

Andrew Shoffstall
Biomedical Engineering
Fall 2006

The Cleveland Clinic
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JOB SUMMARY

A. Co-op Work Assignment

I began my co-op in the summer (2006) at The Lerner Research Institute (LRI, <http://www.lerner.ccf.org/>) of The Cleveland Clinic (CC), and continued throughout the fall semester. The Cleveland Clinic has a large campus of medical facilities on the eastside of Cleveland devoted to both research and treatment of patients. LRI is just a small fraction of The Cleveland Clinic's campus and its facilities are mainly involved with research as opposed to clinical treatment. I am funded by the National Science Foundation's "Research Experience for Undergraduates" (REU) program, and I work at LRI in the Biomedical Engineering Department under the guidance of Dr. Margot Damaser. Her research in urology focuses mainly on stress urinary incontinence: its pathophysiology, diagnosis, and treatment. I am supervised daily by the lab's Senior Biomedical Engineer Paul Zaszczurynski, and hold weekly meetings with Dr. Damaser to discuss my progress.

My main project was the development of a device to standardize an experiment commonly performed in Dr. Damaser's lab, the leak-point pressure (LPP) in a rat model. A power-point of my project can be viewed here: <http://www.lerner.ccf.org/bme/education/reu/nsf/projects/>. After the development of the device, it was my responsibility to bench-test to ensure safe functioning, and then perform experiments on rats to collect data. I then processed and analyzed the data using a program I constructed in Matlab. A professional biostatistician then performed statistical

analyses which I summarized in a manuscript. Currently, I am in the process of finalizing this manuscript so that it can be submitted to journals with hopes of having it published.

During the co-op, I received excellent training/knowledge from innumerable sources. My primary mentor, Dr. Damaser, set general goals for my project and allowed me to find a way to accomplish them. She was intensely involved with the experimental design, organization, and writing components of the project. Paul Zaszczurynski, my secondary mentor, was also intensely involved with this project and took me under his wing. He provided technical guidance along the way, while still allowing me to independently explore. I was able to approach both he and Dr. Damaser (as well as everyone else in the lab) to openly address any questions or difficulties I encountered.

B. Assessment of Learning and Development

This project definitely involved more electrical work than I had previously been exposed to. However, my experience on the Solar Decathlon controls team during my freshman greatly helped. Some of the controls programming I had performed on that project team were very similar to those I encountered at CC, so I feel as if I had a small head-start. From this co-op, I learned that Engineering is a field of constant growth and learning. Even Paul who has been an engineer his entire life is constantly learning new things and exploring new developments in technology.

Personally, I feel have grown much better at public communication and communication in general. As part of the requirements of the REU program, I gave multiple presentations to my

peers and mentors over the 6-month course. Looking back at my initial presentation which contained many “um’s” and “uh’s,” I would say my speaking skills have greatly improved. If I were to go through this experience again, I might try and take more advantage of the expertise surrounding me. I’m not sure when my next opportunity will exist to have so many contacts nearby that have practical working-knowledge of engineering applications.

C. Life Out-side of Co-op

Personally, I lived back at home with my parents who live 1 hour south of Cleveland. However, many of my peers in the program found housing at the nearby Case Western Reserve University. For people who prefer not to drive, it would be best to find housing near the Cleveland Clinic campus (perhaps Shaker Square).

Public transportation is somewhat horrendous in Cleveland, so a car would be helpful, though not required. Since CC is right next to CWRU and John Carroll University, there are plenty of opportunities to find college-age friends and social activities.

D. Evaluation

I could not be more pleased with my choice of co-op employers. The REU program at CC is definitely one of the best opportunities I have ever seen offered. One of the objectives of the six-month REU program at CC is for students to produce an article that can be submitted to a scientific journal. This is a great opportunity that not many undergraduates have the opportunity to do. However, projects vary enormously between any given mentor, so be sure you know what all is involved before you commit to one (ie: animal research, hours, expectations).

Signed:

Approved by:

Andrew Shoffstall

Margot Damaser Ph.D.

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