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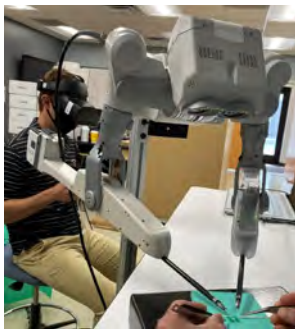
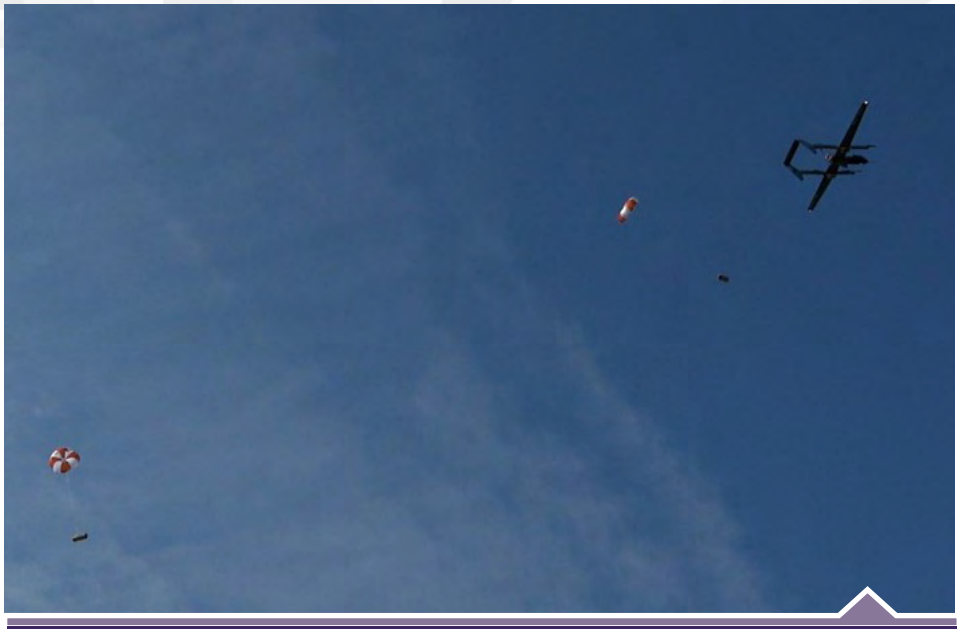


In this Issue:

Project Crimson touches base with SOCOM at Emerging Technology Institute

This past April, Project Crimson once again showed off its advanced medical support capabilities at a recent event at the Emerging Technology Institute (ETI) near Ft. Bragg, NC. The purpose of the event was to mature the solution through firsthand feedback from U.S. Special Operations Command (USSOCOM) and Army stakeholders. Project Crimson is aimed at developing an autonomous unmanned aerial system (UAS) for "Just-in-Time" delivery of blood products and other critical medical supplies to remote, contested battlefield environments to support prehospital casualty care. The project is a collaborative effort between TATRC's Medical Robotics and Autonomous Systems (MedRAS) Division, Near Earth Autonomy, and L3Harris. The system consists of a modified L3Harris FVR-90 hybrid fixed-wing vertical takeoff and landing (VTOL) UAS with integrated Peregrine autonomy system and temperature-controlled blood transport containers. This technology provides critical medical logistics support to forward units when evacuation is delayed and resupply by conventional means is unavailable. This technology implementation is unique in its approach of using common group 3 UAS with relatively minor adaptations to support long-range logistics of necessary supply items.



Crimson system delivering medical supplies via parachute drop to satisfy a field user request.

Since the initial test and evaluation at the Maneuver Support, Sustainment, and Protection Integration eXperiments 2021 (MSSPIX '21) event last year, the Near Earth Autonomy team has made improvements based on prior feedback, including an improved field user interface. At this most recent event, Soldiers in attendance had the opportunity to engage with the fully functional system in a range of simulated prolonged field care scenarios. Participants were able to use a field interface application based on the Android Tactical Assault Kit (ATAK) to choose from a range of medical resupply cargo options and select delivery to a specific location. Feedback about and future system improvements were received from the intended end user representatives in attendance.

In addition, the team was able to talk firsthand with experienced Special Forces Medics to better understand the particular requirements of prolonged field care. These conversations highlighted the nuances of medic decision making in regards to common injury profiles, care timelines, and medical equipment availability. Working with the medics, the team assembled several different pod cargo configurations that would be most relevant for use in field care scenarios and made several changes to the ATAK app user interface to improve usability. The information gathered from these stakeholders will help Project Crimson better align future system development plans with specific operational needs. MedRAS Division Chief Nate Fisher and Biomedical Engineer Zack Buono were in attendance at the event, which provided an excellent opportunity to showcase the current state of the project to a large group of interested USSOCOM and Army partners. The senior officer in attendance was COL James Czarnik, Command Surgeon of the U.S. Army Special Operations Command. COL Czarnik reported that "this is very reassuring to me that the issues and problems that we've faced throughout the last 20 years are actively being addressed," he said. "… and all these efforts are focused on taking care of the Warfighter, the person on the ground."

For more information on this MedRAS initiative, please contact Mr. Nate Fisher at: nathan.t.fisher3.civ@health.mil.

MRDC Command Hosts First-Ever 'Capability Days' Demonstrations

The U.S. Army Medical Research and Development Command (USAMRDC) hosted the first-ever Capability Days event from 25–28 April onsite at Fort Detrick. The four day event, which was designed to showcase the roles the command plays in supporting and expanding the scope of military medicine, attracted more than 100 VIP personnel from across the U.S. Department of Defense and beyond for an immersive series of presentations, product demonstrations and discussions with key leaders and subject matter experts.

USAMRDC Capability Days consisted of a pair of two-day sessions, with each session highlighting the importance of military medical research and acquisition to the health and resiliency of the Warfighter, as well as the Nation. The first day included in-depth presentations from the command's subordinate laboratories and Direct Reporting Units (DRUs), while the second day featured live, in-person demonstrations of numerous medical products supported and developed by USAMRDC.

Lead scientists and program managers from across the command showcased how USAMRDC's capabilities and efforts provide critically important work in global medical research and development toward the Warfighter.

TATRC was proud to be one of the DRU's specifically highlighted in this first-ever command-wide event. Attendees had the opportunity to

Distinguished guests receive an introductory overview by LTC Patricia Schmidt at the start of the simulated scenario demonstration which begins at point of injury.

Guests get an up close look inside TATRC's NEXUS where medics gather key data through various simulated scenarios.

MRDC's Capability Days ***continued to page 5***

The Beloved Summer Org Day Returns for TATRC Staff!

After a two year hiatus due to COVID, the official TATRC Summer Picnic and ORG Day returned with a bang! Lots of new faces joined us this year, some who have been with TATRC more than a year and hadn't yet been able to experience an in-person gathering together, along with many familiar ones.

Life size Jenga, corn hole, connect 4, water balloons and plenty of fun, interactive team building activities were on tap for the more than 60 attendees who signed up. Our Commander also surprised our Deputy Commander, LTC (P) Sharon Rosser alongside Acting Chief of Staff, MAJ Carl Ducummon with a Commander's Coin for their dedicated efforts during the arduous shift to Command status, as well as navigating the transition to the Defense Health Agency. These two individuals took on the lion's share of the work and COL Pamplin was able to recognize them in front of the entire organization.

We also had the honor of having our Command Sergeant Major, Victor Laragione drop in for a surprise visit! We returned the surprise by presenting him a Commander's coin for his

COL Pamplin recognizes our DCO, LTC (P) Sharon Rosser with a TATRC Command Coin for her outstanding efforts as TATRC moved to Command status.

invaluable support and being a strategic ally as TATRC took on Command Status.

The day ended with a rousing game of water balloons and the infamous bean bag toss! Big high fives and a huge thanks to our wonderful staff who pitched in to make this long-standing tradition so much fun for all in attendance!

MRDC's Capability Days *continued from page 4*

Mr. Carl Manemeit, Deputy Division Chief for MMSIV, demonstrates some of our technologies during "Tech on a Table."

experience an immersive, hands-on demonstration of our newest advancements in Warfighter optimization and casualty care, as well as a close up view of the data collection being gathered in our NEXUS Lab, which operates as a next-generation research environment designed to explore and analyze the intersection of humans and technology.

Our guests also viewed a simulation casualty scenario, and had the opportunity to get up close and personal with our SME's during our technology speed dating known as "Tech on a Table." This portion of the visit allowed guests to see the technologies first hand and ask questions to our staff directly involved in these various research initiatives.

USAMRDC Capabilities Day featured some of the best in Army medicine and we were pleased to have been a part of this technology showcase. Special thanks to our DHIC, MedRAS, and MMSIV teammates for sharing their knowledge and expertise! A big high five to our higher HQ for coordinating this demonstration. We were truly honored to have so many distinguished guests visit us and we thank the Senior G.O.'s and leadership for spending so much time on the TATRC campus.

Telemedicine… more like Heli-medicine!

TATRC MedRAS tests remote control and monitoring of medical devices onboard an H-60 helicopter at Ft. Rucker, AL

This past June, researchers from TATRC's Medical Robotics and Autonomous Systems (MedRAS) Division traveled to Ft. Rucker, AL to test the remote control and monitoring functionality of the Athena GTX Automated Critical Care System (ACCS). In partnership with the U.S. Army Aeromedical Research Lab (USAARL), TATRC conducted four successful flight tests onboard an H-60 MEDEVAC helicopter to demonstrate basic functionality of the system concept and explore technical limitations associated with remote control and monitoring of medical devices for airborne evacuation operations. This research was conducted in support of the UAS Medical Research Platform (UMRP) project, which is a collaborative applied research effort between USAARL and TATRC's MedRAS Division. The overall goal of this project is to develop an airborne test platform to conduct research in autonomous medical resupply and patient transport to inform the design and development of future advanced enroute care and transport systems.

MedRAS Team from left to right: Larry Markins, Zachary Buono, Nicole Seiling-Mondora, and Nathan Fisher at Ft. Rucker, AL.

The ACCS device is a multi-functional medical device platform comprised of a mechanical ventilator, fluid infusion pump, suction pump, and multi-sensor platform for reading human vital signs. The integration of multiple devices into a single platform allows users to interact with all the various medical systems using a tablet or computer with a sleek, user-friendly interface. The TATRC team expanded the capabilities of this platform by integrating it with a tactical radio network, thus supporting fully remote control and monitoring. With this new implementation, a doctor stationed on the ground can view the vital signs of a patient and make any necessary changes to their ventilator and infusion care settings. This technical concept demonstrates how telemedicine can be leveraged to expand the availability of hospital-level medical expertise in emergency battlefield situations.

Nathan Fisher, MedRAS Division Chief, along with other TATRC staff including Zachary Buono, Nicole Sieling-Mondora, and Larry Markins, comprised the TATRC research cohort supporting this testing. The first goal of the testing was to ensure that the system would operate as expected in a real-world scenario while airborne. "Applying remote-controlled medical technologies in this context is great in concept, but the real world tends to make things a bit trickier. This was the first chance we had to take this out of the lab and see if it really could work as expected in the planned environment of Air MEDEVAC" explained Mr. Buono.

The second goal was to quantify the impacts of the flight environment on the medical devices and signal transmission. The data collected will highlight the current limitations of medical systems; these limitations must be accounted for in future design iterations to ensure that the final prototype operates effectively onboard evacuation transport vehicles.

"Collecting data through flight tests like these, as well as obtaining input from the 'boots on the ground' that will be using this technology, is vital if we want to maximize the usefulness of this next-generation MEDEVAC technology," Ms. Sieling-Mondora added.

Mr. Nate Fisher stated, "This initial flight test was a culmination of many years of research across multiple collaborating organizations, including the Office of Naval Research who developed the ACCS platform. We plan to extend the methods developed for this initial functional test to alternative device configurations and control strategies, to better discern how to optimize the impact of this type of technology during future operations."

Results of this testing were presented at the 2022 Military Health System Research Symposium in September.

For more information on this MedRAS initiative, please contact Mr. Nate Fisher at: nathan.t.fisher3.civ@health.mil.

New Enlisted Medics Detailed to TATRC's MMSIV Team

This past spring in March 2022, TATRC was granted their first ever round of Combat Medic Specialists known as 68Ws. SPC Allen Baines and CPL Sawyer Hill, originally assigned to the U.S. Army Medical Research Institute of Infectious Disease, were given the opportunity to join TATRC for a short 6-month rotation, specifically, the Medical Modeling, Simulation, Informatics, and Visualization (MMSIV) Division.

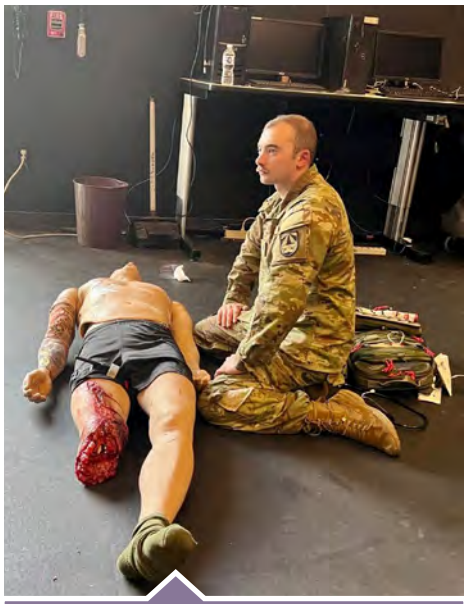
CPL Sawyer Hill looks on as SPC Allen Baines performs casualty care in a scenario designed and developed by CPL Hill.

SPC Baines and CPL Hill are no strangers to TATRC, as they have been involved in supporting some of our previous technology testing, evaluations, and demonstrations in the past. This 6-month rotation allows for the MMSIV lab to have direct feedback from Soldiers when testing, evaluating, and analyzing new technologies and devices. Having the ability to integrate SPC Baines and CPL Hill's early input is crucial and allows for rapid adjustments, better iterations, and more thorough testing, to meet the needs of the individual Soldier.

SPC Baines and CPL Hill are not only lending MMSIV their expertise, they are also instrumental in ensuring the simulation scenario and spaces represent as true-to-battlefield. This includes ensuring the human-patient simulators are functioning, displaying realistic injury patterns, and receiving expected care for those injuries.

During their time in the NEXUS, Baines and Hill have also been exposed to the world of research and its process, the science behind the process, and how it applies to testing in the simulation space. Recently, they've started to develop casualty scenarios with the assistance from the MMSIV team.

While they've been hard at work learning, they've also been putting their clinical skills to good use. Following the TC3 guidelines, Baines and Hill have been practicing specific skills such as NDC, wound packing, placing IVs, administering medications, proper tourniquet placement, and many more.



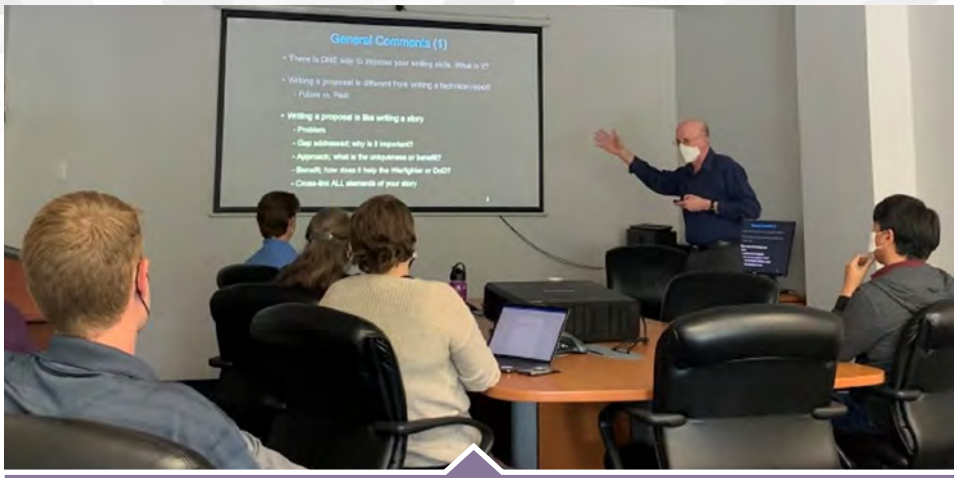
CPL Hill listens as SPC Baines gives him feedback and instructions during a scenario developed and executed by SPC Baines.

TATRC's Acting MMSIV Division Chief, LTC Patty Schmidt stated, "Being able to leverage the NEXUS for their clinical skill practice, collect data, and elicit immediate feedback is a symbiotic relationship that best supports TATRC's mission of modernizing military medicine."

SPC Baines and CPL Hill's rotation ends in September, and a new medic detail will arrive to TATRC to begin their 6-month stint. We look forward to the next round of medics, and the valuable input they provide our team.

For more information on the MMSIV Division and its efforts in simulation, please contact LTC Patty Schmidt at: patricia.m.schmidt10.mil@health.mil.

Senior ST, Dr. Reifman Hosts a "How to Write an Effective Proposal" Seminar



Dr. Reifman led an interactive two-session seminar for TATRC staff members to improve their skills in proposal writing.

The TATRC staff was grateful to Dr. Reifman for sharing his unique expertise and extensive experience in proposal writing.

Effective proposal writing represents an important but challenging task for scientists and technical staff. Although writing a successful proposal offers the best opportunity to acquire the necessary yet often elusive funding for research, many struggle to put their ideas together to convey the value of their projects to reviewers. A good proposal should prove to the reviewer that your work needs to be done and that you should be the one to do it. In an effort to improve the skills and increase the knowledge of the TATRC technical staff, Dr. Jaques Reifman, Senior Research Scientist and Director of the Biotechnology High Performance Computing Software Applications Institute Data Sciences Division (BHSAI DSD) here at TATRC, offered to share his expertise by hosting a "How to Write an Effective Proposal" seminar.

Based on his extensive experience from over 30 years of writing proposals, and what he learned along the way from hundreds of funded and unfunded proposals, Dr. Reifman led an interactive two-session seminar for TATRC staff members. In the first session, Dr. Reifman described the proposal process in detail and offered anecdotes and pearls of wisdom from his personal experience. He went through each element of a proposal and provided tips for success. At the end of the presentation, Dr. Reifman offered the participants an invaluable opportunity. Because he believes that writing and getting feedback are the best way to improve your skills, Dr. Reifman gave each participant a list of instructions, the criteria for evaluation, and a week to prepare and send him a short, two-page proposal. Once the proposals were anonymized, Dr. Reifman reviewed each proposal and provided constructive comments and direct feedback for the authors. During the second session of the seminar, the group discussed the proposals that the TATRC staff had written, emphasizing their strengths and learning how various elements could be improved.

Here are a few tips for success that Dr. Reifman shared with the TATRC staff. 1) Read the announcement carefully, covering each point. Reviewers are looking for reasons not to fund your work, so be sure to follow the guidelines for submission and address each specific element outlined in the call. 2) Be clear and concise. Reviewers do not fund what they do not understand, so explain your project and the key points of your proposal so that even a non-expert in the field can comprehend them. 3) When

Effective Proposal Writing

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DHIC Launches 2 New VH Research Projects

As part of the Medical Assist Support Tools (MAST), Virtual Health (VH) research portfolio, TATRC is commencing work in two new projects as a preparation for future military operations.

A new research project will add a video teleconsulation option to the existing FOXTROT solution in the future.

The first research project, titled "Identifying Emerging Chatbot Research to Support Prolonged Field Care in a Comms-Diminished/Denied Environment," will focus on how software and computer programs that simulate human conversation or "chatter" through text or voice interactions can be leveraged to provide support to medics and care givers in the operational environment, both synchronously and asynchronously. Understanding how Chatbot tools can perform to provide assistance to a care team, particularly when they are experiencing intermittent or disrupted communications for prolonged time frames, will afford the next generation of VH solutions to provide more robust capabilities during times of greatest need. The majority of today's Chatbot technologies require connectivity to function, and the focus of this research is to assess which approaches are most effective and exportable to multi-domain operations where communications are not always available.

The second new research project, titled "FOXTROT Video Consultation and Joint Data Exchange," will focus on expanding the specialized store and forward functions of the existing FOXTROT solution (as featured previously in former editions of the TATRC Times) to include a video teleconsultation option leveraging the DHA's Video Connect system infrastructure. Additionally, the project will ensure there is data exchange and interoperability between the current FOXTROT tool and enterprise VH system(s) through an application programming interface.

Ms. Jeanette Little, TATRC's Digital Health Innovation Center Division Chief stated, "Both of these new research efforts are small but important steps towards a future state of project convergence between separate research efforts, and will lead towards interoperable systems of systems for the future of telemedicine in the operational environment."

For more information on these two research projects, please contact Ms. Jeanette Little at: jeanette.r.little.civ@health.mil.

Effective Proposal Writing *continued from page 8*

done, put the proposal aside and review it with fresh eyes later. After a while, it is hard to be objective. In addition, if possible, ask expert and non-expert colleagues for feedback.

Overall, the seminar was a huge success. The TATRC staff acknowledged that the seminar was extremely useful and very beneficial for future proposal writing. According to one participant, "It was great to hear Dr. Reifman's experience with proposal writing and his most important tips. The main lesson I learned was how to focus a proposal on only the most important aspects that a reviewer needs to hear. Dr. Reifman taught methods on how to be concise, format a proposal in the most logical way, and lead with the most impactful sentences first."

The TATRC staff were thankful for Dr. Reifman's seminar and really appreciated his efforts to teach them. "He was very passionate and very carefully reviewed each writing exercise, including mine. I have never seen such a fantastic revision with such detailed comments. His revisions were not only for the content of the writing but also other small things, such as graphs, grammar, font, and spacing. I appreciate his time for such an excellent and thorough revision."

The TATRC staff expressed a desire for seminars on additional topics, such as poster building, in the future.

Team MMSIV Supports & Participates at JEMX 2022

MMSIV Research Nurse, Ms. Holly Ortman in the field during JEMX 2022!

TATRC's Medical Modeling, Simulation, Informatics, and Visualization (MMSIV) team sent several personnel to participate in the Joint Emergency Medicine Exercise (JEMX) hosted at Fort Hood, TX. This exercise began as a small training session for emergency medicine residents prior to their graduation. It has expanded to be the largest military medical training activity in the Army with over 400 participants completing TCCC training and annual Individual Critical Task Lists.

TATRC's MMSIV team participated as observers and immersion participants to fully understand the experience of the healthcare providers involved in the training event. The exercise used simulation and live tissue scenario-based training from Point of Injury through Role 3 care, and included care during both air and ground transport. The JEMX provided scenario environments in open fields, and basic tents for care under fire, Point of Injury and Pre-Role 1 care, hardened buildings for prolonged casualty care, Role 1, 2, and 3 environments. Additionally, care during transport was conducted in various ground transport vehicles and air platforms.

One exercise scenarios incorporated the use of telemedicine. TATRC's National Emergency Tele-Critical Care Network (NETCCN) partner participated to provide the telemedicine platform for the scenario. The Medic CDSS development team attended as a mechanism to elicit critical feedback directly from end users and better understand the environments where the tool may be incorporated into practice. The team completed TCCC lanes in controlled training environments. From the experience, team members identified primary environments for data collection to describe and define the ground truth of combat casualty care. Passive data collection in training environments is a harrowing task that the MMSIV team is ready to tackle as a means for modernizing the medical force. Data from these environments can be used to inform a medical intelligent system that can facilitate casualty care at the edge. Exercises like the JEMX, provide access to a variety of healthcare providers who participate in the continuity of patient care in combat-scenario based training.

With such a large and diverse pool of participants, over 11,000 clinical skills were trained, practiced, and completed during the exercise. Capturing these clinical skills to develop ground truth definitions for combat casualty care is foundational for the

***JEMX** continued to page 11*

DHIC Meets with 75th Innovation Command

TATRC's Digital Health Innovation Center (DHIC) Division Chief, Ms. Jeanette Little, and Deputy, Mr. Ron Yeaw, virtually met with representatives from the Boston Station of the 75th Innovation Command (IC) in May. The 75th IC, an Army Reserve unit based out of Houston, Texas, is dedicated to driving forward operational concepts and capabilities that will enhance future force readiness and lethality. The meeting was to discuss a project that DHIC had been developing with the Army National Guard, the Personal Readiness Resource for the Mobile Environment (PR2ME). PR2ME is an app designed to enable Citizen-Soldiers to complete Part A of their Periodic Health Assessment (PHA) securely from their own personal smartphone.

TATRC DHIC Team meeting with the 75th Army Reserve Innovation Command (Innovation Officer CPT Joseph E. Van Cura, O.D. pictured)

Per 75th IC Innovation Officer, CPT Joseph Van Cura O.D., DHIC "has done a lot of heavy administrative lifting over the last 2 years to bring PR2ME to the Maryland National Guard, positioning the applications for further utilization across a broader Reserve / NG audience." DHIC agreed to keep the 75th IC up-to-date on the ongoing proof of concept that DHIC is performing for the Guard in Maryland. This is the third meeting between DHIC and elements of the Army Reserves. Last September, Ron Yeaw and TATRC Commander, COL Jeremy Pamplin MD, briefed Army Reserve Medical Command, Major General Jonathan Woodson, on PR2ME as well.

JEMX *continued from page 10*

JEMX provided our MMSIV team with hands on experience in realistic scenarios, which allowed them to better understand battlefield medicine and training environments.

development of human machine teams of the future.

The team also brought home useful recommendations and modifications that can be made to the NEXUS lab to improve realistic scenario development including the addition of canine care scenarios.

Additionally, the team used this opportunity to illicit end user feedback for the scorecard app that is currently in development to assist in supplementing training documentation, and to better understand the training environments where data collection is used to develop the Medical Intelligent System. Furthermore, the team met with representatives from PEO STRI's Simulation Training Environment, and Simulation Training and Technology Center in Orlando, FL and discussed the benefits and recommendations for future simulation and simulator modifications that will facilitate even more realistic training.

This one week event provided the MMSIV team with a unique opportunity to connect with partners for future research, understand battlefield medicine training environments, and access to end users for ongoing projects.

For more information on the MMSIV Division and its efforts in simulation, please contact LTC Patty Schmidt at: patricia.m.schmidt10.mil@health.mil.

AMTI
ADVANCED MEDICAL TECHNOLOGY INITIATIVE

PROJECT SPOTLIGHT

A Realistic, Inexpensive Model for Medical Simulation Training

A new high-fidelity, low-cost anatomical model developed for medical skills training was successfully evaluated and implemented in training at Tripler Army Medical Center (TAMC) through the support from the Advanced Medical Technology Initiative (AMTI). The AMTI-funded project, "A Data-Driven Alternative Approach to Live Tissue Training for Military Medics: Use of a High-Fidelity Anatomic Scan-Based Task Training Model," was a collaborative effort between TAMC and the University of Nebraska Medical Center, the developers of the model. The project team was able to establish a site at TAMC for the production of the models and then provide the models to Army medics and Navy corpsmen stationed in Hawaii for use and evaluation. By the end of the project, over 100 models were created at TAMC for use in three separate training sessions on-site. This work established a viable platform for the incorporation of the newly developed models in the skills training of personnel at military treatment facilities (MTFs) or austere environments, who may not have immediate access to a fully staffed and equipped training center.

TAMC and UNMC personnel preparing the molds and bones for the making of the models in a laboratory at the Department of Clinical Investigation, TAMC (Honolulu, HI).

The model is created by pouring a gelatin mixture into a 3D printed mold containing 3D printed bones. The molds and bones are based on computed tomography scans of an individual, thus making the model anatomically realistic and allowing for any body part to be simulated for training on a specific task. A myriad of models can be created to fit the needs of trainees. For example, models were created for interosseous line placement, chest tube placement, and arterial line placement in the forearm. Other features of the model include echogenicity of the gelatin to

Medical Simulation
continued to page 13

Medical Simulation *continued from page 12*

allow for realistic training on locating blood vessels via Doppler ultrasound, and incorporation of feedback such as the ability to pull blood or marrow to verify correct placement of interosseous lines and arterial lines.

The training model is easily produced and stored in-house at a MTF, making it highly assessable to medical personnel in need of immediate medical skills training. Models were made in advance and stored in a freezer, and were ready for use with as little as six hours of notice. Also, the low cost of production allowed for high-frequency and high-repetition training. The medics and corpsmen at TAMC were able to practice interosseous line placement and chest tube placement on an average of six models in one training session. Because all materials used to make the models are inexpensive and reclaimable, the cost of each model is only ~$2-$5. This is in stark contrast to the current commercially- available simulators and task trainers that could easily cost over $100 per replacement of skin patches that can only accommodate one attempt at access before a permanent landmark (puncture hole) exists.

Medics and corpsmen who took part in this demonstration expressed extreme satisfaction with the realism and quality of the training using the models. The consensus among all users was that the models provided improved training and fulfilled their need for realistic, high-frequency, high-repetition training. One individual stated that the interosseous line placement training on the models is the best type of training she has ever received in her career as a medic. Dr. Dao Ho, Principal Investigator, expressed her excitement about the potential impact of this project on military medical readiness: "Without the funding provided by AMTI, we would not have been able to demonstrate that these models could be made on- site at an MTF, and their positive impact on the training of medical personnel stationed in Hawaii where frequent medical training may be hard to come by. I imagine that what we had accomplished through this AMTI funded project at TAMC could be set up at other MTFs to improve clinical proficiency of combat medics and corpsmen."

Army medics at TAMC using the models of the human leg to enhance their classroom training of tibial interosseous line placement.

Corpsmen of the 3d Marine Regiment, 3D Marine Division, Marine Corps Base Hawaii practicing chest tube placement using the high-fidelity models of the chest and lungs.

The echogenicity of the gelatin used to create the models allows for realistic Doppler ultrasound imaging to locate the arteries in the model of the hand and arm.

This work was selected for presentation at the Military Health System Research Symposium, and the project team has plans to continue additional evaluation and improvement of the model based on the current and projected needs of the Warfighter.

For more information on the AMTI Program, please contact Ms. Holly Pavliscsak at: holly.h.pavliscsak.civ@health.mil.

AMTI
ADVANCED MEDICAL TECHNOLOGY INITIATIVE

Check It Out: AMTI Extended Innovation Preproposals Accepted for FY23!

Starting in 1999, the Advanced Medical Technology Initiative (AMTI) in its various forms has been a supporter of great ideas, innovative solutions, and evaluation of emerging technologies. AMTI Extended Innovation Funding (EIF) opened up for preproposals for fiscal year 2023 in January of 2022 and closed in April. This year, TATRC received 52 preproposals (Fig. 1).

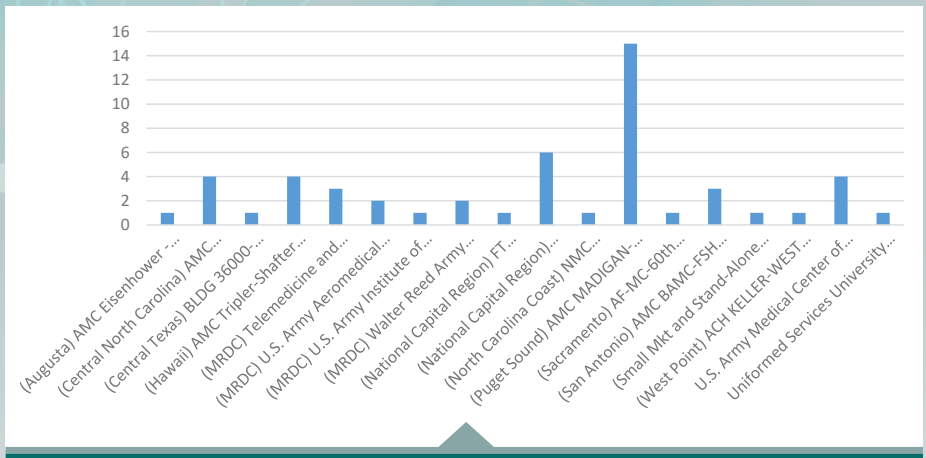


Figure 1: AMTI FY23 EIF Preproposal Site Distribution

These Innovators, as we like to call them, were from 18 different military treatment facilities (MTFs) and operational units, and 36 new accounts to access the system were requested. Each preproposal can have multiple Innovators who have to be either military or government civilians to apply and this year there were 151 Innovators from across the Military Health System (MHS).

More recently, in the last few years, AMTI has been involved with the Defense Health Agency's Clinical Communities Advisory Council (CCAC). AMTI has engaged this group of clinical experts and provides them with the final QUAD charts and a list of the knowledge and material products produced annually from AMTI that are submitted each year by the Innovators. In addition to that, a list of the full proposals submitted by clinical community provides situational awareness of the problems and solutions sets that are presented from clinicians and technical professionals at the front lines of care who provide valuable insight into areas ripe for improvement and promising emerging technologies that could be solutions. The CCAC also provides letters of support for our Innovators and peer reviews proposals. AMTI values this important collaboration with the CCAC. The chart entitled "AMTI EIF FY23 Preproposals by Clinical Community" (Fig. 2) provides a breakout of how this year's AMTI EIF preproposals line up against the 11 clinical communities. Critical care and Trauma are the most represented but of note, AMTI preproposals also represent 8 out of the 11 clinical communities.

Every year, AMTI requests that Innovators self-select the focus areas of their proposal. AMTI is not limited to these categories and they

AMTI EIF FY23
continued to page 15

AMTI EIF FY23 continued from page 14

are modified over time to reflect the most emerging technology areas. The pie chart to the right (Fig. 3) represents the breakout from the preselected options of casualty care, human optimization, virtual health, or "other." The "other" category overwhelmingly outweighs the other categories and showcases AMTI's impact across the MHS. AMTI will add some additional categories to the selection list next year to be more reflective of the wide breadth of focus areas submitted.

The other categories that were listed by Innovators were as follows:

Quality – *(improve the skills and efficiency of care providers)*
Air Security
TBI
Sensory / Vestibular
Biofeedback
Gait Optimization
Patient Management
Healthy & Fit Force
Healthcare Delivery Optimization
Clinical Decision Support
Wearable Sensing
Quality and Safety
Infectious Disease
After Care Compliance
Vector-Borne Disease / Data Management
Readiness - Quality and Performance
Readiness
Infectious disease
Readiness
Wound Care
Fatigue
Infectious Disease
Wound Care

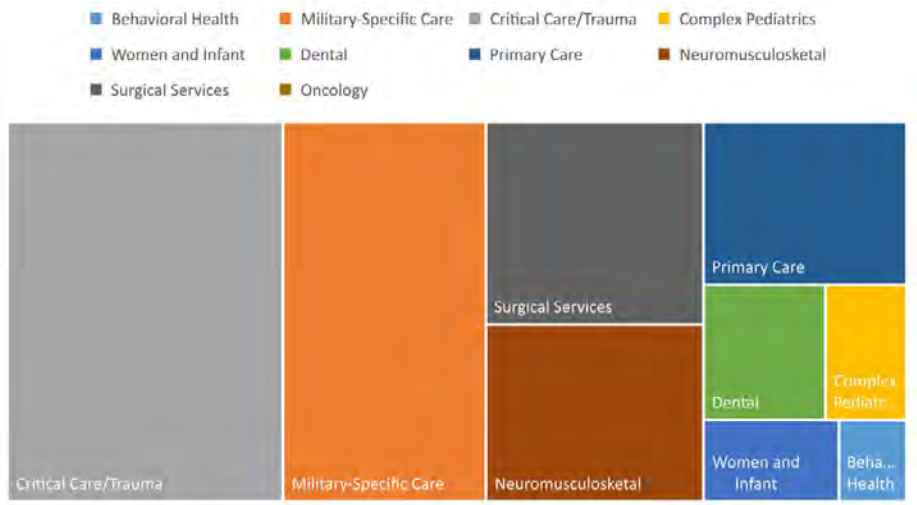


Figure 2: AMTI FY23 EIF Preproposal by Clinical Community

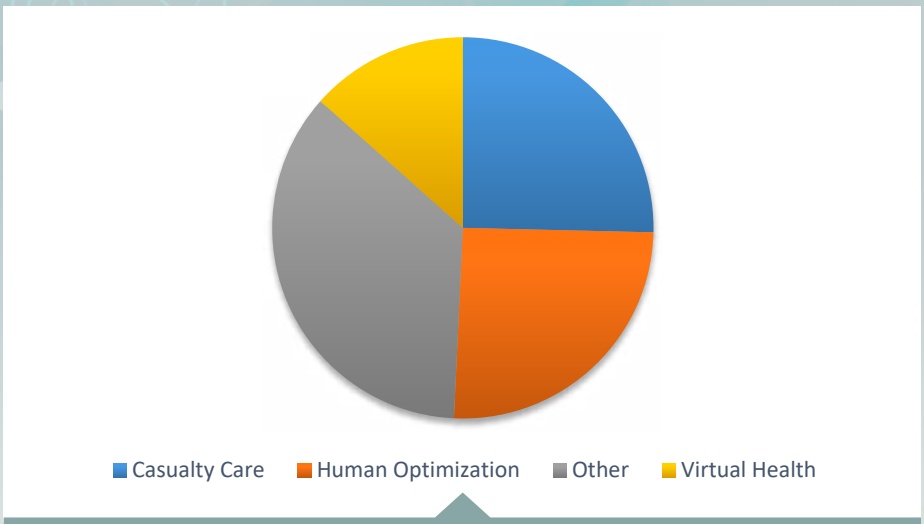


Figure 3: AMTI FY23 EIF Preproposal Focus Areas

Up next for these AMTI EIF submissions are reviews from 10 peer reviewers that volunteer their time to evaluate these preproposals on innovation, military relevance, return on investment (ROI), and metrics for success. Reviewers come from a variety of backgrounds and this year that included experts in digital health, orthopedic surgery, critical care, cell biology, tech transfer, operational medicine, simulation, research, physiology, human performance, medical informatics, clinical informatics, virtual health, and soldier centered design backgrounds. These peer reviewers come from Army, Navy, Air Force and DHA. They provide their scores in each category, as well as comments that provide valuable insight for our Innovators on how they can improve their full proposal submission if invited, or improve the concept for submission next year. Sometimes they are even able to suggest other funding mechanisms.
Once the EIF preproposals are

AMTI EIF FY23
continued to page 16

AMTI EIF FY23 *continued from page 15*

reviewed, then proposals will be selected for invitation to submit an AMTI full proposal. Typically, 65% of the preproposals selected are invited to submit a full proposal, and then 40% of the full proposals submitted are selected for funding.

Full proposals are evaluated by a different set of reviewers who are more senior, and they review each full proposal submitted for innovation, military relevance, return on investment, metrics for success and also look at the budget, the team supporting the effort, project timelines, and letters of support for the effort and provide scores and comments. The full proposal review team will then meet with the AMTI Program Manager and discuss each submission to provide a list of recommended proposals, which TATRC leadership will review in detail to determine which proposals will be selected for funding with the resources available. Virtual Health specific proposals will also be reviewed by the Virtual Health Program Office for consideration for funding.

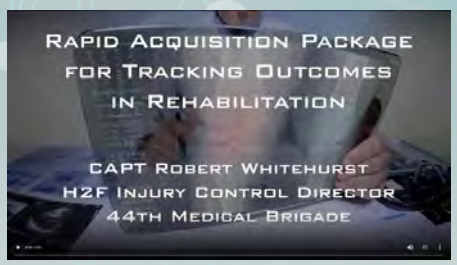
To find out more information on AMTI and learn how to apply, or become a reviewer, be sure to check out our information page on the TATRC website at: https://www.tatrc.org/www/amti/ or contact Program Manager, Ms. Holly Pavliscsak at: holly.h.pavliscsak.civ@health.mil.

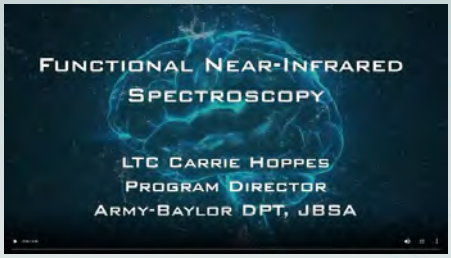
AMTI Video Vignettes

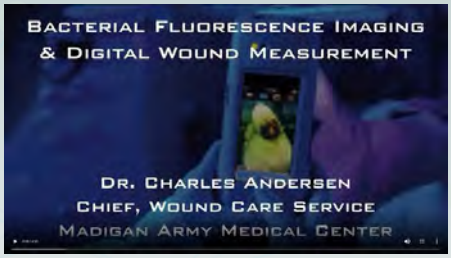
In support of the Advanced Medical Technology Initiative (AMTI), TATRC Public Affairs Office (PAO) produced 4 video vignettes that spotlighted successful AMTI projects where AMTI awardees discussed their projects in their own words. These short video vignettes showcase the incredible work that military and government civilians perform and their solutions that were ultimately funded with AMTI financial support. Click on the links below to hear from CPT Robert Whitehurst on tracking outcomes in rehabilitation, or LTC Carrie Hoppes on Functional Near-Infrared Spectroscopy. Listen to CPT Courtney Moore discuss 'nudge' technology to improve better food choices or Dr. Charles Andersen on bacterial fluorescence in wound healing.

In this initial series there are four projects profiled in these video vignettes.

TATRC's PAO produced these videos in house and they are an opportunity to hear firsthand from our military treatment facilities and operational units on the problems and solutions they identified to positively impact AMTI's goals of improving access, quality, safety, cost and / or readiness through small investments in emerging technology that identify potential modernization avenues and influence solider centered design. These projects also offer insights into where the technology solution evaluated should be researched further, enter into the development process, or is ready for additional deployment.







You can find these videos directly on the TATRC AMTI page at: https://www.tatrc.org/www/amti/videos.html or TATRC's YouTube page at: https://www.youtube.com/user/TheTATRC.

For more information on the AMTI Program, contact Ms. Holly Pavliscsak at holly.h.pavliscsak.civ@health.mil.

TATRC Readiness App Goes LIVE with Maryland Guard Proof-of-Concept Pilot

This past May, members of the Maryland National Guard Headquarters Med Detachment (MED DET) began recruiting for a proof of concept research study to enable Citizen-Soldiers to complete Part A of their Periodic Health Assessment (PHA), Part A, as well as check their entire readiness status, from their own personal device. The research study for this app, Portal for Ready and Resilient Individuals using Mobile Enterprise (PR2ME), is the culmination of a three year TATRC Digital Health Innovation Center (DHIC) relationship with the Army National Guard (ARNG), and will continue for 8 weeks. PR2ME, a component of the Mobile Health Care Environment, is a novel and secure mobile application that Citizen-Soldiers can use on their personal devices to complete monitor and update elements of their own readiness status, as well as give leaders unit-level visibility on readiness sub-component status.

The timing for this proof-of-concept seems to be lining up particularly well, as the Congressional Committees on Armed Services just officially polled the National Guard on their plan and progress in establishing "a secure mobile application that provides the capability for a member of the National Guard to complete the PHA self-assessment and follow-up information and screenings on a personally owned smartphone, tablet computer, or other handheld mobile device that can communicate with a military network."

TATRC DHIC Deputy, Ron Yeaw, standing with the Maryland National Guard Headquarters MED DET.

SFC Billy Weber, Senior Enlisted NCO, for the JFHQ Medical Detachment

Following an 18 month delay to rebuild and transition the Medical Operational Data System (MODS) to a new vendor contract, a Maryland HQ specific proof-of-concept was finally planned for PR2ME this Spring, and went live on May 17th. Per SFC Billy Weber, Senior Enlisted NCO, for the JFHQ Medical Detachment "It's been a long time coming but we feel it will be worth the wait."

Two additional proof-of-concept field tests will be performed in FY22, with the goal of an enterprise release early of FY24. With ARNG 350,000 Soldiers, the PR2ME product has the potential to be TATRC's largest ever software fielding to date. Future fieldlings will also look to expand PR2ME's capability to support Soldiers beyond just the National Guard.

For more information on TATRC Readiness App and the DHIC Division, please contact Ms. Jeanette Little at jeanette.r.little.civ@health.mil.

Deputy Surgeon General Tours TATRC for a Look to the Future

In February, TATRC had the distinct pleasure of hosting Major General Telita Crosland, Deputy Surgeon General (DSG) and Chief, Medical Corps for an in depth briefing and tour of our facilities.

MG Crosland is a graduate of the U.S. Military Academy, the Uniformed Services University of Health Sciences, and the U.S. Army Command and General Staff College. In addition to her Doctorate of Medicine, she also holds a Master of Public Health from the Uniformed Services University of Health Sciences and a Master of Science in National Resource Strategy from the Eisenhower School.

MG Crosland entered the Army as a Medical Corps Officer in 1993. She is board certified by the American Board of Family Medicine, is a Fellow of the American Academy of Family Physicians and is a recipient of The Surgeon General's "A" proficiency designator.

Joining MG Crosland was MRDC CG, BG Anthony McQueen, CSM Victor Laragione, Ms. Dawn Rosarius Principal Assistant for Acquisition (PAA), COL Gina Adam, Commander, USAMMDA, and other MRDC HQ representatives from the Principal Assistant for Research and Technology (PART) Office.

The team kicked off the morning with overview briefings from our Medical Robotics & Autonomous Systems (MedRAS) Division Chief, Mr. Nate Fisher, and our Medical Modeling, Simulation, Informatics, and Visualization Acting Division Chief, LTC Patty Schmidt, who laid the foundation to the research initiatives that both of their Divisions have been focusing on. LTC (P) Sharon Rosser, our Deputy Commander, also discussed "TATRC's big picture" as it relates to the highly anticipated Project Convergence 2022 (PC22).

Following the morning's informative and engaging discussions, MG Crosland was given a tour of our facilities, including our state-of-the-art NEXUS simulation lab, where she was able to get hands on assisting with a simulated gunshot wound procedure. MG Crosland was guided through the procedure by a telementor through our NETCCN initiative. It was truly a treat for all of the TATRC staff to work side by side with such a distinguished officer through the hands on portion of the demonstration.

In addition to our NEXUS tour, our MedRAS team had their Mobile Multiple Mission Module on display where a medic was practicing simulated in-route care of a ventilated patient, assisted remotely by a provider over 3,500 miles away in the UK! Being able to show this interaction in real time was an exciting addition to the tour that we were able to showcase for MG Crosland.

MG Telita Crosland is immersed into a simulated scenario and guided by a remote telementor through a procedure.

LTC Patricia Schmidt explains the importance of TATRC's NEXUS, and the data being gathered during the DSG's visit.

Team TATRC was honored to demonstrate the cutting edge work we're doing so that it can be experienced first hand. We're grateful to the DSG, as well as our own HQ leadership, for their time and interest, and look forward to future opportunities to show just how close we are to the future of military medicine! While MG Crosland is no stranger to TATRC and has visited numerous times over the years, this was the first time, in a long time, that she was able to come back and see some of the newest advancements that our organization has made recently especially as it relates to PC22, and it proved to be a productive day!

DHIC Meets with MRDC CSM to Discuss Mobile App Platform

Mr. Ron Yeaw poses with CSM Victor Laragione as he receives a an MRDC Command Coin.

Following the successful execution of the MRDC Capabilities Days demonstrations in April, TATRC's Digital Health Innovation Center (DHIC) Deputy, Mr. Ron Yeaw, was invited by Medical Research and Development Command (MRDC) Command Sergeant Major Victor Laragione to a meeting to further discuss the DHIC Mobile Health Care Environment (MHCE) platform, and its use-case projects.

Initial discussions centered on MHCE's ability to connect personal Solider's smartphones to the .MIL network, and all of the potential use-cases that capability represented. This led to a fruitful discussion on the power of capturing readiness data outside of a Soldier's typical three twenty-minute appointments a year, and the large role a Soldier's personal smartphone can play in that. Mr. Yeaw defined much of MHCE's role as being within the pre-injury, or Role 0, space. This also led to a discussion on the challenges of transitioning a core capability (e.g. connecting a personal smartphone to .MIL) to an advanced developer, as opposed to specific use-case driven projects (e.g. PR2ME: Updating a PHA).

CSM Laragione discussed how pleased he was to see the common thread of capturing and transmitting medical data along the echelons of care being echoed throughout each of TATRC's demonstrations during the MRDC Capabilities Days. Mr. Yeaw credited that to the strong TATRC ethos to focus on data-to-decision capabilities across its divisions, and the importance of curating a lab's portfolio to define its own voice. CSM Laragione relayed the importance of readiness and injury prevention as being of paramount importance, particularly related to Disease-Non-Battle-Injuries, and how MHCE stands to play a powerful role in this.

SOMA 2022 is Back in Full Force

Key staff from TATRC hit the road to Raleigh, NC this past May to attend the Special Operations Medical Association (SOMA) Scientific Assembly 2022. After an almost 2-year hiatus and last year's hybrid model, SOMA was back 100% in full force and in-person.

SOMA is the only medical association in the world that brings together the unique blend of prehospital, tactical, wilderness, austere, disaster and deployed medicine. SOMA's 2022 Scientific Assembly provided the opportunity for military and civilian medical providers, academia and industry partners from around the world, to meet and exchange ideas and engage in meaningful discourse that helps shape future research to support the Warfighters. It is the largest gathering of SOF medical providers in the world that includes U.S. military, foreign military, domestic tactical law enforcement and tactical EMS providers.

Team TATRC gathers together to share what they learned after a long day of conference sessions.

This year, TATRC had representatives from all four of our divisions which include: the Biotechnology High Performance Computing Software Applications Institute (BHSAI) Data Sciences Division, the Digital Health Innovation Center (DHIC) Division, the Medical Robotics & Autonomous Systems (MedRAS) Division, and the Medical Modeling, Simulation, Informatics, and Visualization (MMSIV) Division, as well as our Senior Enlisted Advisor.

Everyone benefited from the content rich presentations, panel discussions and exhibits the conference afforded. Simulation Engineers, Chrissie Phillips and Evan Feuer, from the MMSIV Division have a background in prehospital care, however neither have been deployed to a combat setting. SOMA provided a spectrum of educational opportunities that proved relevant for their attendance. The knowledge gained from the scientific assembly has the potential to be implemented into future research protocol and training events. On the very first day, Chrissie and Evan attended sessions and hands-on demonstrations related to K9 tactical combat casualty care and maximizing trauma training through simulation. As Simulation Engineers, the tactical combat casualty care course update was particularly helpful.

One MMSIV team member stated, "It's important to stay up to date on the combat medic's practices while writing research protocols and evaluating the medic. Seeing and hearing directly from real world special operations Warfighters speak of their experiences and what the future of medicine looks like to them, was the most valuable aspect of attendance."

Ms. Jeanette Little, DHIC Division Chief, who regularly attends the SOMA conference stated, "As the DHIC Lead, the SOMA conference afforded me opportunities to renew connections with key partners within the Special Operations and Virtual Health communities. I was also pleased to have time to connect with one of TATRC's SBIR recipients and get a real time update on their successful project work. In general, the SOMA conference is an inspirational week, hearing directly from the medical teams straight out of their operational assignments about their challenges in care delivery and maintaining their skills for future deployments."

A big team thanks to the team on the ground: Dr. Jaques Reifman, Ms. Jeanette Little, Mr. Ethan Quist, Mr. Zack Buono, Mr. Evan Feuer, Ms. Chrissie Phillips, and SSG Andrew Smith. It was so great to be back in person at SOMA this year, and we look forward to SOMA 2023!

EMPLOYEE SPOTLIGHT

TATRC PAO Levels Up Their Media With A New Multimedia Specialist!

Ray Atkinson was born in Baltimore, Maryland and raised in the suburbs south of the city. He attended the Broadcasting Institute of Maryland (BIM) after hosting his televised high school morning announcements. At BIM, Ray trained on video and audio editing with a focus on News & Sports broadcasting. He volunteered for Maryland Public Television while completing a Marketing Promotions internship for 98 Rock. Fun Fact: Ray was named the 2006 Intern of Preakness for his excellent support to on-air staff during the event. He attended Anne Arundel Community College and earned his AA degree in Computer Network Management.

Mr. Ray Atkinson, MultiMedia Specialist

After graduating from BIM, Ray would begin his career producing overnight radio for WJFK-AM before being promoted to a Producer and Audio Engineer for WJZ-FM and the Baltimore Orioles Radio Network. For seven years, he worked at WJZ as a Sports Anchor for Scott Garceau and Jeremy Conn in the afternoon, and as a Producer of the Terrapin Sports Radio Network. Ray produced several shows hosted by Baltimore Ravens players, including a guest appearance from Super Bowl MVP Joe Flacco. After his time at WJZ-FM, Ray spent several years assisting his father with his painting business while his father fought a nine year battle with cancer. This past April Ray started his fifth season as Public Address Announcer for the Aberdeen Ironbirds, the High-A minor league affiliate of the Baltimore Orioles.

As part of the PAO team, Ray serves as the MultiMedia Specialist at TATRC covering social media, videography, and photography needs across the organization. Ray is most looking forward to assisting in the growth of our various social media pages to engage and inform the public of new advances in Army medical science, TATRC research, staff spotlights, and various project features. Ray is always looking for content rich material to post and enjoys researching tech stories for TATRC. As the photographer and videographer for special events, VIP visits, and technical demos, Ray hit the ground running as soon as he came on board. Ray is also responsible for video production, metrics, and digital asset management.

Ray loves spending time with his new wife, and wants to travel the world with her. He enjoys playing video games (e.g., Final Fantasy 7 is his favorite game of all time). Ray also somehow finds time for functional fitness. During the pandemic, he voiced his first audiobook.

TATRC already feels like family to Ray, and we are thrilled to have him on the team!

EMPLOYEE SPOTLIGHT

MMSIV Team Adds to Their Credentials – Congratulations Evan Feuer!

The Society for Simulation in Healthcare (SSH), is the premier international organization for promoting education, training, and research in medical simulation. They are also the primary credentialing organization in the world of medical simulation. SSH organizes the annual simulation conference known International Meeting on Simulation in Healthcare (IMSH) where there is consistent representation by TATRC's Medical Modeling, Simulation, Informatics, and Visualization (MMSIV) staff.

SSH offers two categories of credentials: operations and education. Certified Healthcare Simulation Operations Specialist, or CHSOS, is the certification for the operations branch of medical simulation. The Certified Healthcare Simulation Educator (CHSE) focuses on the educational component of healthcare simulation.

To be credentialed as a CHSOS, there are minimum requirements for education and experience in healthcare simulation and a minimum knowledge basis. Candidates for the CHSOS must have a minimum of two years of documented simulation experience. The credentialing exam focuses on the operation of simulators of all levels of fidelity, audio / visual operations, medical terminology, anatomy and physiology, clinical knowledge, and an understanding of the educational process including briefing, debriefing, and various methodologies for conveying knowledge and learning. The CHSE exam focuses more on the educational component and less on the operations component.

Having either the CHSOS or CHSE certification demonstrates certification and advanced level of knowledge and experience in healthcare simulation. TATRC's MMSIV Medical Simulation Specialist, Mr. Evan Feuer became the most recently certified staff member as a CHSOS in May, and plans to take the CHSE exam by the end of the summer.

Mr. Evan Feuer, Medical Simulation Specialist Medical Modeling, Simulation, Informatics, and Visualization (MMSIV)

MMSIV's Ms. Chrissie Phillips is already both a CHSOS and CHSE. She received a special honor and recognition at the January IMSH conference in Los Angeles this year at the President's Ball for this accomplishment.

When TATRC conducts simulation research, investigations, and training, using certified teams, we set the standard for maintaining a professional and ethical training and research lab environment, and reinforce the importance of diversifying the research team to produce high quality results that inform patient care delivery for the deployed military healthcare environment.

Congratulations Evan on earning this certification, and good luck on the CHSE exam! We are so proud of this outstanding team.

Congratulations to TATRC's Employee of the Quarter, Ms. Debbie Locke!

TATRC is pleased to announce its Employee of the Quarter and congratulations are in order for Ms. Debbie Locke. Debbie, a Project Officer who also serves as the Office of Research and Technology Application (ORTA) in our Science Cell, has tirelessly balanced the management of her ORTA duties as well as coordination for Project Convergence (PC22).

Ms. Debbie Locke, Project Officer and Office of Research and Technology Application (ORTA)

Her responsiveness has been essential in preparation of IAAs for prospective funding opportunities. For example, she revised and prepared an IAA to receive critical funding from the Administration for Strategic Preparedness and Response for a prospective National Emergency Tele-Critical Care Network mission in less than a day. In addition, on that same day, Debbie met with Resource Management and APL to modify an agreement to facilitate an urgent funds transfer.

In addition to her dedicated work ethic, Debbie has fully embraced TATRC's "data-driven" ethos and established metrics for providing situational awareness, transparency and constant improvement. She has continued to iterate and improve the measures and metrics that she uses for tracking, communicating and assessing agreements and partnerships, which is valuable to the entire TATRC organization.

Congratulations Debbie on this well-deserved recognition!

DHIC's Marvin Cole Earns His Master's in Cyber Security

Congratulations and a job well done to Mr. Marvin Cole, Digital Health Innovation Center (DHIC)'s Systems Integrator! Marvin works out of the Fort Gordon, TATRC South office and recently completed his Masters of Science Program in Cyber Security from Excelsior College with a 4.0 grade point average this past May after a yearlong intensive, distance learning based graduate program. All while simultaneously working full time!

Mr. Marvin Cole, Systems Integrator, Digital Health Innovation Center (DHIC)

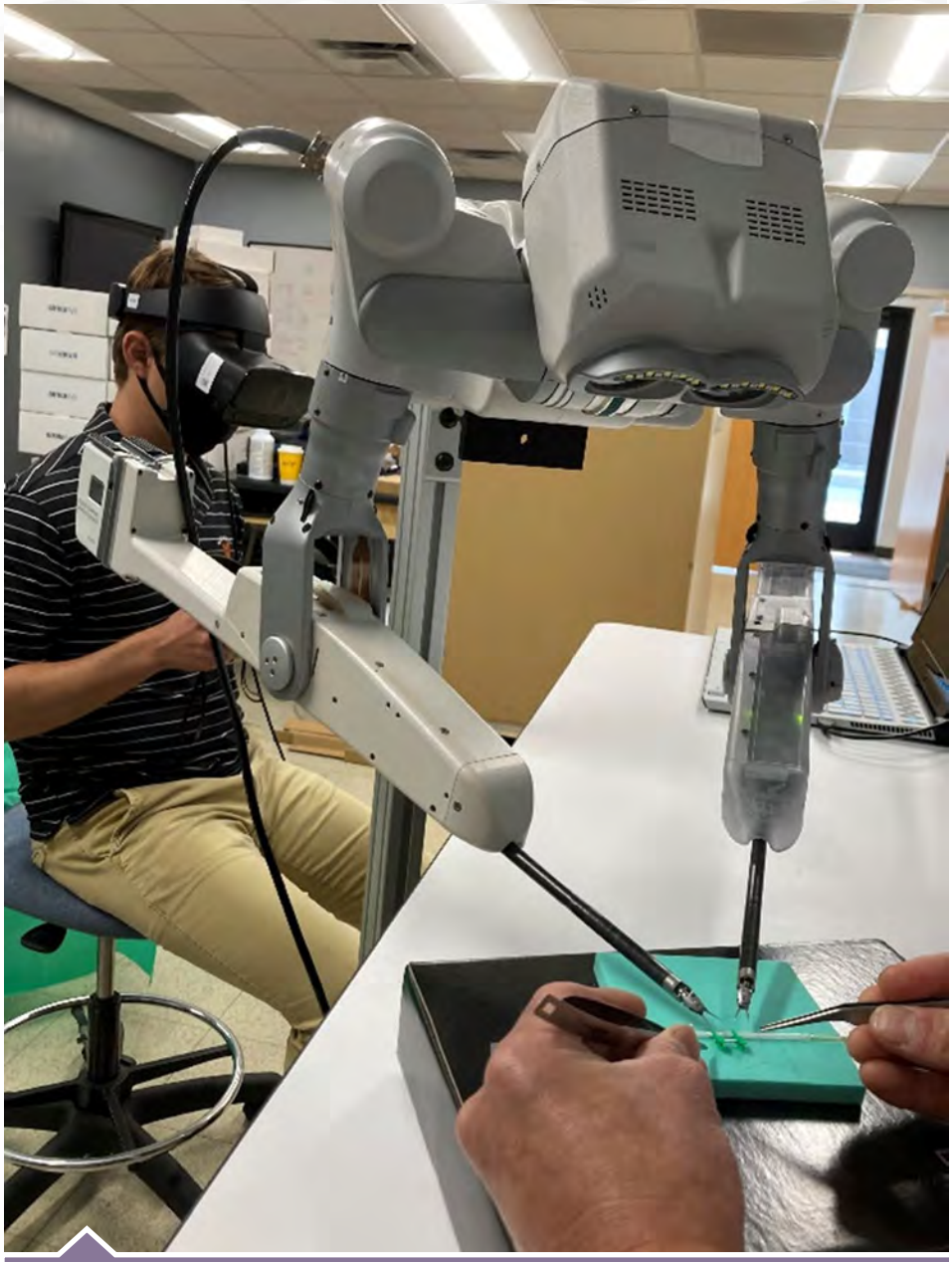
This accomplishment was a follow on to receiving his Bachelor's degree in Technology Management with a focus on Information Technology in August 2020. He attended his official graduation ceremony in Albany, New York in July. As an Information Technology Specialist, Mr. Cole feels strongly that his advanced degree will provide great benefits to his work responsibilities at TATRC, "…with this advanced degree in hand, and knowledge in mind, I'm equipped for multitasking and prepared to implement secure digital and technological solutions to ensure TATRC technologies remain relevant on today and tomorrow's battlefield."

The TATRC family extends a sincere congratulations to Marvin on his accomplishments and dedication to continuing his academic excellence.

What a Year Its Been for Project TRON!

The Telesurgical Robotic Operative Network (TRON) project, helmed by TATRC's Medical Robotics and Autonomous Systems (MedRAS) Division Chief, Mr. Nathan Fisher, and Walter Reed's Chief of Head and Neck Oncologic and Reconstructive Surgery, Dr. Steve Hong, has brought together researchers from SRI International, University of California Berkeley, University of Chicago, and University of California San Diego to develop a novel telerobotic surgical platform to provide specialized surgical assistance in deployed environments. The Taurus-M robot is a highly portable (20 lbs.), and uniquely designed surgical platform for open surgery cases. Teleoperated from a distance, the Taurus-M can provide overwhelmed surgical teams in mass casualty situations expert surgeon assistance or specialized surgical care from a specialist not physically present at the role of care.

Recently in lab trials at TATRC, the team has successfully completed two important ex vivo procedures using the Taurus-M robot: a temporary vascular shunt placement, and a microvascular anastomosis. Teleoperated as a surgical assistant, the robot was able to aid in the temporary vascular shunt placement procedure in repeated lab trials for data collection. This data was provided to TRON's academic partners to develop perception-driven subroutine automation in preparation of a semi-autonomous vascular shunt placement procedure on a live animal model in March 2023. Semi-autonomous surgical subroutines serve as one of the latency mitigation techniques investigated in this project for long range teleoperated care. The temporary vascular shunt placement animal study will serve as the keystone final demonstration of the TRON project.



Taurus-M assisting in a microvascular anastomosis. TATRC's Mr. Ethan Quist operating the robot, and WRNMMC, Dr. Steve Hong leading the procedure.

Additionally, microvascular anastomosis trials were conducted in the TATRC lab with MedRAS team members operating the robot and Dr. Steve Hong, a specialist in microvascular surgery, leading the procedure. The trials were done to demonstrate the feasibility of the Taurus-M robot providing surgical assistance in a specialized, complex micro-surgery which requires intraoperative magnification loupes and high precision control of the tools. The Taurus-M was able to successfully meet the zoom resolution and dexterity needed to provide assistance in this

***TRON* continued to page 25**

MMSIV Team Gears up for PC22 with COMMEX 1B

The TATRC team has been working hard over the past year preparing for Project Convergence 2022 (PC22). As the final culmination event in November draws closer, TATRC continues to plan and "gear up" for the exercise.

Deputy Division Chief, Mr. Carl Manemeit, of the Medical Modeling, Simulation, Informatics, and Visualization (MMSIV) team, and Mr. Larry Markins, MMSIV Communications Specialist, recently participated in PC22's Communication Exercise One Bravo (COMMEX 1B) at the Combined Joint Systems Integration Laboratory in Aberdeen Proving Grounds, Maryland to integrate, test, and validate the medical devices and equipment that will be utilized during the PC22 exercise later this year.

Mr. Manemeit and Mr. Markins were specifically on hand to facilitate the use of the Tempus Pro™ with Corsuim Suite and the National Emergency Tele Critical Care Network.

At the conclusion of the event, the systems ran mission "Threads" through the network that were then evaluated on bandwidth usage. COMMEX 1B will provide the PC22 planners and sponsors key information on the systems that are approved to be part of the PC22 exercise network. This rigorous exercise spanned three weeks where our MMSIV staff spent one week focusing solely on integration and testing, followed by a week of validation of systems on the network, and finally, thread validation and bandwidth testing during the final week. Thread validation and bandwidth evaluation were conducted at low, medium, and high usage rates.

The MMSIV team continues to be fully engaged in supporting the PC22 planning and exercise that is coming up this fall. We are especially looking forward to the opportunity to collaborate and integrate with the various technologies that will be supporting combat casualty care at this much anticipated experiment.

Stay tuned in the coming editions for updates on this exciting PC22 event!

For more information on the MMSIV Division and its efforts to support PC22, please contact LTC Patty Schmidt at: patricia.m.schmidt10.mil@health.mil.

TRON *continued from page 24*

specialized surgery. These trials provide insight into the Taurus-M's capabilities and inform the direction of future proposed efforts of the TRON project.

In March of this year, TATRC MedRAS Deputy, Mr. Ethan Quist and Researcher, Dr. Jaeyeon Lee, traveled to Denver, Colorado to participate in the annual Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) conference, where TRON stepped out and made its first appearance being demonstrated on the road. They were joined by Mr. Tom Low of SRI International, and Capt Gordon Wisbach, Naval Medical Center San Diego. While at SAGES, the team was able to demonstrate the novel Taurus-M surgical robot to the largest gathering in the world of practicing robotic surgeons and innovators in the industry of surgical robotics within the exhibit hall. At their learning center booth, attendees could watch the robot perform procedures and even test out for themselves, the Virtual Reality controls of the robot. The team was able to meet with surgeons and leading industry innovators and discuss the future directions of surgical robotics and advancements in relevant contributing technologies.

Appearing Left to Right: Capt Gordon Wisbach (NMCSD), Tom Low (SRI), Ethan Quist (TATRC), Jaeyeon Lee (TATRC) at SAGES 2022 Conference.

For more information on this MedRAS initiative, please contact Mr. Nate Fisher at: nathan.t.fisher3.civ@health.mil.

DHIC Staff Participate at 4th Annual Operational Medicine Symposium

The Operational Medicine Symposium is an annual event that brings together Active Duty, Retired Military, Government Civilian, and Industry leadership from the Military Health System to discuss challenges with modernizing military medical capabilities for the future battle space.

TATRC's Digital Health Innovation Center (DHIC) staff, Ms. Tabitha Waldrop and Mr. Rob Chewning, participated in the 4th Annual Operational Medicine Symposium (OPMED) this past May in San Antonio, TX. This symposium brings together Active Duty, Retired Military, Government Civilian, and Industry leadership from the Military Health System to discuss challenges with modernizing military medical capabilities for the future battle space. Each year this symposium provides an opportunity for the services, medical units, industry partners and practitioners to connect and collaborate on the latest innovations and opportunities to advance the practice of medicine in expeditionary environments. Through multiple panel discussions, informative speaker presentations, and opportunities for meaningful dialogue with other key partners, the overarching theme was to improve Warfighter survivability. Overall, the OPMED symposium, sponsored by the Defense Strategies Institute, highlighted how the battlespace for the next conflict will be remarkably different and how the nature of operational medicine and the U.S. military health system is at an inflection point. As such, the military is making investments in the areas of emerging technologies, medical devices, training, and infrastructure aimed at ensuring medical services can reliably care for Warfighters at the point of need.

There was a consistent and strong requirement for training across services as noted by many of the speakers at the conference, specifically the need for every level of training from knowledge base to realistic training with simulations of real world scenarios. The consensus was that there are not enough capabilities or resources today to train for future combat support.

Finally there was a strong emphasis on migration from the "Golden Hour" to the "Golden Day." One of the speakers estimated that its possible prolonged field care will last 4-5 days. Realistic simulated training solutions are needed to prepare medics and other care providers to deliver prolonged field care.

It's through symposiums and events like these, which bring together subject matter experts from across the enterprise to share their unique perspectives and real world experiences that remind us that we're in the right space to help our Warfighters on the battlefield of the future.

TATRC Bids Farewell to Our Dedicated Chief of Staff

This past May, TATRC celebrated the distinguished 22 year career of our outgoing Chief of Staff, Ms. Cheryl Merritt at a farewell luncheon honoring and recognizing her many contributions, not just to TATRC, but to the U.S. Army.

TATRC Commander, COL Jeremy Pamplin presents Ms. Cheryl Merritt with her official Certificate of Retirement at her Farewell Luncheon.

Amidst her family, several close friends and many colleagues, Cheryl received numerous honors and awards, namely a meritorious service medal, the Gary R. Gilbert Innovation Award, two Commanders' coins, countless certificates of appreciation, and several heartfelt gifts from her TATRC Family. It was a great day to recognize her with so many speaking about her dedication and work ethic, as well as lauded her many accomplishments.

Ms. Merritt not only served TATRC for 22 years, but also served her country as an Active Duty officer for over 20 years in Medical Logistics and officially retired at the end of May. She has been with the Telemedicine and Advanced Technology Research Center since January of 2000 and served most recently as a DJ 4 Civil Servant and Chief of Staff.

Science Director, Mr. Matt Quinn presents Ms. Cheryl Merritt with a Certificate of Excellence and the Gary R. Gilbert Innovation Award.

In retirement, Ms. Merritt has big adventurous plans to "go and do and see LOTS of places!" Her immediate summer plans include whipping the flower beds, herb garden and koi pond into shape, going "RV'ing" with her husband around the country, riding with her women's motorcycle club with the "wind in her hair," and spending time with friends and family. In the fall, Cheryl plans to fulfill a lifelong dream of living in a foreign country and studying a new language. She will be moving to Korea in late August, and is enrolling at Sogang University, where she will live and study for approximately one year in order to fully immerse herself and master her studies!

Congratulations, Cheryl for all you did here at TATRC! Know that you will be sorely missed by all, but that we are excited for your new adventures and well-deserved Retirement! God Speed!

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