Co-Op Experience at Primet

My work experience this summer at Primet was invaluable to my understanding of the responsibilities and duties involved in the industrial world. I learned ways to upscale research findings to larger production. I learned to communicate well with vendors to establish both a relationship with the company and a reliable source for a service. And most importantly, I was able to assess my career goals and define what the corporate world is leaning toward in energy research.

Primet Precision Materials is a startup company here in Ithaca whose concentration is on nanotechnology and advanced materials. One goal I have is to identify the issues that startup companies come across mainly with organization procedures and leadership. I want to understand how a small company communicate and operate in its early stages. Primet gives me this exposure. I have a strong entrepreneur desire and it was great for me to work at Primet so I was able to witness all the struggles and hard work involved in starting up a business. I am able to witness how the technical team communicates with each member and how it communicates with the business team. I understand how dependent the teams are on each other.

One of the biggest skills I have developed during this term is the ability to organize data in spreadsheets. During the course of the summer I slowly used colors and bold borders to highlight certain fields. I know this will help me improve both how I collect data and how to present the data in a colorful and visual way.
My project is both intellectually provoking and challenging. I was assigned to work with vendors to establish a method to eliminate certain steps in creating a battery material to reduce costs and time. I truly enjoyed the experience and the process in completing the project. A major advantage in working at a small company is knowing that my work will ultimately impact where the company will head in the future. Any discovery or success I have is imperative to the company’s objectives and goals.

I am very fortunate to be given a project that is very relevant to my career goal. I have decided early on to study energy resources. My project on advanced battery material helps me understand what the demands are in the energy industry. I have the opportunity to assess my career goals and determine what energy field is interesting to me. I am glad this work term confirms my choice to study energy.

Primet Precision Materials has given me the opportunity to build confidence on my ability to operate in the corporate world. There was never a time when I feel completely lost because I knew someone around me would know something about my project. This experience was truly a privilege. I am privileged to be able to work on a challenging project that relates to my career path. I am privileged to work with intelligent and kind people who cared about my project.
Yi Quan Yang  
yy258  
Chemical Engineering  
Primet Precision Materials  
Fall 2008

Co-Op Experience at Primet

My work experience this Fall at Primet was invaluable to my understanding of the responsibilities and duties involved in the industrial world. I learned to adapt to the new environment and to apply my educational skills. And most importantly, I was able to assess my career goals and define my identity. This work experience was more of a privilege than an opportunity.

Primet Precision Materials is a startup company here in Ithaca whose concentration is on nanotechnology and advanced materials. One goal I have is to understand how a corporate company communicate and operate. Primet gives me this exposure. I am able to witness how the technical team communicates with each member and how it communicates with the business team. I understand how dependent the teams are on each other. The business side needs to understand the results from the technical team to make a presentation to sell and at the same time the business side tells the technical team to experiment with various variables to gain better understanding of their products.

One of the biggest adjustments I have to make is time management. As a typical student, waking up at 7 AM is not always the most joyful thing to do. To be honest, the few weeks were definitely difficult, but as time progressed, I managed to get used to waking up early. It is strange to be awake this early especially when I walk outside and see no one in the streets. After work I have time to talk with friends and do things that would never be possible over the
semester. I enjoy the relaxed life filled with badminton and tennis games with friends. This aspect of the Co-op is definitely a bonus on top of work.

My project is both intellectually provoking and challenging. I was assigned to work with synthesizing an advanced battery material using a new technique. I truly enjoyed the experience and process involved from day one. One huge advantage while working in a small company is the priority and the impact of my work to the company. Any discovery or success I have is imperative to the company’s objectives and goals. Collaboration is also a key advantage of working at Primet. Everyone on the technical and business teams knows what project I am working on. When I need help I can turn my head to my supervisor or the engineers right next to me. Because my project is something they are very familiar with, any questions are discussed fully and respectfully. As a consequence, one essential skill I learned is communication.

I am very fortunate to be given a project that is very relevant to my career goal. I have decided early on to study energy resources. My project on advanced battery material helps me understand what roles engineers have on the development of batteries and in the field of energy in general. I have the opportunity to assess my career goals and finally decide whether or not this career is right for me. This work term alone confirms my choice in my career. I know now that this career path is something I am willing to commit to and something I will enjoy in my entire life. I am glad to figure this out this early.

Another important lesson I get out of this Co-op is realizing who I am and what I am capable of. One fear I have is whether or not I will have enough skills to work on a project on a corporate scale where the tasks are harder and solutions are never complete. I learned that if I put work and commitment to a project I will be able to get some results. I am glad that Cornell has taught me to work hard. I also glad for my work experience at home at my restaurant where
the hours I put in there have helped me make the translation to this job much easier. I did not have to use much of my academic material to understand my project. The only ability of good use is the ability to read and process information from references and articles; and this is the one skill that I obtained from doing coursework. Most of college life is self study. I do not think any other preparation is needed except for commitment to put effort in whatever project that is on hand.

Primet Precision Materials has given me the opportunity to build confidence on my ability to operate in any situation. There was never a time when I feel completely lost because I knew someone around me would know something about my project. This experience is truly a privilege. I am privileged to be able to work on a challenging project that relates to my career path. I am privileged to work with intelligent and kind people who cared about my project. I am glad I can return next summer to start my second term.
This fall, I was a part of the Research and Development team at Primet Precision Materials. Primet is a small startup company made of less than twenty people total, so I had the opportunity to work directly with the scientists that conduct Primet's research. With a company of this size, every action is essential to moving the business forward. The company's size also gave me the advantage of seeing the results of my work take effect within weeks, and it allowed me freedoms I did not anticipate.

The first couple weeks, I started by learning as much about a particular topic as I could. I read books and papers for most of the day, and on the side I was taught how to operate lab equipment. I was introduced to some very useful philosophies about research and development by my supervisor, which I began to adopt as I learned. My assigned primary project was to solve a problem with a part of a particular process. This involved studying the physics and chemistry of the problem, coming up with a model for why the problem occurs, and then designing a machine to test the model I create. The final goal was of course to solve the problem, but my assignment was specifically to understand the problem and then use that knowledge to come up with a solution. About three weeks after I started, I was pulled to a more pressing project concerning an order for a customer. The challenge was to design and build a device that had never been built before and have it operational within the week. It was an incredible process to be a part of. I became an expert on the device's operation, and was able to knowledgeably and confidently suggest changes to the design for subsequent development. After that project settled down, I was able to return to my primary project. Much of the remainder of my time was spent working on the designs for my primary project and coming up with test plans and models for operation. During these projects, I assisted with other projects by operating lab equipment to run tests and reactions on material samples. I learned a lot about different lab devices, and though I am a Mechanical Engineer, I picked up a great interest in material science.

My experiences outside of work were probably atypical for the Co-op Program, as Primet is located in Ithaca and I was able to stay in the house I normally live in during the school year. My social life was pretty much what it would have been if I had been taking classes.

In all, I had a great experience at Primet. I got to know some great people who know a heck of a lot about materials, engineering, and business, and who were always willing to share everything they knew with me. I've been shown a new way to think and work. I've become addicted to research, and I have a whole gang of mentors and an exciting company to thank for it.
Wenying Wu
ww247@cornell.edu
Chemical Engineering
Primet Precision Materials, Inc.
Fall Term 2009

Job Summary

Primet Precision Materials, Inc. is a start-up company located in Ithaca, NY. The company recently began focusing on the advanced battery materials industry and has made amazing progress in the months during which I worked there. I started off in the R&D division of the company but eventually did much of my work in the production area of the company although my work was still considered part of an R&D project. On the first day of my job, I was given a tour of the facilities and introduced to all the employees. I also attended a press conference held for Congressman Maurice Hinchey, who was helping Primet secure some federal funds.

At the beginning of my first co-op term, I was assigned a project that would involve investigating industrial drying in order to obtain powder from a slurry solution. The dryer would eventually be incorporated into the company’s production process. I began this project by doing a lot of relevant journal article research and compiling a large amount of information into a mind-map. Once the equipment was ordered, I learned how to operate the device and started thinking of ways to test the apparatus in order to obtain a functional dryer.

Because Primet is relatively small and has probably fewer than twenty full-time employees, I came to know all the employees fairly well and could approach anyone with questions. The atmosphere was very relaxed and casual. Although I was given a specific project, I was allowed to try any ideas I had and free to work at either of Primet’s two facilities and also Cornell University. I also traveled to Elmira to visit another company who was helping me on my project. I met many people from various backgrounds and levels of experience, and I even spoke with the investors who came through the company for Due Diligence.

I was not assigned a specific mentor, but I worked closely with my boss on my project and reported all my progress to him. My boss, who is the founder of Primet, an entrepreneur, and an innovator, often gave me suggestions or ideas to further my work and move me along on my project. Aside from my main project, I also ran x-ray scans on samples for my co-workers, and I did some work on a marketing assignment for the CEO.

I was the only chemical engineer at Primet, but I later worked with a chemical engineer from a design and manufacturing company who was helping us re-engineer our equipment for an industrial dryer. In the beginning of the term, I was able to use some knowledge from my Heat and Mass Transfer course to research evaporation during drying. Later on, my project became more mechanical and I did a lot more physical work, learning how to use tools and operate machinery.

Primet is located right in Ithaca, a convenient location for a Cornell student. I moved into my apartment over the summer during the summer session and did not have to worry about relocating. To get to work, I drove a car, but previous co-ops have used the TCAT bus system or biked to work. If you needed to go somewhere and did not
drive, a co-worker was usually willing to lend you their car. I was still able to attend any social activities and participate in student organizations during my co-op term as I normally would while I was attending school during a regular semester.

The best aspect of working with Primet was the level of flexibility I had with my job. I was free to try anything as long as it would help me learn more about my project. Because the company was still fairly small, I gained insight to both the technical side and the business side of the company. However, getting work done was sometimes challenging in such a small company due to lack of resources. We often ran tests through other companies and hired fabricators and temporary operators from outside to help out. We also worked closely with Cornell University and used many of the university’s resources to obtain data and information. Overall, Primet can provide a very valuable co-op experience for a college student, and the student will be introduced to many different aspects (both technical and business) of the engineering industry.
Wenying Wu
ww247@cornell.edu
Chemical Engineering
Primet Precision Materials, Inc.
Summer Term 2010 (Term II)

Job Summary

Last fall, when I began my first co-op term at Primet Precision Materials, Inc., I worked with a piece of equipment that would become a key component of Primet’s manufacturing process for producing advanced lithium ion battery materials. When I returned to Primet in the summer, a prototype unit was already in place and processing material. My project for this term included developing a peripheral piece of this unit that would help move the system into the next phase. The unit I worked on was an innovative piece of technology that was thought up by my boss, the founder of the company. Because this unit is not used in industry, there is currently no literature on this device and no evidence that it will definitely work; it was my job to test the unit and collect information to decide if the concepts were even viable. Furthermore, because these concepts are not used in industry, the details of these technologies are strictly proprietary information. Unfortunately, because the company is small and every employee is fully occupied most of the time by various tasks, I did not have an assigned mentor or supervisor and received very little training or guidance. However, if I really needed help, I could ask anyone in the company and people were usually willing to share their thoughts.

The tasks I were assigned were not typical chemical engineering work, but once in a while my boss would ask me to calculate some numbers that required me to flip through my old textbooks. My project required me to think very differently about physiochemical concepts, which was oftentimes challenging. The organization of the company and the company’s practices differ greatly from those typically found in industry. However, the co-op experience at Primet taught me a lot about how companies need to function and what different aspects can make a company successful. I rarely had someone tell me exactly what to do, so I often needed to take the initiative. This meant that I had to think analytically and decide what experimental results I wanted and what instrumentation I needed; I would then call different companies and sales offices or search online for part numbers and quotes for different devices. Once in a while, I would need to build an apparatus myself instead of asking a professional fabricator to do it for me; this required me to learn how to use tools and various other pieces of equipment on the production floor.

One of the greatest advantages of working for Primet was that the company is located right in Ithaca, across the street from Ithaca College. I lived in the same apartment I was renting throughout the academic year and met up with the same friends I typically see while school is in session. Various events and festivals are also held in the Ithaca and Finger Lakes region throughout the summer, so there are plenty of opportunities to go out and have fun. I also went to a few of the local parks, including Ithaca Falls, Taughannock Falls, and Stewart Park, with friends on the weekends. Having a car definitely made these trips more convenient and also made getting to work every morning easier, although previous co-ops have traveled to work by bus, bike, or even by
The most challenging aspects of my co-op experience involved the work itself. My project and tasks were very demanding at times, and I received little or no direction. Because there was such an urgent push for production of material before a specific shipment date, this often involved working overtime as well. However, the challenge really forced me to learn a broad set of skills, and the experience introduced me to all different aspects that make up a company.
Job Summary
Alan Argondizza (netID: ava7)
Mechanical Engineering
Primet Precision Materials
Summer Term 2010

Working at Primet has been great. However, it's a bit difficult to talk about what I worked on because much of it is proprietary. I worked mostly in the research and development department, but because Primet is a small company (approximately 20 people), I had to think about how my work was going to scale. I also actually participated in the scaling of the things I worked on in the research department. Thus, the title "research and development" is fairly loose. I was sometimes working shifts in production, running machines I helped create. The research Primet does is all brand-new and moves very fast. They research materials in the lithium-ion battery industry, though the implementation of this research often required development of new and non-standard machines, systems, and processes. I can't really get more specific without divulging too much information, but the bottom line is freedom. At Primet I had a lot of freedom to be involved in very new technologies and to work at the frontier of the lithium battery industry.

My work assignments were never: "oh well here's what the real employees do, and here's what the co-op students do." I had projects and I was pulled into things that were critical for making deadlines and making money.

As far as personal development goes, it's been a goal of mine to start companies for a while now, even before working at Primet, so seeing how a start-up functions was extremely valuable. On various occasions, I would meet with the CTO, the Vice President of Operations, and even the CEO. I got a good sense of the logistics and challenges that come with trying to take a technical product to market. It was as much a part of the job as the lab experiments were. As the company interacted with investors, I got to see how one might prepare for site visits and technology demonstrations. It's something I want to do in the future, and it's been very interesting to see it first-hand. I don't think I would have been able to get this experience working for another company.

Outside of co-op, life was good. I lived in Ithaca (where Primet is located) and I stayed at the apartment I'll be living in for the school year. I could bike to work every day. It was great to not have to look for housing remotely or last-minute, as I might have had to do if I worked elsewhere. It also means that I already had friends in the area. In all, the location was fantastic. If I were to do anything differently, I might have bought an air conditioner window unit.

If you get an offer from Primet, just say yes. It will challenge your mind, and you will be better for it. If you have any questions, just email me.
Job Summary

Ebrahim Rasromani
Engineering Physics
Primet Precision Materials
Fall 2010

I am Ebrahim Rasromani, a Cornell University majoring in Engineering Physics with a minor in Mechanical Engineering. I have just finished my first term of Co-op at Primet Precision Materials. Primet Precision Materials is a nanotechnology start-up company located in Ithaca, specialized in developing nano-powders for the lithium-battery industry. It was an advantage for me to live in Ithaca. Housing was easy to find as I just lived in an apartment with my friends with a one year lease. In addition, due to the relatively small size of Ithaca, transportation was not much of an issue. Owning a car is not required. I biked to work every day, which was nice at first but tiring in the end. I would recommend looking into the TCAT bus system. There is a way to get to Primet Precision Materials, but one may need to transfer buses. In addition, Cornell’s facilities, like the library, greatly help me in completing my projects.

During my term at Primet Precision Materials, my main project was to design various furnaces. My first task was to identify the problems of a furnace prototype and redesign the prototype to solve those problems. Due to the company’s small size, everyone’s ideas and thoughts are heard and acknowledged, including the Co-op students. I presented an alternate furnace concept, which the company approved and went forward with it. I worked side-by-side a manufacturing and design company to aid in designing the furnace concept that I had developed. The initial concept was however discarded and replaced by another simpler concept. I spent the rest of my time helping design this furnace concept and refining it after it was built. I build a 1:1 scale model of the furnace with sheet metal, as to vary the furnace design parameters to find the optimal dimensions that yield the best powder flow. It is great to be working on leading edge technology as it challenges my mind’s creativity and problem solving skills. In addition, I get a chance to work with the brightest minds I have ever met. A start-up requires a highly skilled staff as to carry the company towards development and success. Not only that, but I also get a chance to work side-by-side with the founder of the company and the vice-president of manufacturing.

Apart from learning engineering and technical skills, I also got a chance to understand the way start-ups begin and develop into a large company with a manufacturing plant directly from the CEO of the company. The combination of engineering, communication, and management skills that I have learned throughout my first Co-op term is invaluable and I highly recommend the Co-op program to anyone considering it.
Job Summary

Primet Precision Materials is an entrepreneurial nanotechnology firm located in Ithaca. Our current focus is on producing advanced battery materials using our proprietary nanocollision technology.

My primary role at the company was as a characterization scientist in the R&D department. I was assigned a project at the beginning of the term that entailed developing a new characterization method for our product. There were certain criteria which had to be met with this procedure in order for it to be useful to the company. Most importantly, it would provide a method for characterizing our particles in-house and prevent the need for third parties. Additionally, it had to be inexpensive to implement, and require minimal technical education or training to operate.

In order to achieve these goals, I spent time both in the lab and at the computer optimizing the method. Once I had a standard method, I had to analyze the accuracy by comparing my results with data from other tests and by characterizing industry standards with my method. Finally, I had to write a report on the method I had developed as well as detailed instructions so that someone else could operate it.

One of the benefits of working in a small company was that I got to participate in all aspects of the company. In addition to my R&D project, I had many other responsibilities on a day-to-day basis including carrying out many different characterization procedures, helping production scientists, working with people to select and purchase new equipment, and working to make sure that all the information I gathered was adequately communicated. It was expected that I would be responsible and independent, and that I would make contributions wherever I could. I really enjoyed working under this mentality, as I felt that I both gave and received every day. I also was privileged enough to have a number of one-on-one conversations with our CEO and CTO, both of whom had many powerful insights to share with me. I learned about how to manage a business, how to innovate, and I even learned a little about funding an entrepreneurial company.

Prior to working at Primet, I had not had training in many of the techniques that I used. However, I found that I already knew much of the theory behind these techniques, and as such learned them relatively quickly. While the classes I have taken at Cornell proved very helpful in many areas of my work, I was also exposed to new things. If I ever had trouble, my supervisors (and really everyone in the company) were always more than willing to help and made me feel like a significant part of the team. And, I also became skilled at finding and reading scientific papers pertinent to my work, a faculty I know will be useful in all my future endeavors.

Overall, working at Primet was an incredible experience. Not only did I gain technical knowledge, but I learned a lot about business as well. I was trained in many standard techniques which will be useful for any job in the materials industry. I learned what it means to have deadlines, and saw some strategies for tackling unexpected events. I saw firsthand how priorities change daily, and learned to balance long-term projects with daily demands. I learned that my knowledge reaches a little further than I thought, but I also learned what resources there are when it doesn't reach quite far enough. My co-op experience at Primet has been an invaluable introduction into what an engineer really does in industry.