I still remember the layers of cobwebs on every known surface. I can still smell that disgusting stench coming from the bathroom. When I was fourteen, my best friend and I walked down to my basement looking for a shovel to dig a hole up in my backyard for a fireplace. It was one of those moments where, while down in the basement, we thought the same exact thing; we’re building a man cave. We scrubbed, floored and painted till our vision matched reality. Over the next week, we found couches, carpets and an assortment of tech to reach the title of ‘The Man Cave.’ I won’t ever forget the feeling of the first time we walked through the finished design after months of work. I chase that feeling every day of my life. After ‘The Man Cave,’ my free time turned into an assortment of projects. I started to build wooden tables and bookcases. I then began to experiment with model rocketry, which is still my past time. I converted my longboard to be electric, controlled by an RC radio transmitter. I bought a crappy broken moped that was hit by a truck for $10.00. Over a few weeks, I fixed it up. I now had a moped for a fraction of the cost of buying a new one! Designing, building and testing new things was addicting to me. I couldn’t stop. At this point, I knew I needed to study mechanical engineering.

Reading became a big part of my life in university. During my childhood, I hardly read required readings. I dreaded it. Although university does not have much required readings, I simply started free reading. When people look at my bookcase and see the books I read, they look at me like I am a crazy person. Some titles include: *The Martian*, *Death by Black Hole, 2312, Welcome to the* Universe, A *Brief History of Time, Brave New World* and much more. If you are aware of any of these titles, they take the reader into a universe so vast that it is hard to comprehend. For most, it is scary to think of something so huge, complex and deadly. I see opportunity. I see an adventure waiting to happen. It empowers me to join the force for space exploration and be at the forefront of human adventure.

The USA and the rest of the world is currently at the tipping point of another ‘space race’ that will inevitably bring humans to new worlds. The challenges that face us is of monumental proportions. But when has challenges ever stopped the innate trait of exploration that all humans share. To begin, space exploration can be very expensive. One of the goals to make humans multi-planetary is to dumb down the cost to travel. We were in the habit of creating multi-billion-dollar devices and crashing them in oceans or land every time we use it. Why? Would we make an airplane’s fuselage and jet engines fail after every flight? Reusability is a major problem that needs to be solved to enable space exploration to be financially feasible. Long-term space travel could have extreme implications to the people traveling to worlds beyond low earth orbit. They would be exposed to the strong solar wind during their travels that would otherwise be blocked from the Earth’s magnetic field, like the ISS in low Earth orbit. We need to be able to protect our payload carrying explorers from this radiation because it can cause ionization of our cells that can cause extreme forms of cancer. Not to mention the psychological effects of traveling to unknown lands farther than any other human has travelled. After somehow landing on Mars, there are major problems that only human creativity can solve to make it habitable for us to live, if not thrive. When thinking of the major problems of living on Mars, two major categories arise, first being tough terrain. Mars is not only a red planet, but a dead one. It is arid, cold and extremely freezing with an average temperature far below the freezing point of water. Its atmosphere is almost 100 times less dense then ours and contains no oxygen. This forces us to wear space suits whenever walking around on the surface. The next major category is radiation. Mars has a very weak, if not non-existent, magnetic field. This has severe implications to surface radiation that make walking on the surface of Mars very dangerous, even in space suits. There will need to be extensive work in creating safe and sustainable structures that can sustain life within them.

What is so invigorating of the space industry is that some of the greatest challenges of humanity are in front of us. The problems listed above are core issues, but that is merely scratching the surface. There must be strides in propulsion, both in the atmosphere of planets and in the vacuum of space. I can’t help but smile when I realize that I have the power to join the ranks of the top engineers in the space industry and be able to help solve the problems that face humanity when we begin to become a true multi-planetary species.

Experiences that show aerospace as an enduring passion

Clearer statement on reading, made me transistion to astronomy and aerospace

Don’t list titles, pick one title and explain

Cut down on 3rd para when I am phisophical. More actual problem and connection to DoD facility

Make sure to run down Dod and how I am a good fit to specific facilities

Dod chapter 2 read and connect a few points