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AA136 Capstone

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Week 1 Assignment

I am a Senior, majoring in Aero Astro and minoring in CS. I am also a coterm in Aero Astro, and will be staying around next year to complete that program. I am studying this, and want to go into the aerospace industry, because of my lifelong interest in space exploration. It started far before I can even remember, but I know that it's been an obsession for me my whole life. I believe it's vitally important to the health of society that humanity has a frontier to explore, and in the absence of any remaining frontiers on this planet, we must look outward. I want the work that I do over the course of my lifetime to further this pursuit.

At Stanford, I've been heavily involved in the rocket team in SSI. My first year on campus, when I was a sophomore, I was the lead for the spaceshot team, a team attempting to cross the Karman line by launching a rocket from a balloon. Unfortunately, there were a number of technical challenges that resulted in the project being exchanged for another the following year. My Junior year, I was the structures lead for the Olympus team, the biprop rocket that had been in the works for a few years. We were able to finish the project out and launch the rocket by the end of Spring Quarter. This year, I am the controls team lead for project Fountainhopper, a hybrid powered rocket capable of landing itself at the end of its flight. I'm particularly excited about this role, as I hope to go into GNC in industry when I leave Stanford. Currently, we are building the gimbaling system and testing control methods in a simulator we built ourselves.

As far as industry experience goes, two summers ago I worked at Northrop as a mechanical engineer for their cryocooler team. I did not find this experience particularly rewarding. Last summer, I worked on the Falcon GNC team at SpaceX. I really enjoyed it, and will be returning this summer. The experience made me realize I am very interested in GNC, and it's what I want to focus my studies on in the next year and a half. While I feel like I have a solid understanding of orbital mechanics having taken AA279A and AA279B, I want to get more controls experience. I don't know if this class is the place to do this, but if there are opportunities for it, I will take them.

I am also excited to get hands on experience in this class. While I have hands on experience through SSI, the rockets team is very much student led and it has a big culture of figuring things out yourself. This is excellent for learning some things, but I am looking forward to having real instruction in hands on areas. I'm also looking forward to learning what the teaching team thinks is important to know in industry. I'm planning on going into industry after I leave Stanford, so I want to be prepared.

Overall, I am looking forward to the next two quarters in this class, and I am excited to learn what the teaching team has to teach!

- Aero Astro Senior
 - Cotermin
- Discuss my love for space exploration
- SSI work
 - Spaceshot
 - Olympus
 - Fountainhopper controls
- Industry
 - Northrop
 - SpaceX
- Goals for this class