

## Saketh Sundar

Utilization of autonomous unmanned systems is the future of the US Navy and Marine Corps, as well as the future of the world around us. From a young age, I have always been fascinated with the idea of autonomous and sentient technology, whether that be in the robots I saw on television or even simple examples like thermostats that automatically adjusted the temperature. The topic of autonomous unmanned systems has limitless applications to some of the world's largest problems, which inspires me to explore more about it. Within the Navy and Marine Corps, these technologies can be utilized in high-risk missions to keep the men and women in service safe. Autonomous systems can also be implemented for faster production of supplies, planes, and ships. Additionally, surveillance in both the sky and the sea can become more efficient with the usage of unmanned aerial vehicles and autonomous underwater vehicles. Not only do autonomous systems have numerous applications in the military, but they can also help us explore the frontiers of space and the ocean. In the commercial setting, they could be utilized in faster manufacturing. Autonomous unmanned vehicles have even been used to combat forest fires and large-scale natural disasters, a growing problem in recent years. In the future, applications of autonomous systems could even extend to medicine. The nature of this research area with numerous applications in multiple domains inspires me to pursue research in this field someday. Engineers and scientists such as Aamir Qaiyumi, the scientist featured in the "Autonomy for Unmanned Systems" video are an inspiration to me as I hope to one day utilize and implement autonomous systems in my research or career endeavors. His work using advanced autonomous unmanned systems in ocean floor mapping and exploration is groundbreaking in the field. Research similar to his work in the Navy/Marine Corps in the ocean is even being used in space to explore Jupiter's moons. Personally, his most inspiring work is the mapping of invasive species in the ocean floor. Environmental science has been a longtime passion of mine, and that particular project combines that passion with this interesting and relatively new field of autonomous unmanned systems. This aligns with my career goals of pursuing research that integrates artificial intelligence and computer science to solve medical and environmental problems. I believe that by the time I will be pursuing a career, the field will further advance and I will be able to leverage these advancements in my career. These advancements would also significantly impact our daily lives and the operations of the Marine Corps/Navy. By 2040, we would regularly see autonomous cars and buses on the roads, simple medical procedures would be performed by unmanned systems, and commercial manufacturing would become mostly autonomous. Natural disasters would be combatted by large-scale implementation of autonomous aerial and underwater vehicles. Space missions would be controlled entirely by unmanned systems, allowing engineers and scientists to further explore the depths of space. In the armed forces, we would see advancements in autonomous warfare devices that reduce the risk of human injury. We could also see autonomous underwater and space systems map most of the ocean and nearby areas of space. Autonomous systems could also assist with decision-making in the Navy and Marine Corps, making sure that they are as efficient and as economically sustainable as possible. Preliminary research has shown that autonomous systems can plan missions in uncertain conditions considerably better than humans could. Additionally, advancements in autonomous unmanned systems such as those described above would reduce the potential loss of human life significantly. These technologies have the potential to positively transform our daily lives and our armed forces in a significant way, which is why I aspire to pursue a career that involves them.