TATRC Highlights Medical Robotics S&T Enablers for Multi-Domain Battle
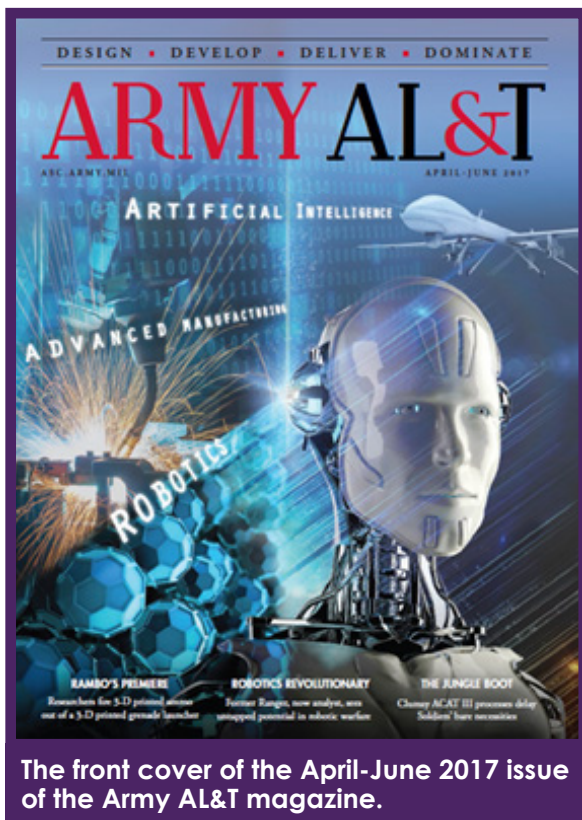
TATRC's ongoing research efforts were showcased in the April-June edition of Army AL&T Magazine as part of a set of special feature articles focused on advancements in the areas of robotics, artificial intelligence and autonomous systems. In TATRC's article entitled, "Medical Operations in the Multi-Domain Battle," the potential capability gained by leveraging emerging unmanned systems platforms, e.g. unmanned aerial systems and unmanned ground systems, for medical missions was discussed in the context of the Multi-Domain Battle (MDB) concept. The MDB concept, outlined by the US Army Training and Doctrine Command (TRADOC), speaks to the need to enable highly capable and dispersed units to create and exploit temporary windows of advantage. Based on this future concept, Commanders will likely employ unmanned systems as force multipliers in mobility/resource constrained, or denied environments. The article discusses TATRC's research efforts in developing technologies utilizing emerging unmanned vehicles to augment conventional medical capabilities when dedicated medical vehicles are not immediately available or denied entry, e.g. to support emergency medical resupply and to expedite casualty evacuation missions.

The front cover of the April-June 2017 issue of the Army AL&T magazine.

Other future applications of robotics and autonomous systems to augment existing medical capabilities supporting the MDB concept are discussed in a manuscript written by Mr. Nathan Fisher and Dr. Gary Gilbert of TATRC's Operational Medicine Lab, and was recently submitted to the TRADOC G2 "Mad Scientist" initiative. This paper, entitled "Medical Robotic and Autonomous System Technology Enablers for the Multi-Domain Battle 2030-2050" is a follow on to an article on "Unmanned Systems in Support of Future Medical Operations in Dense Urban Environments," which was published in the Small Wars Journal in February 2016. These papers discuss specific robotics technology enablers that have the potential to be innovatively applied to medical operations to address some of the challenges likely imposed by the MDB environment. Beginning in 2019, two new Army medical research task areas in Medical Robotics and Medical Autonomous & Unmanned Capabilities portend to jump-start the Army and other services into rethinking strategies for health services and force health protection in future combat environments. These task areas, for which Dr. Gary Gilbert is the designated Capability Area Manager, are aimed at the use of robotics on the battlefield to support medical tasks such as patient extraction from contested or denied areas and tele-robotic patient assessment and intervention. The Medical Autonomy task area will focus on leveraging emerging unmanned platforms for medical missions such as autonomous ground and air delivery of emergency Class VIII resupply like whole blood products and CA-SEVAC on unmanned platforms with closed loop enroute care systems. These new Army medical research task areas will be overseen within USAMRMC by the Medical Simulation and Information Sciences Research Program (MSIS-RP) Program Area Directorate (PAD) and will be executed by TATRC and the Institute for Surgical Research (ISR). Funded by the DoD Joint Robotics Program, various Army RDECOM laboratories, and SBIR programs, the TATRC has conducted exploratory research projects in application of robotics and unmanned systems technologies toward operational medical missions for over 10 years. While these types of projects will be continued going forward, they will now be focused toward executing a research road map being laid out for the new Army research task areas in support of the Army's MDB Concept.

References:

"Medical Operations in the Multi-Domain Battlefield" http://asc.army.mil/web/news-alt-amj17-medical-operations-in-the-multidomain-battlefield/ ⟩⟩⟩