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In the past centuries, humanity has advanced at a rate greater than past millenniums, with innovations in agriculture, manufacturing, and medicine allowing for the explosion of our current population. With these advances has brought the grim reality of conflict, as now ancient grudges could be carried out more swiftly than ever before, leading to innovations once meant to lift human society now being used to tear down enemy nations. In the future, the lives of talented and ambitious soldiers will become too precious to spare in combat, with guerilla warfare allowing untrained fighters to inflict casualties through suicide bombings and hostage situations. This dilemma remains to be solved, but advances in nanotechnology have made it become possible to wage wars, and other complex procedures without the knowledge of our enemies. In its current stage, it is often correlated with science fiction media, which portrays it as a mystical technology beyond today's innovations. Despite this, in recent years advancements have been made that have brought its potential to light, with its properties being beyond those objects of standard, visible dimensions. In its current stage, using nanotechnology in drones has brought various benefits, with power consumption being just 3.5% of that of other drones while producing 18 frame/s (IEEE 2019). Other properties, such as their driving force in causing diffusion, comes from their high surface area at high temperatures that increase the area for diffusion leading to applications in oil recovery and chemical hazards (Negin et al, 2016). Dr. Richard Ordoñez presented many of these benefits and how they could be applicable, with nanomaterials being able to absorb light throughout the entire electromagnetic spectrum, making an excellent surveillance device that could detect any abnormalities or risks. Manufacturing and quality of food, both vital as the backbone of the US military, could be vastly improved with more efficient nanotechnology. Most importantly, graphene's use as thermal and electricity conductors at the nanoscale would allow for increased heat expulsion for weapons and other devices manufactured at the nanoscale. Other applications, such as that in the medical field could allow for incisions and bullet wounds to be cured in the field during firefights or other assaults, with nanotechnology possibly helping to seize bleeding and reduce pain, along with patching the site. These works by Dr. Richard Ordoñez have inspired me to pursue a career within the navy and armed services. It mabe through serving through the reserves in order to gain experience before entering the workforce or doing research as done by Dr. Ordoñez, who is able to pursue his academic interests with proper funding from the Navy in order to make breakthroughs in his field. My career goals, as a physician, hopefully, can be done within the navy, serving in veteran and military hospitals or in the field as a medic in order to save as many lives possible so that they may not have to make the ultimate sacrifice. In my higher education, I hope that I will be able to advance my experience and finance any additional costs through researching in labs sponsored by the armed forces along with serving in the reserves to be able to gain a new perspective on the luxuries I experience due to the sacrifices of the United States military.

Over the next decades, nanotechnology and materials will most likely advance to become the primary utility of the Navy and Marine Corps, along with that of the rest of the world. In the daily life of civilians, nanomaterials will be widely used in manufacturing to increase the strength of automation and human-led tasks, with higher thermal limits along with better efficiency. Better sensors, made out of nanomaterials, will be able to detect light throughout the entire electromagnetic spectrum along with other signals. They may be used to help detect seismic movements with new precision, therefore helping to predict earthquakes and save millions of dollars in property as they become reinforced before any damage, with individuals evacuated to ensure their safety. These sensors could also be used in

detecting the quality of food for those going overseas for recreation or work, ensuring that any dangerous food could be detected, with radiation and chemical presences helping to evaluate the safety of the food for consumption. Furthermore, nanotechnology will most likely become widespread in medicine, being much less invasive to incorporate into the body to detect the presence of pathogens or tumors so that medical personnel can rapidly diagnose and then treat the condition. They may also be used for radiation and chemotherapy treatments, with their small size meaning that they could deliver potent doses to rapidly dividing sections that pose a threat to an individual's health, such as cancer; this would be monumental in increasing survival rates for deadly tumors whose only cures are extremely invasive operations or months of grueling chemo, neither of which may fully remove the tumor. Diseases such as Alzheimer's, which are a result of protein deposits around neurons in the brain, could also help to be quelled with future advances by nanotechnology, as they become advanced enough to destroy any damaging proteins that result in neuron death.

Within the military, the benefits of nanotechnology would be even more exponential, with virtually every component being improved. By the MakeMarinesMoreCapable initiative, better flowing communication between research and deployment teams would allow for members of the Navy and Marines to be able to receive the equipment that would have the best impact on their missions. This free flow of information between different teams would promote better progress of a variety of innovations, with those who would be using the advancements having a say in their developments. Within nanotechnology, nanosensors that can detect all variations of light in the electromagnetic spectrum would allow for more powerful detectors aboard ships and fighter jets, able to detect threats and abnormalities from hundreds of miles away. Changes in thermal or radioactive particles could be especially useful in detecting other warships powered by nuclear marine propulsion, with nanotechnology helping with increased sensitivity to those ships. Nano drones, once only thought to be possible in science fiction, would become a reality and aid in the fight against terrorist groups that employ guerilla warfare. With their minute stature and extreme sensitivity to any electromagnetic signals, including heat, could be easily detected to allow our armed forces the upper hand in the war on terror or any other adversaries of the United States. Not only would they be saving thousands of precious lives, but also not place any additional burden on soldiers, with their miniature dimensions heavily reducing weight and heat expulsion. One of the most advantageous advances remains to be in body armor, with research technologies focusing on materials in liquid polymer states being able to harden upon any changes in the environment that could pose a threat. SiO_2, better known as silicon dioxide, is potent in its nanoform as a liquid polymer, being able to harden upon ballistic impact, forming a protective coating around the soldier while having minimal weight impacts (Vahid et al 2018). The applications of nanotechnology could be nearly endless, and by 2040, when researchers have been able to fully explore the reaches and limitations of nanotechnology, While both the United States Navy and Marine Corps currently remain unparalleled in their technological advantage compared to both allies and those who we plan against, nanotechnology, along with better communication through MakeMarinesMoreCapable, would both firm solidify their lead over other global powers.