the U.S. Army Combat Capabilities Development Command's Army Research Laboratory, along with researchers from University of Queensland, Gwangju Institute of Science and Technology and Virginia Tech, developed a novel attack graph model to inform a moving target defense scheme, thereby better managing network vulnerabilities.

The team published their research in a paper, Attack Graph-based Moving Target Defense in Software-Defined Networks, in IEEE Xplore, a peer-reviewed journal.

This fundamental research addresses the Army Modernization Priorities for Network/C3I, as it contributes toward the vision of a network strategy that dynamically changes the network to manage performance and security.

"We have developed a new attack graph model, a three-tiered attack graph or "TAG," to better manage vulnerabilities at the network, remote and local/root levels," Moore said. "Attack graphs are used to model the paths, or network routes, component exploitation options, etc., an attacker



Army researchers have developed a novel cyber security framework to inform a moving target defense scheme that will allow for better management of network vulnerabilities. (Shutterstock image)

might take to achieve their objective of compromising a particular network resource such as a database."

The model, which is research funded by the CCDC International Technology Center-Pacific, leverages software defined network, or SDN, technology to implement a moving target defense, or MTD, framework that can provide a solution to determine how often each host's network configuration can be shuffled to provide adaptive, proactive and affordable security services.

"The TAG helps generate the attack paths that identify the critical components in the system," Moore said. "This identifies their probability of being exploited depending on their role in the network, i.e., the importance of the service they provide, and their influence on other system component roles, i.e., how they facilitate the delivery of services in the network. We then use that knowledge gained to inform the MTD

scheme in such a way that allows an administrator to control the overhead, which is the cost to implement and degradation of system performance, in managing the security."

rity."
MTD seeks to
thwart cyberattackers' traditional
planning and timing
advantages by frequently changing
the attack surface
(network or system
configurations) invalidating attacker's intelligence and wasting
their resources.

MTD is a proactive approach that is a radical departure from traditional security approaches. The typical approach is reactive waiting until a new attack method has occurred to identify their patterns and update operating systems and software with security patches to prevent future attacks using the same or similar method.

"The typical attack graph construction can ignore the forest for the trees," Moore said. "By separating the network, remote and local/root levels, our TAG approach simplifies this calculation conceptually and we further simplify the problem by considering a subset of the most vulnerable attack paths to critical resources."

Easing the burden of these computations is important since networks are not getting smaller or less complex, he said.

"Our TAG model enhances the traditional model by separating the vulnerabilities into remote and local vulnerabilities. which enables simpler handling of user versus root privilege to determine compromise probabilities for different attack paths," Moore said. "In addition, we introduce the concept of asset criticality, both roles and influence. to determine where to change the attack surface informed by the TAG generated paths."

The researchers stated that in order to provide highly cost-effective security services, the proposed approach focuses on shuffling network configurations (reassigning virtual IPs, randomizing packet header information and changing the application environment) of highly critical, vulnerable hosts that are identified by the TAG paths as potentially exploit-worthy or valuable targets by attackers.

"The MTD shuffling scheme selects a single host (computer or server) to change their configuration in every time interval," Moore said. "This host is selected at random based on the value of their asset criticality. The more important the host is, the more often it will be selected. That offers more protection to hosts with higher value.'

In addition, he said, the researchers allow the administrator to dynamically control the shuffling time interval to manage the security-performance tradeoff. This is necessary since each time a host configuration is shuffled there is a chance of service interruption.

This collaborative effort has produced MTD protocols, evaluation methodologies of the security and performance tradeoffs of general MTD schemes, application approaches to scalability and applicability to new domains such as in-vehicle network systems. It also adapts attack graph information to inform an MTD scheme.

MTD research has potentially broad applicability, Moore said

'Work in this area has been designed or tested for enterprise networks, Internet of Things-type networks, cyber-physical systems, SDNs, cloud services and vehicular networks," Moore said. "Continuing to demonstrate the applicability and utility of MTD to more network types, particularly tactical network environments, is of significant interest to the Army and the greater cyber security community."

There is also potential for connections with the laboratory's Internet of Battlefield Things Collaborative Research Alliance program.

As for the future of this research, the team is currently developing several machine learning approaches to incorporate into MTD, specifically in the context of in-vehicle networks.

It may be possible to incorporate these approaches into this attack-graph-informed approach or vice-versa, Moore said.

Factors that the research team will consider moving forward include the requirement of large amounts of data for training, and complexity and convergence time. From the MTD perspective, Moore said, these contribute to the defense cost.

"Studying this cost, as well as the effect on network performance/reliability due to the degradation from MTD actions, is just as important as studying the benefits from the security side," Moore said.

Securing Army systems in the current multi-domain environment is of critical importance to this team, Moore said, as they continue to collaborate to further mature this research until it is in the ever-evolving toolkit of American Soldiers.





Sharing keys to lead 'in an uncertain world'

Gary Sheftick Army News Service

When the pandemic hit in March, Capt. Jacob Henry and his unit were at the National Training Center in the Mojave Desert. Upon their return to Seattle, the world was a different place.

Seattle was a hot spot for COVID-19 in late March when Henry's unit, Headquarters and Headquarters Troop of 1st Squadron, 14th Cavalry, returned from NTC.

"I think there were 15 or so cases when we left," Henry said about the Seattle area. At NTC, Soldiers trained without their cellphones, so "we had no idea what was going on," he added.

Despite the uneasiness of not knowing what was happening with family members back home, Henry said his Soldiers were able to stay focused, finish the mission and get all 600 Soldiers in the squadron home safe.

"The way they handled themselves coming back to an uncertain world" was commendable, he said of his troops.

Henry is one of 28 company-grade officers and warrant officers from across the Army's three components selected for the Gen. Douglas MacArthur Leadership Award this year.

Henry is currently completing his second tour as a company commander. He first served as the squadron assistant S3 operations officer, then commanded A Troop of 1-14 Cavalry, and now he is the headquarters and headquarters troop commander for the squadron.

"It's a dance," he said about being an HHT commander and asking field-grade officers to clean their weapons or do other required tasks. "I'm a very good dancer after a year of this."

Henry was at NTC with the 1st Stryker Brigade Combat Team of the 2nd Infantry Division as many of the battalions were preparing for possible Pacific Pathway missions later this year. The 1-14 Cav is the reconnaissance, surveillance and target acquisition, or RSTA squadron of the brigade.

After graduating from the U.S. Military Academy in 2012, Henry spent three years with the 1st Battalion of the 66th Armor Regiment at Fort Carson, Colorado. He deployed twice with the battalion to the Middle East, first as a platoon leader, then as an executive officer.

The deployments were a "very formative experience," he said, because he was often dealing with different militaries and different customs. "It was one of the more impactful moments of my career," he added.

On his first deployment, his platoon was tasked with guarding an abandoned base in the Kuwaiti desert.

"We were in the

middle of nowhere," Henry said. He was 22 years old and in charge of a base. The 30 members of his platoon were at least half an hour away from the closest friendly forces, he said.

"That really hits you at a very young age, what it means to be in charge," he said about being responsible for the lives of his Soldiers.

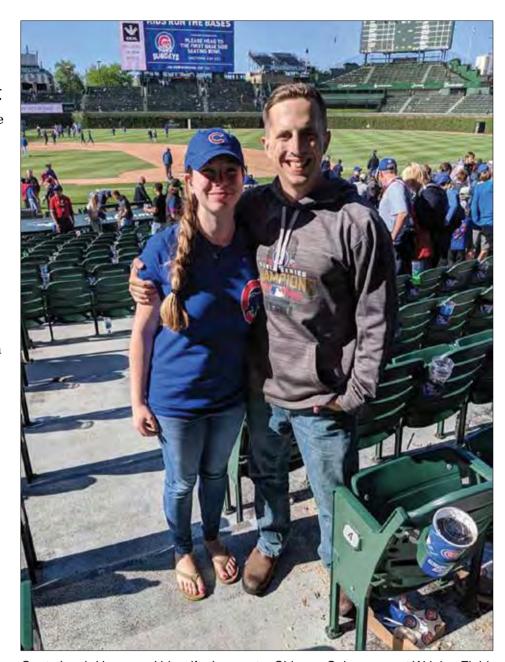
On his second deployment, his unit supported Operation Spartan Shield and sent teams to Jordan, Kuwait, Iraq and even Egypt.

He remembers one time being with a group of Soldiers trying to load an M88 armored recovery vehicle onto a C-5 Galaxy aircraft. They had no way of figuring where the center of balance was for the vehicle and the Air Force crew chief wasn't going to allow the 80-ton vehicle to be loaded onto the aircraft.

After waiting a couple of hours, the Soldiers came up with a creative solution, Henry said.

"We just built this giant 50-foot ramp and drove it up until the front half of the vehicle was teetering," he said. Then they marked the center of gravity.

"You'd be surprised how smart Soldiers can be," Henry said. "You give them enough leash and Soldiers will figure out a simple solution that can be done in any environment."



Capt. Jacob Henry and his wife Jenna at a Chicago Cubs game at Wrigley Field. (Courtesy photo)

The U.S. Army Forces Command MacArthur award finalists met at Fort Bragg, North Carolina, for three days in December.

"Those are some of the best leaders the Army has to offer, and I got to hang out with them for three days," Henry said of the award recipients.

"It opened my eyes to different types of units in the Army," he said, explaining that officers were there from every branch from infantry to CBRNE – chemical, biological, radiological, nuclear and explosive materials.

The Department of the Army MacArthur awards ceremony usually takes place at the Pentagon in late May or early June, but has been postponed this year until October due to COVID-19.

Henry said he hopes a second wave of the pandemic doesn't further delay the ceremony and other activities in the nation's capital. He hopes to attend George Washington University in the District of Columbia this fall to get a master's degree in history and then teach at West Point.



Exchange celebrates 125 years of service, support with deals

Carina DeCino

Army and Air Force Exchange Service Public Affairs

In 1895, the War Department issued General Order 46 directing commanders to establish an exchange at every post. Now, 125 years later, the Fort Wainwright Exchange and ShopMyExchange.com will commemorate the Army and Air Force Exchange Service's milestone anniversary with a host of sales.

From July 24 through July 30, military shoppers can save up to \$125 on select Sony cameras, iPad pro, Fitbit, Garmin and Samsung watches, Ashley furniture and select cribs, car seats and strollers. Additionally, select vacuums, sports nutrition items, Conair, Ace Goody Hair and Revlon products as well as school supplies will be 25 percent off.

On July 25, the Exchange's 125th anniversary, shoppers

will find 25 percent off all men's Nautica, Columbia and Carhartt apparel, all women's Lucky Brand apparel, all handbags and wallets to include Coach Michael Kors and Vera Bradley as well as all Oakley sunglasses. In the food court, all combo meals will be discounted \$1.25.

"Offering these deals to our patrons is a way to thank the military family for everything they do for our country," said Fort Wainwright Exchange general manager Gloria Sylvia. "As we have done for 125 years, we will continue to go where Soldiers and Airmen go to support them and their families wherever they are called to serve."

Honorably discharged veterans can take advantage of these specials online at ShopMyExchange.com, while all veterans with service-connected disabilities can shop in-store at Exchanges worldwide.

First-of-its-kind Army model expands military fuel options

U.S. Army CCDC Army Research Laboratory Public Affairs

U.S. Army researchers developed a new, advanced scientific model that will allow vehicle maintenance specialists to turn to bio-derived fuels in austere locations.

With this solution, the Army can reduce logistics costs associated with transporting and storing military fuel for military operations overseas. Instead, the Army can convert biomass, like wood logs, into usable fuel when and where it's needed, or use any locally available fuels that have different specifications from the jet fuels in the United States.

Researchers said the model proves effective in predicting performance of bio-derived jet fuels. The current state-of-the-art models cannot predict the performance of bio-derived jet fuels in the intermediate temperature region.

The first-of-its-kind, chemical kinetic model was develop by researchers at the U.S. Army's Combat Capabilities Development Command's Army Research Laboratory for a bio-derived, alcohol-to-jet fuel, said Dr. Mike Kweon, program manager of the laboratory's Versatile Tactical Power and Propulsion Essential Research Program.

Directed evolution of enzymes, which was

groundbreaking research developed by Dr. Frances Arnold, an Army-funded researcher who won the 2018 Nobel Prize in chemistry, was used to develop the bio-derived alcohol-to-jet fuel as a drop-in fuel for military jet fuel F-24, a lower-cost alternative to the standard JP-8 fuel.

This model, Kweon said, could help the Army maintain operations and more easily rely on locally-available fuels without the risk of those fuels degrading the performance of Army air and ground vehicles. This model will also allow engine developers to develop multi-fuel capable engines in the future.

"Our model offers a critical step in any combustion modeling, especially for the Department of Defense considering we use jet fuels," Kweon said. "Currently, there is no alcohol-to-jet chemistry that works in a wide range of temperature regions from high, intermediate to low-temperature regions. Although our model is not a perfect solution, it works for our application as well as anyone who wants to model ATJ combustion."

The Army model, enabled by generic algorithm machine learning, will be used to describe the ignition of the alternative fuel when used in Army vehicles in locations where temperatures and altitudes vary widely. A genetic algorithm in machine learning is a stochastic search algorithm to find potential solution. It acts like inbreeding, Kweon said, where potential solutions are encoded as genes or strings of characters in computer program that are called as population. New solutions are produced by breeding the current population members.

Existing models used throughout military and commercial aviation for this type of fuel can only predict conditions relevant to civilian aviation and Air Force applications, Army researchers said.

The Army's solution enters new space, Kweon said, because an alternative jet fuel chemistry didn't exist before now to characterize the performance of Army vehicles whose combustion is mostly constrained in the intermediate temperature region, which is typically between 400 and 730 degrees Celsius. The immediate temperature region is a typical operating condition of piston engines with whom the majority of Army vehicles are powered, he said.

During deployments, the Army may rely on locally-available fuel for extended operations with limited-to-no resupply, but this can introduce vehicles to a mix of fuel types ranging from alcohol to diesel that, if untreated, can damage the engines.

Weekly Events

July 11 - 18



White Mountain ATV Trip

July 19 8 a.m. - 5 p.m.

Tackle the trails of White Mountains National Recreation Area with Outdoor Recreation on an ATV! *An ATV Safety Course is required before taking this trip. Registration deadline is July 12.

Outdoor Recreation Center, Bldg 4050 Call 361-6349, registration required



Soldier & Family Readiness Group Training

July 13 - 16 **Varies**

Join ACS for a VIRTUAL SFRG Training! You can select one training that fits your schedule for your position. Training will be held on Microsoft Teams.

Army Community Services, Bldg 3401 Call 353-7908, registration required



B.O.S.S. Tuesday: Fat Tire Biking to HooDoo

July 21

Go fat tire biking all the way to HooDoo Brewery! 6 Soldiers will get to take a leisurely bike ride to the local HooDoo Brewery for FREE! Must be 21+ to participate. Registration deadline is July 14.

B.O.S.S., Bldg 1045 Call 353-7648, registration required

15

Youth Sports & Fitness Workout Wednesday

July 15 **Varies**

Workout with Youth Sports & Fitness every Wednesday by checking out the video on the Wainwright MWR Facebook page. Keep an eye out for the next challenge!

Youth Sports & Fitness, Bldg 1045 Call 353-7482

Warrior Zone Movie Night

Doors open at 5 p.m.

Join us for movie night at the Warrior Zone! Doors open at 5 p.m. and movie starts at 6 p.m. Spaces are limited. Don't forget to grab a bite to eat! Must be 18+ to enter.

Warrior Zone, Bldg 3205 Call 353-1087





Grab a bite to eat at Nugget Lanes Bowling Center while playing a game! For hours of operation & more information, go to wainwright.armymwr.com.

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DRONES

Continued from page 3

fixed site - low, slow, small unmanned aircraft system integrated defeat system. The FS-LIDS system is an Army-led "system of systems" approach, Gainey said, which means it's not a standalone electronic system, but rather a kinetic capabilities system with multiple hardware and software parts that are interoperable.

As the Army takes responsibility to further develop the FS-LIDS system, the Navy opted to refine another fixed technology - CORIAN, a counter-remote control model aircraft integrated air defense network. Both systems are used to disrupt drone signals, and they are interoperable with each other.

The last fixed system chosen was the

Air Force's NINJA system, or Negation of Improvised Nonstate Joint Aerial threats. Like the others, NINJA zaps radiofrequency communications between a UAS and its operator, and is interoperable with its counterparts.

Each of the three fixed or semi-fixed systems kinetically fuse, Gainey said, adding, "that's what we found during this assessment. A 'system of systems' approach gives the best opportunity to defeat the threat as opposed to a single-system employed technology."

When it comes to mounted systems, the LMADIS, or light-mobile air defense integrated system, was the single, go-to pick. The LMADIS is a portable jammer system,

sponsored by the Marine Corps, and is capable of breaking up communications between drones and their operators from a mounted vehicle.

Only one of three mobile devices are currently sponsored, however all three are available for service use, Gainey said. SOCOM will sponsor the Bal Chatri, but the Drone Buster and Smart Shooter devices will not be sponsored. Each handheld device can be used while patrolling an area. The guiding prin-

ciple behind every selection is interoperability, Gainey said. "The command and control technology brings it all together. This initiative will bring an enterprise

approach to a crit-

ical capability area

and provide the tools

warfighters [need] to better adapt to

changing threats." The success of their choices relies on the service's ability to embrace the command and control standards, or C2, Gainey said. "This will allow the plugin-play of emerging technology from industry into our architecture."

Regarding C2, the Army has FAAD-C2, Forward Area Air **Defense Command** and Control, along with its interoperable systems: the ADSI, the Air Defense System Integrator, and the MEDUSA C2, or Multi-Environmental Domain Unmanned Systems Application Command and Control. However, the MEDUSA C2 is still in the works to be

interoperable with

the FAAD-C2.

All that said, there is no interim timeline, Gainey said, despite the interim selections. As the C-sUAS office continues to work with industry, test new devices, and bring on emerging technologies to the DOD, "Our strategy is to continually improve the current capability we have, while testing and looking at the new technology to bring it on, not through this sort of slow, methodical way."

Moving forward, the objective is clear: continually improving the systems with joint solutions. C-sUAS is working on a capability development document, or CDD, to lay out a blueprint for those emerging technologies. The first draft, slated for a fall

release, will also open the door for industry to compete as the military moves forward, Gainey said.

Although unpublished, the initial draft of the CDD focuses on the interim capabilities identified in the assessment, and how it bridges the strategy of current system-to-objective joint solutions.

"We will continue to work with industry to bring these systems to full maturity or replacement with follow-on enduring solutions," Gainey said. "Future research, testing and investment decisions on capability modernization will consider not only the most upto-date existing technologies but, more importantly, those new and emerging technologies currently in development."

Army researchers establish mixed reality working group

CCDC Soldier Center Public Affairs

U.S. Army researchers launched a new working group to streamline human performance research efforts on Soldier mixed reality display technologies aimed at enhancing cognitive performance, user experience, and human-systems integration during operations and training.

Mixed Reality, or XR, is a collection of technologies that spans a continuum extending from the completely real to the completely virtual environment. XR includes augmented reality, when real environments are enhanced by digital elements, augmented virtuality, when virtual environments are enhanced by real elements, and entirely virtual reality. While XR refers to a collection of similar technologies, it does not necessarily consider the human using the technology, like human experience-driven mixed reality, or HEXR,

Department of Defense researchers spanning joint services and agencies as well as academia and industry are working to understand how XR impacts cognition, user experience, and human systems integration in order to improve the technology with a focus on enhancing Soldier performance.

Early results indicate that XR capabilities and integrated display systems hold great potential to enhance warfighter lethality in combat operations and increase effectiveness in training – key tenets of the Soldier Lethality and Synthetic Training Environment Cross-functional Teams underpinning the human performance element of the Army modernization enterprise.

XR promises to deliver improved battlespace visualization and mission planning capabilities, intuitive presentation of relevant and timely mission information, and new communication capabilities for small teams operating in multi-domain operations. In training, XR offers engaging and immersive multimodal simulations of tasks



Human Experience-driven Mixed Reality research is shaping how Soldiers will operate and train. (Photo by CCDC Soldier Center)

and environments, accelerated learning and training, and timely practice and rehearsal of cognitive and motor skills.

Army leaders want to advance these pivotal capabilities, and researchers are leveraging the collective efforts of the XR community by sharing results and data in a more efficient way.

The Human Experience Mixed Reality
Working Group, or
HEXR-WG, was established by Army Civilian XR researchers to
provide a centralized
collaboration platform
that more efficiently
links stakeholders to researchers and engineers
across the DOD's mixed
reality human experience community.

This grassroots effort is being spearheaded by the U.S. Army Combat Capabilities Development Command Soldier Center and supported by partners at CCDC's Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance, or C5ISR Center; and the CCDC Army Research Laboratory.

"If we neglect to consider the human as an integration platform for XR technology, this could lead to the development of XR systems that are underutilized or negatively impact human performance," said Dr. Aaron Gardony, a research psychologist from CCDC Soldier

Center who is serving as the center's lead representative to the HEXR-WG.

"The HEXR-WG's main goal is to ensure XR technologies developed and fielded by the Army fully consider and truly enhance human experience and human performance by collectively working to ensure these technologies are intuitive and easy to use, enhance components of Soldier lethality like situational awareness and decision making, and avoid unintended cognitive and physical impairment."

The result will be a collaborative approach across the CCDC, Army, and joint services to ensure that appropriate knowledge and expertise are applied, duplication of effort is avoided, and successes and lessons learned are adequately leveraged and retained, according to Gardony.

As a member of Soldier Center's Cognitive Science & Applications Team and lead for the Measuring and Advancing Soldier Tactical Readiness and Effectiveness, or MASTR-E Program's "Soldier Optimized Augmented Reality for Enhanced Tactical Decision Making" work package, Gardony assumed the lead role in standing up the group by preparing a charter, recruiting membership, and co-organizing a virtual kickoff meeting held on May 21.

CCDC Soldier Center will share results from its MASTR-E program in addition to efforts underway within its Simulation Technology & Training Center and the Mission Information, Human Factors, and Cognitive Science & Applications teams, which all have various HEXR research and development efforts falling under the group's three major research components: cognitive performance, user experience, and human systems integration.

ARL will also share results from their XR-focused work.

"Our research aims to improve total system performance between Soldiers and intelligent systems," said Dr. Michael Guess, researcher at the CCDC Army Research Laboratory's Human Research and Engineering Directorate. "Mixed reality display devices offer unique ways to communicate situational awareness information to Soldiers. Additionally, sensors on mixed reality devices can be leveraged to provide Soldiers with novel capabilities."

"Our work seeks to effectively integrate Soldiers and systems in unique ways that will allow for improved decision-making," said Guess. "We are excited to collaborate with Dr. Gardony, and the broader CCDC mixed reality community, through the HEXR-WG."

Emerging XR capabilities, such as the Integrated Visual Augmentation System, will be rapidly fielded to Soldiers in the next few years, and the group will work closely with XR stakeholders like the U.S. Army Program Executive Office Soldier's Program Manager to share results and analysis. By rapidly responding to requests for input and communicating relevant scientific findings, subject matter experts

will be able to inform IVAS development and ultimately improve its human experience for Soldiers.

'My focus at CCDC C5ISR Center has been on developing mixed reality capabilities for PM-IVAS in support of the warfighter," said Dr. Robert H. Luke III, a computer engineer and the Heads-Up Display Experience Lead for PM-IVAS. "It was brought to my attention that the capabilities we are creating could be better optimized for Soldier interaction by collaborating with the HEXR-WG."

"Together, our teams will work to bridge the divide between technology creation and Soldier acceptance," said Luke.

Looking forward, the group will continue to meet regularly to foster collaborations, share research outcomes, and stay informed of XR technological developments.

"We are excited to execute the working group's vision by advancing the state-of-the-art in human experience-driven XR and to enhance Soldier performance," said Gardony.



