Job Summary

A. Coop Work Assignment:
   1. Technical Functions: I was working on my own and was responsible for a number of tasks around the laboratory. I was given a number of projects which revolved around mechanical design, MATLAB coding and machining. These were all novel projects that would help with the research that was being done in the laboratory.
   2. Projects: The first project that I worked on was the automation of a valve that controlled a liquid helium cooling system. This project was quite successful and it provided greater control of the temperature than what was possible before. The second project that I am still working on is developing a high precision Niobium sample polishing machine. This requires some high precision machining and considerable designing prowess to complete. I am also working on fabricating temperature sensors that work around 1-4K and designing and fabricating a ribbon cable feed-through into a vacuum chamber.
   3. Training: I had to complete quite a few online training courses in safety before I was allowed to start working. I was also given a tour of the facilities and a basic orientation of the safety procedures that were specific to the areas that I would be working in. I was also given some basic machine shop training before I was allowed to start machining.
   4. Supervisor: Yes, my mentor was Mingqi Ge. He delegated projects and also gave me a lot of guidance in completing them. Most questions I had were answered by him. If he wasn't the most knowledgeable in the area, he would refer me to people in the facility that could help me with my problems.

B. Assessment of Learning and Development:
   1. Relevance to Education: The work that I do closely mirrors what I have learnt in class and goes beyond in introducing me to new areas of engineering. I have learnt a great deal about electrical engineering and computer science along with getting a chance to practice mechanical design and fabrication. Although my career interests are more geared towards aerospace engineering, this job gives a great platform to work from
   2. Professional Culture: I learned that it is OK to make some mistakes as long as you learn from them, which is something I was worried about. There are times where work can get a little slow, like when you are waiting for orders to be fulfilled and things like that. But it is important to use even the down time to work on something else, like documentation. Most of all, I learned that an engineering profession is exactly what I would like to follow.
   3. Professional Development: Although I wasn't directly involved in the research, it prompted me to try my hand at research with a professor next semester. It has opened my mind to the possibility of pursuing a PhD after graduation.
   4. Personal Development: The first few mistakes I made when I started working were all because I didn't take into account every possible problem that could emanate from mechanical design. For example, I didn't account for the vibration from the motor that
controlled the valve. This caused all the screws to fall off after a while. But I learnt from that and I was able to improve upon the design. That being said, I also learnt to take some calculated risks when dealing with the fabrication process.

5. **Anything I would change**: I don't think I would change much. Yes I made mistakes, but those were essential in the learning process. Maybe I would spend a little more time on documentation because when I would go back to refer to something I did earlier, I would not always have the information needed. But other than that, I wouldn't change anything.

C. **Life outside Coop**

1. **Housing**: This section is the least of your worries because you will still be living in Ithaca. Housing will depend on whether you want to live on-campus or off-campus. If you are living on campus and want to live on west you would have had to go through the housing lottery. If you are staying in a Co-op or a fraternity, those have their own processes. For off campus housing, in all probability you would have already had to sign a lease. I had decided to live off campus at the start of the previous academic year, so this was not even an issue for me.

2. **Transportation**: If you are living on-campus or in Collegetown, walking is the best way to go. It takes about 15-20 minutes to walk from Collegetown which isn't too bad.

3. **Social Activities**: You will have access to all the activities that you would normally do when you study at Cornell. It is a great experience to be living in Ithaca but not having any courses. All your weekends will be completely free and you can hang out with friends and have a good time. I spent a lot of my time working for my project team.

4. **Opportunities for Community service or Athletics by employer**: No, the employer didn't offer any opportunities for community service or athletics but that really wasn't something that I required. I spent my time as I would any other semester.

D. **Evaluation**

1. **Best Features**: Anything I designed and fabricated was immediately put to use. The valve automation system is currently being used and I got a lot of positive feedback about it from people who used it. There were a lot of people who were very willing to help out if you asked them. I was given a lot of free reign to do my own design. I was given the purpose that I was supposed to achieve and some recommendations for parts but other than that, I was responsible completely for the design. The hours I worked were also slightly flexible. I had to complete 40 hours a week and work during the weekdays but if I wanted to leave early, I could come in for work early to make up the time.

2. **Worst Features**: There wasn't anything that was really bad. The student machine shop wasn't the most equipped but if the machining was complicated, there was a whole professional machine shop in the building itself that could be used. The most unfortunate thing is that I don't completely understand the research that is done here. I understand the concept the reasoning behind it, but the physics is a lot more complicated. I don't work directly with it, so it doesn't matter much.
E. Additional Info

1. I will actually be continuing to work in this lab for pay next semester, while I take classes. This way I can continue on the projects that I am working on and I have a part time job for the semester. This is really helpful.