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AVATARMEDIC: CREATING A NEXT GENERATION SOLAR-SYSTEM-WIDE MEDICAL  
CAPABILITY

**Abstract**

As Humans venture outward into the solar system, and continue facing crises at home on Earth, the need is growing for an omnipresent medical capability layer, acting as a unified holistic framework and service to enable any medical procedure, anytime, anywhere even when no trained personnel are available. Thus, we propose the AvatarMEDIC vision of a system to provide non-medical persons, medical experts, emergency responders, including astronauts, the ability to quickly respond to challenges in emergency and wilderness medicine scenarios, support medical triage protocols, provide basic and advance cardiac life support training and interventions (BLS/ACLS), and aid in Search and Rescue (SAR) during disaster relief and war zones. AvatarMEDIC will have the ability to adapt to a variety of emergency scenarios and deployable locally, globally and beyond Earth's orbit in Space and Mars.

Leveraging the convergence of Artificial General Intelligence, 3D printing, Blockchain, Augmented Reality and Mixed Reality (AR/MR) haptics and robotics, along with novel applications of ultrasonic and laser technologies to create an integrated "holistic system" to address the myriad of challenges in the fields of emergency medicine, telemedicine, disaster relief, microgravity surgery, medical triage and remote search and rescues. A 21st Century new paradigm for augmenting and extending healthcare services and medical access into remote and first response settings. Impacting and saving lives for billions of people on Earth and in space.

This paper will focus on connecting the vision of the AvatarMEDIC to the current technology abilities and market-ready products to test and validate the needed components of the vision. Highlighting current Mixed Reality training software HoloTRIAGE for first response skills and testing underway in Mars Academy USA analog astronaut simulations dubbed "Mars Medics", and work underway in the ANA Avatar XPRIZE building telerobotic medical intervention systems with full bidirectional sensorium immersion. Then expanding into the vision of the full AvatarMEDIC system vision which will enable "Realtime, Remote, Medical Relief" throughout the solar system.