Foreword

Human beings are necessary and right for working and living in outer space. Consider the International Space Station (ISS), a colossal engineering marvel; conceived, designed and assembled by participants from 16 nations and a place that I called “home” for 152 days back in the summer and fall of 2007. It is a marvel of human ingenuity and spirit, about which some say is the most complex engineering feat in history. I must admit that I wholeheartedly agree!

Yet, in all honesty, my heart longs for more of the science fiction of my youth; Captain James T. Kirk and the crew of the Star Ship Enterprise, HAL 9000, the computer that seized control of America’s Spaceship “Discovery One” in the movie “2001: A Space Odyssey,” and the Class M-3 Model B9, General Utility Non-Theorizing Environmental Control Robot with no name, so easily recognized by those watching reruns of the “Lost in Space” TV series of the 1960’s. I am not sure how many people will agree with me, but I think that we are heading there at Warp Speed!

The advancement of the technology that allows the emergence of robots as a presence in our daily lives is here - right now, presenting itself in an infancy much like Orville and Wilbur Wright did as they designed and tested their first airplane at Kitty Hawk.

We are at the forefront of a new and exciting robotic age, and for that I am grateful. Our children will (and must) reap the benefits of efforts that are ongoing in the world of Educational Robotics and the logical synergy it provides for enabling the United States to recover our leadership in the disciplines of Science, Technology, Engineering and Mathematics (STEM). This book is a wonderful reference, poised to provide our educational system with the tools and information they need to enhance our nation’s ability to move this field forward, ultimately leading us to the point where this is no longer considered just science fiction. It will be our reality.

Robots are now flying aboard the ISS, they are traversing across the bottoms of our oceans, they are present in our operating rooms and our factories, and they are rolling about on the surface of Mars. And while this book provides information on the use, design, and evaluation of educational robot platforms specifically designed for learning, it is more than that. I believe that it will help to serve as a pathfinder for students and educators alike, providing some of the basics of robotic theory and ways to capture the interest of and generate excitement for those in the learning environment through the use of formal, informal (outside of the classroom), and competitive robotic educational genres. Further, it provides information and discussions for determining methods of measurement regarding our ability to change the way we learn, and the associated attitudes amidst a developing workforce.
The time is now for capitalizing on the large interest and popularity of robotics and to continue the push to provide our children with the skills and abilities derived from hands-on learning...by giving them every opportunity to touch, feel, design, assemble, program, and operate the robots of tomorrow. Assimilate the contents of this book and utilize its information much like you would employ the tools contained in the toolbox that you keep in your garage. Apply its offerings as they best suit you and your individual situations, to maximize the impact you may have on the K-12 scholastic environment. But use it with urgency and passion...for it is time to push the educational envelope of these United States; and who knows...we may be able to push it “...to infinity...and beyond!”

Clayton C. Anderson
United States Astronaut