

# Prototyping new robotic solutions

Dr. Robert O. Ambrose

Texas A&M University



A series of complex problems will be described through the eyes of a team charged with designing and building first generation robotic solutions for space and national security challenges. The evolution of the robot technology will be charted through a series of prototypes, with observations about how the team matured and engaged partners. Challenges in manipulation, wheeled mobility, inspection, telepresence, perception, legged locomotion, autonomy, dexterity, free flyers, wearable systems, and various combinations of mobile-manipulation will be described. Component development will be noted where new inventions enabled the system solution. The talk will finish with new challenges being addressed for the US Army and US Space Force.



*The author's robotic systems at NASA JSC and Texas A&M's Walker Department of Mechanical Engineering*

<https://engineering.tamu.edu/mechanical/profiles/ambrose-robert.html>

<https://er.jsc.nasa.gov/>

<https://www.linkedin.com/in/robert-ambrose-81544547/>