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Computer Science
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Hulu

I spent my Fall 2008 Co-op in West Los Angeles working at Hulu developing internal tools and working on exciting new media applications throughout my four months. I did not have any formal training during my first week, but I quickly learned about software development, the company, and the Hulu culture. Most of my development was done in actionscript, python, and C#. Although my focus for most of the time was on one application, my manager allowed me to work on three other projects, and with each one I learned something new. I was given all the responsibility and workload that I wanted, was able to work on projects of high importance to the company, and made big contributions in a short period of time.

The Hulu development team is full of recent college grads and experienced engineers. Each of them had helpful information to share about engineering, academics, and Computer Science. I was not assigned a mentor, but I did work very closely with a few individuals and absorbed as much knowledge from them as I could.

According to ComScore, Hulu's number of unique visitors increased 87% in October. The company has received a lot of praise in the past few months from weblogs like TechCrunch and magazines such as Wired. We were mentioned at the Emmy's by Tina Fey, and were ranked #4 on TIME's 50 Best Inventions 2008 list. Hulu also streamed the presidential debates live. Everyday something new and exciting is taking place.

Life outside of co-op

Hulu recommended some services to assist me in my housing search, so I was able to look around before I went out. Once I arrived, the company put me in a hotel for two weeks so that I had time to find a place. Housing can be quite expensive in West LA. I lived in Century City - just south of Beverly Hills, close to Hollywood, and only five miles away from the Santa Monica beaches.

Moving out to LA was a big change after living on the east coast all my life. Hulu helped out by paying for my roundtrip airfare. A car is not a necessity in LA (the bus system and taxi services are very
reliable), but I would recommend anyone coming out here to have one. With so much to do in LA, it's good to have an easy way to explore the area.

Every other week at Hulu, the company has a wind down. A wind down is a social gathering in the workplace that brings together people from every division of the company. These are great opportunities to meet new people in the company or just relax with those you work with. Wind downs are also used to acknowledge recent accomplishments of individuals or the company.

There is so much going on outside of work as well. No matter what kind of music you're into, you can find concerts everywhere from local clubs to big studios. There is plenty to see and do in the city, in Hollywood, or along the beach, with shopping and food everywhere you look. LA offers a very diverse cultural culinary experience (Indian, Japanese, Korean, Mexican, Chinese, and anything else you can think of). If this wasn't enough, there are many unbelievable taco trucks scattered throughout the city that are perfect for quick, tasty lunches or a late night snack.

Hulu is a technology company, but we work very closely with our content partners and form strong relationships. This certainly has benefits. The entire company was invited onto the Sony lot for a sneak preview of Quantum of Solace a week before it came out in theaters.

The company offers a discount for memberships at the gym right next door and some people take part in local sports leagues. I was also able to go surfing for the first time ever (anyone who moves out here should give it a try).

Evaluation

I could not have been happier with my choice of Hulu for my Co-op and look forward to coming back out next summer. It was exciting to work in an environment that is rapidly growing alongside fellow employees who are friendly, smart, and driven. I enjoyed working at a small company, and even as an intern I was able to make big contributions and was given a lot of responsibility. I would recommend all future Co-op students to consider Hulu when searching for their job.
I returned to Hulu in Los Angeles for the second term of my engineering co-op. The summer started off in a very exciting way with the beta release of HuluDesktop, which I had spent a majority of my first work term developing. During my second term, I worked on many more exciting projects.

I worked on three major projects this summer. The first was a job dispatching and management system. Jobs are submitted by multiple services and added to a queue. The system keeps track of a set of machines that can run these jobs and places them in a way that maximizes throughput while allowing users (usually Quality Control) to specifically control which jobs are run when necessary. This control takes place through a console application developed with flex and python. Another project was a new client application that helps content partners submit accurate data with the videos they upload. This process makes it easier for content partners to get their content on our site, and helps us keep accurate data in our system. For the third project, I was able to put to use my recent flex experience and begin structuring and building a fully featured content management system.

I worked directly under the supervision of the VP of technology. Through code reviews and weekly meetings I was able to greatly develop as a developer and engineer during my internships.

I was able to apply lessons learned in my last two semesters directly into my projects. One course that was especially helpful was Operating Systems where we learned about developing multithreaded applications. Analysis of Algorithms was also a very worthwhile class because we learned how to write space and time efficient algorithms.

I learned even more about the structure of systems throughout the company in my second term at Hulu and became much more aware of the code I write through reviews. Working in a fast-moving development team taught me a lot about my strengths, weaknesses, and I took away from the experience specific issues that I need to focus on to become a more efficient developer and how to better communicate ideas with coworkers.
Life outside of co-op

I was much more prepared to find housing and get situated my second time moving out to LA. A coworker was even generous enough to share his apartment until I found a more permanent residence. I decided to stay in Westwood, just outside of UCLA’s campus, which allowed me to save a lot of money over the summer. This put shops, restaurants, and other students within walking distance.

Hulu provided compensation for moving expenses that allowed me to quickly pay my rent and purchase a bike for getting around. I rode to and from work every day and I would recommend a bike to anyone who moves out there. Although the company is quickly growing, they continue their traditional bi-weekly wind downs; social gatherings in the workplace that bring together people from every division of the company which makes it easy to meet new people.

I took advantage of LA’s sun, food, and music as often as possible. During my two month stay, it did not rain once. One weekend, a few of us drove to Angeles National Park and went on an exciting 11-mile hike above the clouds. Another weekend, Los Angeles hosted one of the largest dance and electronic music festivals in the country. And every weekend was perfect for a long day at the beach.

I took advantage of the gym (right next door to work) over the summer which turned out to be a great way to wake up in the morning or relax after a long day.

Evaluation

I could not have been happier with my choice of Hulu for my Co-op and, while I am considering all options for my post-graduation plans, there is a very good chance I’ll decide to go back out the Los Angeles. I don’t feel it would be possible to find an environment as unique, hardworking, and fun as Hulu. I would recommend all future Co-op students to consider Hulu when searching for their co-op job.
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Summarizing my experience in Los Angeles this semester properly is quite the challenge but I will endeavor to come reasonably close to the mark in the space I have here. Some discussion will be most useful to other students considering a co-op in the field of computer science/software engineering but I hope most of the things I have learned can be extrapolated to other fields without too much work. For the purpose of weighing aspects of the co-op experience against each other, I would note that I have felt the job and the people you work with are considerably more important than other factors such as location and accommodations. One qualification before beginning: this discussion is limited to my experiences and the multitude of factors that shaped my time here will undoubtedly vary substantially from person to person.

My role on the Hulu team was a programmer. As an intern I was not affiliated with a specific sub-team but worked on many different projects throughout the year. Upon arriving I was given a brief introduction to the team and then my first project. That first day I began work on Hulu's Facebook applications for TV's fall premieres. I had never done any web development so there was a lot of things to learn quickly but I had a lot of help and we got the product out on time. After that initial dash things settled down a little; I had my bearings and felt more comfortable. I attended a more formal orientation and got a better idea of the company's culture. I was assigned a mentor who definitely was a huge help but was fortunate also to find all of my co-workers willing to help. This openness is one of the benefits of working for a small startup; the power structure is still relatively flat and the employees are personally invested in the company. While starting so quickly was stressful, I think hitting the ground running helped break any ice and made sure I would be able to get the most out of my limited time this fall.

As I mentioned before there were technical aspects of the job I was unprepared for. A class in
web development would have helped but every organization and field has its own vocabulary and specialized knowledge base so it is likely there will be a learning curve at any business. What ended up being most important to me in catching up was the problem solving skills and study habits necessary to perform well academically. My experiences taught me there were many things that are more important than raw technical knowhow. Specifically I found my role as an engineer required me to serve as a translator of sorts, converting real world ideas, problems, and requirements into digital realities. One of the most challenging aspects of this was balancing what I was able to do in a reasonable amount of time with the technology and what would be ideal from a business point of view. Engineers’ time is a valuable resource for any company and so I had to learn to solve the problem well in a day rather than perfectly in a week.

Changing gears, I found housing through a listing service membership provided by Hulu. Although picking a place in an area I was totally unfamiliar with was a challenge, my housing situation worked out well. Transportation was a little bit more difficult; mostly for economic reasons I choose not to have a car in Los Angeles. While I was able to find convenient bus routes to take me to and from work, the public transportation system in Los Angeles suffers from having to cover the immense sprawl of the city. This meant doing things like going to a concert, seeing the museums, or attending a sporting event had to be planned far in advance and this kept me close to home much of the time. While the expense of having a car may still outweigh these problems, your transportation situation will dictate in a large part what you are able to do so it is important to plan ahead. Getting rides from friends can work in a pinch but shouldn’t be your first plan.

The best things about working for Hulu have to be working with a team of people who are personally invested in the fate of the company, doing work that has an immediate impact, and being on the front lines of a shift in the industry. If I could do it again I would be quicker to ask questions and more open to taking chances. When I return to Cornell I will have a new perspective that I believe will help me get more out of my classes. The past fifteen weeks have gone by quickly but I doubt I could
have learned more anywhere else.
Job Summary

After the great experience I had in the fall of 2010 with Hulu, I entered this summer with high hopes and I have to say I was not disappointed. When I started the process well over a year ago I could not have written a happier ending. To be quite frank, I have thoroughly enjoyed my time here in Los Angeles and am excited for what the future will bring. I plan to discuss several aspects of my time here in this summary and, while some of it will be technical, I will start with some general remarks hopefully applicable to more than just other computer science majors.

This summer I was fortunate enough to be able to room with a co-worker with whom I had become friends last fall. This reduced my rent and also helped ensure I would not have roommate issues. We lived about a mile from the Hulu offices so I could walk in a pinch. Most of the time however, I rode the bike that Hulu provided me for the summer. Last fall I had lived significantly farther away and had not had the bike which, needless to say, made it more difficult to explore the area. While in some cities having a method of transportation in addition to public transportation is unnecessary, I have found that this is not the case for Los Angeles. Having a bike made a dramatic difference in my experience as I was able to explore more of the wonderful things the area has to offer.

While the bike definitely helped me see the sights and sounds; the intern events were more helpful. Hulu planned and funded intern events that ranged from a day at the beach to a paint ball competition. The other interns and I (there were about 10 of us) had one of these almost every other weekend. Hanging out with your co-workers in a relaxed environment really helped me feel comfortable approaching them during the week and also was a great excuse to have some fun. Besides the scheduled intern events I also was a member of the Hulu soccer team. We played every Tuesday and I looked forward to it every week. It really is a wonderful experience to be playing a sport with your boss’s boss and feel like teammates. These outside-of-work interactions were crucial in helping me develop profession relationships that greatly assisted my efforts this summer.

This summer I worked on the devices team at Hulu, specifically the team that is bringing the Hulu Plus service to many different TV’s, gaming consoles, and Blu-ray players. My first project was joining the sub-team that was preparing the Samsung and PS3 applications for the beta launch. The applications were written in JavaScript, a language I was familiar with from my previous Co-op term. Some of my major contributions to the project included finalizing the
login flow, reworking the onscreen keyboard, setting up the video quality selection interface, and improving the loading speed of playlists. Another major responsibility I had was the investigation into lower powered Blu-ray players and what, if anything, could be done to support them. Finally, I also helped to provide a quick response time during the QA iterations with Samsung. I was able to contribute to the team by seeking feedback from my co-workers and discussing plans for further development. Code reviews were important as well as informal meetings where we could share ideas and synchronize our efforts. Throughout it all I learned the importance of a good bug tracking system and the benefits of having a record of development iterations. In addition, I began to understand best practices when working within a constrained environment and how to ensure the final product is stable and extendable. Finally, I was able to see how a QA process with an outside company works with the accommodations and dialog that need to take place.

The second half of the term was spent working on another application designed for internet enabled televisions and Blu-rays. This involved building a web-server to server XML responses to the client devices. Python was used to implement the server, another language I had become familiar with last fall. I leveraged my experience from the JavaScript application and the design patterns I had learned to lay the foundation for the server and then used weekly code reviews and more frequent informal meetings to refine/refactor the design. As the project began to take shape I learned that reading documentation cannot substitute for contact with the engineers who designed/are working with the system. I also learned about the complicated methods used to protect the copyright of the premium content we deliver. Finally, I came to a better understanding of the principles necessary to organize a large piece of code. I was pleasantly surprised that Hulu would trust a project like this to an intern and felt the responsibility helped motivate me and encouraged me to perform at a high level.

In closing, I will relay one experience which says a lot about the people who work here and the experience I had. When Hulu Plus was about ready to go public the idea was tossed around to create a seven segment counter which would display the number of subscribers we had at present. One of the other interns at Hulu had taken responsibility for this project and asked me to help. We managed to finish the circuitry and code required in one night and I learned more about circuit design than I had in many entry level classes. Having the display up and running was very satisfying and our co-workers were pleased to see the fruits of their labor. That fact that we were allowed, encouraged, and funded during this extra project, which was outside of our fields of study, and the rewarding experience it became speak volumes for the experience I and the other interns had this summer. If you are reading this and thinking about a Co-op yourself and have any questions about my experiences please feel free to contact me. Thank you for your time.
Technology drives Hulu. From solving web scalability issues to efficiently transcoding thousands of videos, Hulu relies on software engineering as the backbone of the company. The diversity of Hulu’s technological components made working on the developer team so interesting. Even though Hulu is only three years old, each piece of the team is mature enough for a production environment; accordingly, the pace of work is fast. I can honestly say that I was excited to come into work each day.

This past summer, I worked on the reporting and metrics team. Our group developed the infrastructure to build reports for the finance department and audience & technology research groups to analyze the site’s performance and user base. We leverage the data-based metrics that we collect to decide new site features, examine revenue streams, and make other business decisions.

Little "official" training was provided; on my first day of work, I had to build my own machine and was quickly immersed in all parts of a multifaceted workflow. However, I had excellent support from my co-workers, who happily fielded all questions, and my mentor, who provided guidance and direction. Generally, I first tried to overcome any challenges on my own before asking for help. While at times difficult, this approach made me more intimately familiar with the details of our infrastructure.

Throughout this term, I worked closely with Hadoop, an open-source framework for distributed computing that uses the map/reduce paradigm taught in CS 3110 (Functional Programming). I utilized the Hadoop stack, including HDFS, a distributed filesystem, and HBase, a NoSQL key/value store, to write reports for other teams in the company. Moreover, I helped improve the efficiency of our Hadoop cluster.

Hulu afforded me the opportunity to research many other technologies for our team to potentially leverage. Because we deal with so much data, we need to scale our processing linearly.
There exist many open-source solutions for "big data" and scalability other than Hadoop, and I explored these options. I attended the Hadoop Summit hosted by Yahoo! in Santa Clara. There, I learned about cutting-edge scalability software stacks and interacted with people on the forefront of the field. The conference was also a valuable experience in talking with other professionals.

Hulu takes pride in its well-defined culture, summarized as "work hard, play hard." I wore jeans, a t-shirt, and sandals to work most days. The hours for a developer are highly flexible, and they fit into a very comfortable sleep schedule. Also, I got to take advantage of Hulu's fully stocked kitchen and ate breakfast at work. The easy-going culture definitely made work stimulating and enjoyable, as everyone is easily approachable and always eager to help. In a sense, there is no hierarchy of positions; all employees are on the same level. Even our CEO sits in the same space as the rest of us. As an intern, I was given the full responsibilities, privileges, and development input of a full-time employee.

Hulu also exposed me to all aspects of the company. They set up an orientation for the interns in which various heads of departments spoke about the challenges they face and candidly answered all questions. The session helped tie together the roles of company and clarified the business model by demonstrating how each team relates to a revenue stream. In addition, through my work on the reporting team, I interacted with other teams and saw how the business side relied on technology. At the end of the summer, I presented my summer projects separately to the executives of the company (including the CEO, CFO, and a few Senior Vice Presidents) and the developer team. It was a great exercise in communicating differently to distinct audiences. To the executives, I gave a much higher-level, business oriented presentation, focusing on the value I added to the company. To the developers, I delved into the technical details of how we deal with scalability in processing big data and mass deployment to a cluster.

Life outside of Hulu was equally enjoyable. Los Angeles is a big city that's difficult to navigate without a vehicle of your own. Hulu provided me with a bike, which is great for a trip to the beach or
the commute to work, but it does no justice to the city. I am lucky enough to have lots of family within two hours of here, and my uncle lent me a car for the term. A vehicle made LA highly accessible and made exploring a possibility, and I have definitely seen all attractions for those under twenty-one.

For housing, Hulu put me in contact with three (out of eight) other interns via email a month before my first term started. We looked for subleases on Craigslist, and my uncle visited a few places for us. We found a two bedroom and two bathroom apartment for the four of us. Although it was relatively expensive and crowded, it was located in Westwood, the Collegetown of UCLA. There was little free time after work that I spent on the phone or on Facebook, but on weekends I explored LA, learned how to cook, went to concerts, and visited my family. Many bands come out to LA and there are a plethora of venues, but sometimes finding people to accompany you is difficult. Every other weekend, Hulu sponsored an event for the interns and developers. We saw the Griffith Observatory, had a barbecue, went to the beach, saw a concert at the Hollywood Bowl, spent a day at Universal Studios, and went paintballing. These activities helped integrate us better with the developer team and company as a whole.

This summer was my first co-op term, and I'm continuing straight into the Fall (i.e., back-to-back co-op terms). In the Fall, I will be continuing some of my summer projects and actually utilizing the infrastructure that I helped develop. If you decide to take this route and have no intervening period of classes, I recommend that you take CS 4820 (Algorithms) and CS 3410 (Computer Organization) in the Spring before your co-op. While these courses do not require coding, they immensely improve your ability to understand code and engage in conversation with other developers. For example, I ran into an NP-complete problem on the job, talked about dynamic programming with my co-workers, and ran into all sorts of memory or cycle sensitive code. Finally, get familiar with Unix environments and working with a terminal. Though you will probably learn everything you need on the job, it will help ease the initial learning curve.